

sasol
reaching new frontiers



Excipients for pharmaceuticals

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Abbreviations:

BP	= British Pharmacopoeia
CFR	= Code of Federal Regulations
DAB	= Deutsches Arzneibuch
DMF	= Drug Master File
GRAS	= Generally Recognized As Safe
JCIC	= Japanese Cosmetic Ingredients Codex
JPE	= Japanese Pharmaceutical Excipients
Ph. Eur.	= European Pharmacopoeia
USP(-NF)	= United States Pharmacopoeia(-National Formulary)

Foreword

Sasol is an integrated oil and gas group with substantial chemical interests. Based in South Africa and operating in 15 other countries throughout the world, we bring 50 years of unparalleled experience of producing and marketing a wide range of chemicals.

Through our Olefins & Surfactants division we have a worldwide reputation as a leading supplier and manufacturer of alcohols, surfactants and detergent raw materials such as linear alkylbenzenes and paraffins—with production sites in Germany, Italy, USA, China, Dubai and South Africa.

Our products are based on natural fats and oils which are renewable resources characterized by their compatibility with the environment. The high quality standards of our products are continually being improved both by scientific cooperation with you and by compliance with international quality standards.

Please put your questions to us. Our experienced staff will gladly advise and assist you.



Liquid lipids

Liquid lipids are fatty acid esters or alcohols (2-Octyldodecanol). They are neutral carriers for various pharmaceutical applications.

Because of their high polarity, they have superior solvent characteristics for active drugs (compared to hydrocarbons).

Product	Chemical description/INCI name	Listed in
C₈ / C₁₀ Esters		
MIGLYOL 808	Tricaprylin	Ph. Eur., USP-NF, JPE
MIGLYOL 810	Caprylic / Capric Triglyceride	Ph. Eur., USP-NF, JPE, DMF
MIGLYOL 812	Caprylic / Capric Triglyceride	Ph. Eur., USP-NF, JPE, DMF
MIGLYOL 818	Caprylic / Capric / Linoleic Triglyceride	—
MIGLYOL 829	Caprylic / Capric / Succinic Triglyceride	JCIC, DMF
MIGLYOL 8108	Caprylic / Capric Triglyceride	Ph. Eur., USP-NF, JPE
MIGLYOL 840	Propylene Glycol Dicaprylate / Dicaprate	Ph. Eur., JCIC, USP-NF
MIGLYOL 8810	Butylene Glycol Dicaprylate / Dicaprate	—
DYNACET 285	Diacetylated Monoglycerides	21 CFR §172.828
Other Esters		
DYNACERIN 660	Oleyl Erucate	JCIC
DYNACERIN CAP	Cetearyl Ethylhexanoate (and) Isopropylmyristate	—
DYNACERIN DO	Decyloleate	Ph. Eur.
MIGLYOL 612	Glyceryl Trihexanoate	—
SOFTISAN 645	Bis-Diglyceryl Polyacyladipate-1	JCIC
SOFTISAN 649	Bis-Diglyceryl Polyacyladipate-2	JCIC, DMF
Spezialöl 107	Triheptanoin	—



Main characteristics

Appearance	Viscosity mPa·s 20° C	Properties and applications
oily liquid *	~ 23	Neutral, stable, penetration enhancer, drug carrier, dermal and oral use, solvent.
oily liquid *	~ 26	Neutral, stable, penetration enhancer, drug carrier, solvent, oral use, dermal use, i.v. applications.
oily liquid *	~ 28	Neutral, stable, penetration enhancer, drug carrier, solvent, oral use, dermal use, i.v. applications.
oily liquid *	~ 33	Neutral, penetration enhancer, drug carrier, oral use, dermal use, solvent, partially unsaturated.
oily liquid *	~ 300	Neutral, stable, oil of high viscosity, based on MCT and succinic acid.
oily liquid *	~ 25	Neutral, stable, penetration enhancer, drug carrier, dermal and oral use, solvent.
oily liquid *	~ 10	Neutral, stable, oil of low viscosity, dermal use, i.m. in veterinary preparations.
oily liquid *	~ 11	Neutral, stable, penetration enhancer, drug carrier, dermal use, solvent.
oily liquid *	~ 30	Food grade softener, plasticiser and solvent. Stable polaric oil.
oily liquid, light yellowish	~ 30	Unsaturated wax ester, dermal use, similar to Jojoba oil.
oily liquid *	~ 13	Liquid wax, stable, excellent spreading properties, dermal use.
oily liquid *	~ 18	Liquid wax, unsaturated. Petrolatum substitute in pomades.
oily liquid *	~ 15	Neutral, stable, penetration enhancer, solvent, oral use.
yellowish thin liquid syrup	~ 6,000	Liquid lanolin substitute, emollient, high water binding capacity, good adhesion to skin, non-occlusive.
sticky paste	~ 540 at 50° C	Semisolid lanolin substitute, emollient, high water binding capacity, good adhesion to skin, non-occlusive.
oily liquid *	~ 20	Neutral, stable, penetration enhancer, solvent, dermal applications.

* Almost colourless and odourless.

Solid triglycerides

Apart from suppository manufacturing, solid triglycerides (hard fats) are used as carriers in capsule fillings, inlets, ointments and creams and in dental products. They also act as surface treatment and binder in tablets.

Solid triglycerides are manufactured through direct esterification of glycerol with defined fatty acid blends and have therefore precise properties regarding melting point, polarity (Hydroxyl Value) and consistency.

Being glycerol esters of edible fatty acids, they are classified as food additives.

Product	Chemical description/INCI name	Listed in
Hard fat suppository bases		
WITEPSOL H 5	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL H 12	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL H 15	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL H 19	Hydrogenated Coco-Glycerides + Glyceryl Ricinoleate**	—
WITEPSOL H 185	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL H 32	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL H 35	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL H 37	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL W 25	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL W 31	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL W 32	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL W 35	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL W 45	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE, DMF
WITEPSOL S 51	Hydrogenated Coco-Glycerides + Ceteareth-25 + Glyceryl Ricinoleate**	—
WITEPSOL S 55*	Hydrogenated Coco-Glycerides + Ceteareth-25 + Bees Wax	USP-NF, Ph. Eur. *, DMF
WITEPSOL S 58	Hydrogenated Coco-Glycerides + Ceteareth-25 + Glyceryl Ricinoleate**	—

* Compound, single components Ph. Eur. + USP-NF.

** Compounds contain unsaturated components, interactions with oxygen must be considered.



All suppository hard fats have a low content of short chain fatty acids (C_8/C_{10}), convenient for improved application. The solid fat index curve is very stable. Hence WITEPSOLs are still solid and applicable, even a few degrees below melting point. EXCEPTION: the more soft adjusted WITEPSOL H 35.

Important selection criteria are melting point and hydroxyl value. During formulation developments the tendency of the post-hardening effect should be observed. Our technical application department in Witten will be glad to advise you.

Main characteristics

Melting point ° C	Hydroxyl value mg KOH/g	Properties and applications
34.0 to 36.0	max. 5	WITEPSOL H grades are hard fats with a low hydroxyl value of max. 15. They comprise mainly triglycerides with proportions of max. 15 % of diglycerides and max. 1 % of monoglycerides.
32.0 to 33.5	5 to 15	
33.5 to 35.5	5 to 15	
33.5 to 35.5	20 to 30	
38.0 to 39.0	5 to 15	They are characterized by a short gap between melting and solidification temperatures, showing a low tendency of post-hardening.
31.0 to 33.0	max. 3	
33.5 to 35.5	max. 3	Shock cooling should be avoided because of their brittleness.
36.0 to 38.0	max. 3	
33.5 to 35.5	20 to 30	WITEPSOL W grades are hard fats with hydroxyl values between 20–50. They comprise a mixture of 65–80 % of triglycerides, 10–35 % of diglycerides and 1–5 % of monoglycerides. (Correspondingly they have a wider gap between melting and solidification temperatures and are therefore more insensitive (elastic) to shock cooling.) They solidify more slowly. The amount of partial glycerides delays the sedimentation of solid active ingredients and promotes wetting of mucous membranes.
35.5 to 37.0	25 to 35	
32.0 to 33.5	40 to 50	
33.5 to 35.5	40 to 50	
33.5 to 35.5	40 to 50	
30.0 to 32.0	55 to 70	WITEPSOL S grades contain special additives. They are suitable for manufacturing vaginal and rectal preparations, requiring a more intensive wetting of mucosae, a greater dispersability or an enhanced absorption. They all contain an ethoxylated emulsifier (Ph. Eur.) which makes them suitable for use in aqueous or ethanolic / aqueous active ingredients (emulsion suppositories).
ca. 35***	50 to 65	
31.5 to 33.0	60 to 70	

*** Due to additive bees wax, determination of solidification point is recommended.

Solid triglycerides *(continued)*

Product	Chemical description/INCI name	Listed in
Hard fat suppository bases		
WITEPSOL E 75*	Hydrogenated Coco-Glycerides + Bees Wax	USP-NF, Ph. Eur. *
WITEPSOL E 76	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE
WITEPSOL E 85	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur., JPE
MASSA ESTARINUM 299	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur.
MASSA ESTARINUM B	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur.
MASSA ESTARINUM BC*	Hydrogenated Coco-Glycerides + Glyceryl Ricinoleate**	—
MASSA ESTARINUM C	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur.*
MASSA ESTARINUM E*	Hydrogenated Coco-Glycerides + Cetareth-25 + Bees Wax	—
SOFTISAN 378	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur. JCIC, DMF
Solid Wax Esters ¹⁾		
DYNACERIN CP	Cetyl Palmitate	USP-NF, Ph. Eur. JCIC
Triglycerides with Melting Point above Body Temperature		
DYNASAN 114	Trimyristin	—
DYNASAN 118	Tristearin	21 CFR §172.811 JCIC
DYNASAN P 60	Hydrogenated Palm Oil	USP-NF
SOFTISAN 154	Hydrogenated Palm Oil	—
WITOCAN 42/44	Hydrogenated Coco-Glycerides	USP-NF, Ph. Eur.

* Compound, Single Products Ph. Eur. + USP-NF.

** Compounds contain unsaturated components, interactions with oxygen must be considered.

¹⁾ Other wax esters on request, please also see "solid alcohols".



Main characteristics

Melting point ° C	Hydroxyl value mg KOH/g	Properties and applications
ca. 38***	max. 15	WITEPSOL E grades are hard fats with a melting range above body temperature. They can be used to raise the melting point in case of active ingredients that decrease the melting point.
37.0 to 39.0	30 to 40	
42.0 to 44.0	5 to 15	
33.5 to 35.5	max. 2	Suppositories, see WITEPSOLS.
33.5 to 35.5	20 to 30	
33.5 to 35.5	30 to 40	
36.0 to 38.0	20 to 30	
ca. 34 to 36***	45 to 60	
~ 30	7 to 17	Hard fat with softer consistency, similar to natural lard, but stable, odourless, emollient in creams, capsule filling mass.
~ 50	max. 6	Stable waxy ester, replacement for natural spermaceti, consistency agent in creams, for coating, sustained release.
55 to 58		DYNASAN grades are suitable for tablet manufacturing as a lubricant. The stable β -modification of these fats shows a sharp melting point. Suitable in suppositories and vaginal ovules as crystallization accelerators and seeding agents.
70 to 74		
58 to 62	max. 10	Palmitic / stearic triglycerides, similar to hydrogenated vegetable oil, USP – type I.
53 to 58	max. 10	
42 to 44	max. 15	Consistency agent, coating, sustained release.

*** Due to additive bees wax determination of solidification point is recommended.

Partial triglycerides

Partial glycerides are esters of glycerol with fatty acids, whereby only a part of the existing hydroxyl groups are esterified. Some hydroxyl groups within the glycerol ester are free con-

tributing to the polaric properties of the material. Short chain partial glycerides are more polaric and have excellent solvent properties for many hard-to-solubilize drugs.

Product	Chemical description/INCI name	Listed in
Glycerol Monostearates (GMS)		
IMWITOR 491	Glyceryl Monostearate	USP*-NF
IMWITOR 900 K	Glyceryl Stearate	Ph. Eur., type II, JCIC, USP-NF
IMWITOR 900 P	Glyceryl Stearate	Ph. Eur., type I, JCIC, USP-NF
IMWITOR 960 K	Glyceryl Stearate SE	BP, JCIC
Short Chain Partial Glycerides		
IMWITOR 642	Glyceryl Mono-, Di-, Tri - Hexanoate	USP*-NF
IMWITOR 742	Caprylic / Capric Glycerides	DAB 1999, USP* -NF JCIC, DMF
IMWITOR 928	Glyceryl Cocoate	USP*-NF, JCIC
IMWITOR 988	Caprylic Glycerides	USP*-NF, JCIC
Unsaturated Partial Glycerides		
IMWITOR 948	Glyceryl Monooleate	Ph. Eur., USP-NF
SOFTIGEN 701	Glyceryl Ricinoleate**	JCIC

* USP-NF: "Mono- and Diglycerides"

Fatty acids from edible oils

Direct food additives affirmed

GRAS = Generally Recognized As Safe

CFR 21 §184.1505

** Compounds contain unsaturated components, interactions with oxygen must be considered.

Main characteristics

Appearance	Melting point ° C	Content of mono glycerides	Properties and applications
off-white powder	66 to 77	> 90 %	Lipophilic matrix for oral solid dosage forms (granulation, hot melt technique). Tablet lubricant, emulsion stabilizer, dispersing agent for pigments. Self-emulsifying GMS containing sodium stearate.
off-white powder	54 to 64	40 to 55 %	
off-white powder	54 to 64	40 to 55 %	
off-white powder	56 to 61	> 30 %	
clear, oily liquid	—	45 to 55 %	Excellent solvent for active ingredients.
clear, oily liquid	solid at 20° C	45 to 55 %	Penetration enhancer, solvent, defoaming agent in effervescent tablets.
white, similar to hard fat	33.5 to 35.5	40 to 55 %	Dispersing agent of solids and oils, solubilizer in suppositories.
clear, oily liquid	semi solid	45 to 55 %	Penetration enhancer, solvent.
yellowish liquid	liquid	> 40 %	W/O emulsifier, O/W stabilizer, forms gels in excess water.
yellowish liquid	liquid	> 40 %	Emulsifier and stabilizer, high water binding capacity, protects irritated skin, used in vaginal products.



Emulsifiers

Product	Chemical description/INCI name	Listed in
W/O Emulsifiers (see also partial glycerides)		
IMWITOR 600	Polyglyceryl-3 Polyricinoleate	E 476
IMWITOR 491	Glyceryl Monostearate	USP-NF
IMWITOR 900 K	Glyceryl Stearate	Ph. Eur., type II, JCIC, USP-NF
IMWITOR 900 P	Glyceryl Stearate	Ph. Eur., type I, JCIC, USP-NF
O/W Emulsifier		
	Basis: Ester	
IMWITOR 960 K	Glyceryl Stearate SE	BP, JCIC
	Basis: Alpha-Hydroxy Acids	
IMWITOR 372 P	Glyceryl Stearate Citrate	E 472 b/c, JCIC
IMWITOR 375	Glyceryl Citrate/Lactate/Linoleate/Oleate	E 472 b/c



Main characteristics

Appearance	HLB	Properties and applications
yellow liquid	~ 4	Food approved W/O emulsifier for systems of low viscosity.
powder	~ 4 to 5	More than 90% of monoglycerides, stabilizer, stiffening and dispersing agent.
white powder	~ 3	40.0 to 55.0% of monoglycerides, used as tablet lubricant, emulsifier and for sustained release.
white powder	~ 3	40.0 to 55.0% of monoglycerides, used as tablet lubricant, emulsifier and for sustained release.
flakes	~ 7	Self emulsifying GMS, for dermal use.
flakes	~ 10 to 12	Food approved in Europe, partly ionic, still oil soluble emulsifiers, similar to lecithin
sticky syrup	~ 11	for stable emulsions at pH range 4 to 7.

Special fatty acid esters

Fatty acid esters, further modified or compounded, create specific tools in pharmaceutical formulations.

Product	Chemical description/INCI name	Listed in
Special Esters		
MIGLYOL Gel B	Caprylic / Capric Triglyceride (and) Stearalkonium Hectorite (and) Propylene Carbonate	—
MIGLYOL 840 Gel B	Propylene Glycol Dicaprylate / Dicaprinate (and) Stearalkonium Hectorite (and) Propylene Carbonate	—
MIGLYOL Gel T	Caprylic / Capric Triglyceride (and) Stearalkonium Bentonite (and) Propylene Carbonate	—
DYNACET 211 P	Acetylated Glycerides	E 472 a
DYNACET 212 P	Acetylated Glycerides	E 472 a
DYNACET 285	Acetylated Glycerides	21 CFR §172.828
SOFTISAN 601	Glyceryl Cocoate (and) Hydrogenated Coconut Oil (and) Cetareth-25	Single ingredients USP-NF, Ph. Eur.
SOFTISAN 645	Bis-Diglyceryl Polyacyladipate-1	JCIC
SOFTISAN 649	Bis-Diglyceryl Polyacyladipate-2	JCIC, DMF
SOFTIGEN 701	Glyceryl Ricinoleate*	JCIC
SOFTIGEN 767	PEG-6 Caprylic/Capric Glycerides	Ph. Eur., USP-NF, DMF

* Compounds contain unsaturated components, interactions with oxygen must be considered.



Main characteristics

Appearance	Melting point ° C	Properties and applications
oleogel, brownish softpaste	N/A	Heat stable oleogels, maintain viscosity between 0° C and 100° C. F. i. for water- and temperature resistant formulations. Soft lamellar structure for easy distribution on skin.
oleogel, brownish softpaste	N/A	Emollient creating silky touch, non tacky. Consistency and viscosity stabilizer in emulsions.
oleogel, greenish softpaste	N/A	
waxy solid	~ 41 to 47	Consistency regulator and emulsion stabilizer in ointments and creams.
waxy solid	~ 36 to 44	Consistency regulator and emulsion stabilizer in ointments and creams.
clear liquid	liquid	Consistency regulator and emulsion stabilizer in ointments and creams.
off-white soft pastilles	~ 40 to 45	Waterfree self emulsifying system, ready-to-use O/W cream base, suitable for a variety of pharmaceutical active ingredients.
yellow syrup	—	Liquid lanolin substitute, adhesive to skin and wet surfaces, for wound dressing systems and irritated skin, non occlusive.
off-white opaque mass	35	Semi solid lanolin substitute, adhesive to skin and wet surfaces, for wound dressing systems and irritated skin, non occlusive.
yellowish substance	25	Skin protective agent, waterdispersible W/O co-emulsifier.
clear liquid	—	Solubilizer for drugs, refatting agent. Soluble in water and polar oils (MCT).

Fatty alcohols

Following alcohol grades are listed in the monographs of the corresponding pharmac-

opoeias. The quality of the alcohols complies with requirements listed therein.

Linear alcohols

Product	INCI name	Listed in	Appearance	Purity [%]	Application
NACOL 8-99 P	Caprylic Alcohol	Ph. Eur.	liquid	min. 99.0	Reagent
NACOL 10-99 P	Decyl Alcohol	Ph. Eur.	liquid	min. 99.0	Reagent
NACOL 12-99 P	Lauryl Alcohol	Ph. Eur.	liquid	min. 99.0	Reagent
NACOL 14-98,5 P	Myristyl Alcohol	Ph. Eur., USP-NF	solid	min. 98.5	Viscosity controlling agent, emulsion stabilizer, emollient
NACOL 16-98 P	Cetyl Alcohol	Ph. Eur., BP, USP-NF	solid	min. 95.0*	Co-emulsifier, viscosity controlling agent, emulsion stabilizer, waxy emollient
NACOL 18-98 P	Stearyl Alcohol	Ph. Eur., BP, USP-NF	solid	min. 95.0*	Co-emulsifier, viscosity controlling agent, emulsion stabilizer, waxy emollient
NAFOL 1618 HP	Cetearyl Alcohol	Ph. Eur., BP, USP-NF	solid	min. 90.0*	Co-emulsifier, viscosity controlling agent, emulsion stabilizer, waxy emollient

Guerbet alcohols

Product	INCI name	Listed in	Appearance	Purity [%]	Application
ISOVOL 20 P	Octyldodecanol	Ph. Eur., BP, USP-NF	liquid	min. 90.0*	Emollient, solvent

Emulsifying alcohols

Product	INCI name	Listed in	Appearance	Purity [%]	Application
GALENOL 1618 CSP	Cetearyl Alcohol (and) Sodium Cetearyl Sulfate	Ph. Eur. (TypeA), BP (TypeA)	solid	min. 80.0* min. 7.0*	Emulsifying base for O/W emulsions
GALENOL 1618 DSNP	Cetearyl Alcohol (and) Sodium Lauryl Sulfate	Ph. Eur. (Type B), BP (Type B), BP (Emulsifying Wax)	solid	min. 80.0* min. 7.0*	Emulsifying base for O/W emulsions

* Values according to current Ph. Eur.

Polyethylene glycols (PEGs)

LIPOXOL MED comply with the requirements of the monographs "Polyethylene Glycol", USP-NF 26 and "Macrogol", Ph. Eur.

Polyethylene glycol is an addition polymer of ethylene oxide and water. The number in the LIPOXOL type nomenclature indicates the average molecular weight.

Product	Chemical description/INCI name/synonym	Listed in
LIPOXOL 300 MED	PEG-6, Macrogol 300	USP-NF, Ph. Eur.
LIPOXOL 400 MED	PEG-8, Macrogol 400	USP-NF, Ph. Eur.
LIPOXOL 600 MED	PEG-12, Macrogol 600	USP-NF, Ph. Eur.
LIPOXOL 1000 MED	PEG-20, Macrogol 1000	USP-NF, Ph. Eur.
LIPOXOL 1500 MED	PEG-32, Macrogol 1500	USP-NF, Ph. Eur.
LIPOXOL 3000 MED	PEG-60, Macrogol 3000	USP-NF, Ph. Eur.
LIPOXOL 3350 MED	PEG-75, Macrogol 3350	USP-NF, Ph. Eur.
LIPOXOL 4000 MED	PEG-90, Macrogol 4000	USP-NF, Ph. Eur.
LIPOXOL 6000 MED	PEG-150, Macrogol 6000	USP-NF, Ph. Eur.
LIPOXOL 8000 MED	PEG-180, Macrogol 8000	USP-NF, Ph. Eur.

Properties and Applications

Polyethylene glycols (PEG) are widely used as excipients in a variety of pharmaceutical formulations, such as oral tablets and caplets, solutions and syrups, topical, rectal and vaginal preparations, ophtalmic, dental and parenteral systems. They function as solubilizer, dispersing agent, plasticizer, lubricant, emulsion stabilizer and as viscosity and consistency builder.

LIPOXOL MED grades represent PEGs, having low figures of impurities such as ethylene oxide, dioxane, ethylene glycol, diethylene glycol, formaldehyde and reductive acting substances as limited in the pharmacopoeias USP-NF and Ph. Eur.

LIPOXOL MED grades are readily soluble in water and miscible in all portions with other grades after melting. Liquid LIPOXOL®s are hygroscopic. Hygroscopicity decreases with increase of melting point. LIPOXOL grades 4000, 6000 and 8000 MED are practically non-hygroscopic. LIPOXOL 400 and 600 MED are soluble in polaric fats.

Polyethylene glycols are generally reported as non-toxic materials. The WHO has set an estimated acceptable daily intake at up to 10 mg / kg body weight. The 21 CFR § 172.820 describes polyethylene glycol as multipurpose additive, permitted in the USA for direct addition to food for human consumption.

Main characteristics

Appearance	Hydroxyl value [mg KOH/g]	Solidification point [° C]	Dynamic viscosity at 20° C [mPa·s]	Kinem. viscosity (USP) at 98.9° C / 210° F [mm ² /s]
clear colourless liquid	356 to 394	-10 to -20	80 to 105	5.4 to 6.4
clear colourless liquid	267 to 295	4 to 8	105 to 130	6.8 to 8.0
waxy paste at 20° C	178 to 197	15 to 25	15 to 20*	9.9 to 11.3
solid melt	107 to 118	35 to 40	22 to 30*	16.0 to 19.0
solid flakes	70 to 80	42 to 48	34 to 50*	26 to 33
solid flakes or powder	34 to 41.5	50 to 56	75 to 100*	67 to 93
solid flakes	31 to 37	53 to 57	83 to 120*	76 to 110
solid flakes or powder	26 to 31	53 to 58	115 to 170*	110 to 158
solid flakes or powder	17 to 21	55 to 61	200 to 270*	250 to 390
solid flakes or powder	12.5 to 16	55 to 62	260 to 510*	470 to 900

*= 50 % in water



Register of chemical/INCI names or synonyms

	Chemical/INCI name/synonym	Product	Page
A	Acetylated Glycerides	DYNACET 211 P, 212 P, 285	14
	Bis-Diglyceryl Polyacyladipate-1	SOFTISAN 645	4, 14
B	Bis-Diglyceryl Polyacyladipate-2	SOFTISAN 649	4, 14
	Butylene Glycol Dicaprylate / Dicaprate	MIGLYOL 8810	4
C	Caprylic Alcohol	NACOL 8-99 P	16
	Caprylic Glycerides	IMWITOR 988	10
	Caprylic / Capric / Linoleic Triglyceride	MIGLYOL 818	4
	Caprylic / Capric Glycerides	IMWITOR 742	10
	Caprylic / Capric/Succinic Triglyceride	MIGLYOL 829	4
	Caprylic / Capric Triglyceride	MIGLYOL 810, 812, 8108	4
	Caprylic / Capric Triglyceride		
	(and) Stearalkonium Bentonite		
	(and) Propylene Carbonate	MIGLYOL Gel T	14
	Caprylic / Capric Triglyceride		
	(and) Stearalkonium Hectorite		
	(and) Propylene Carbonate	MIGLYOL Gel B	14
	Cetearyl Alcohol	NAFOL 1618 HP	16
	Cetearyl Alcohol		
	(and) Sodium Cetearyl Sulfate	GALENOL 1618 CSP	17
	Cetearyl Alcohol		
	(and) Sodium Lauryl Sulfate	GALENOL 1618 DSNP	17
	Cetearyl Ethylhexanoate		
	(and) Isopropylmyristate	DYNACERIN CAP	4
	Cetyl Alcohol	NACOL® 16-98 P	16
	Cetyl Palmitate	DYNACERIN CP	8

	Chemical/INCI name/synonym	Product	Page
D	Decyl Alcohol	NACOL 10-99 P	16
	Decyloleate	DYNACERIN DO	4
	Diacetylated Monoglycerides	DYNACET 285	4
G	Glyceryl Trihexanoate	MIGLYOL 612	4
	Glycerol Ricinoleate	SOFTIGEN 701	14
	Glyceryl Citrate/Lactate/Linoleate/Oleate	IMWITOR 375	12
	Glyceryl Stearate Citrate	IMWITOR 372P	12
	Glyceryl Cocoate	IMWITOR 928	10
	Glyceryl Cocoate (and) Hydrogenated Coconut Oil		
	(and) Ceteareth-25	SOFTISAN 601	14
	Glyceryl Mono-, Di-, Tri - Hexanoate	IMWITOR 642	10
	Glyceryl Monooleate	IMWITOR 948	10
	Glyceryl Monostearate	IMWITOR 491	10, 12
	Glyceryl Ricinoleate	SOFTIGEN 701	10
	Glyceryl Mono Stearate	IMWITOR 491	10, 12
	Glyceryl Stearate	IMWITOR 900 P, 900 K	10, 12
	Glyceryl Stearate SE	IMWITOR 960 K	10, 12

Register of chemical/INCI names or synonyms

	Chemical/INCI name/synonym	Product	Page
H	Hydrogenated Coco-Glycerides	WITEPSOL H 5-H 185	
		WITEPSOL W 25-W45, E 76, E 85	6, 8
	Hydrogenated Coco-Glycerides	MASSA ESTARINUM B, C, 299	
		SOFTISAN 378, WITOCAN 42/44	8
	Hydrogenated Coco-Glycerides + Bees Wax	WITEPSOL E 75	8
	Hydrogenated Coco-Glycerides + Cetareth-25 + Bees Wax	WITEPSOL S 55, MASSA ESTARINUM E	6, 8
	Hydrogenated Coco-Glycerides + Cetareth-25 + Glyceryl Ricinoleate	WITEPSOL S 58, S51	6
	Hydrogenated Coco-Glycerides + Glyceryl Ricinoleate	WITEPSOL H 19, MASSA ESTARINUM BC	6, 8
	Hydrogenated Palm Oil	DYNASAN P 60, SOFTISAN 154	8
I	Isostearyl Diglyceryl Succinate	IMWITOR 780 K	12
L	Lauryl Alcohol	NACOL 12-99 P	16
M	Macrogol 300 to 8000	LIPOXOL 300 to 8000 MED	18
	Myristyl Alcohol	NACOL 14-98,5 P	16

	Chemical/INCI name/synonym	Product	Page
O	Octyldodecanol	ISO FOL 20 P	16
	Oleyl Erucate	DYNACERIN 660	4
P	PEG-6 Caprylic / Capric Glycerides	SOFTIGEN 767	14
	PEG-6 to 180	LIPOXOL 300 to 8000 MED	18
	Polyglyceryl-3 Polyricinoleate	IMWITOR 600	12
	Propylene Glycol Dicaprylate / Dicaprate	MIGLYOL 840	4
	Propylene Glycol Dicaprylate / Dicaprate (and) Stearalkonium Hectorite		
	(and) Propylene Carbonate	MIGLYOL 840 Gel B	14
	Stearyl Alcohol	NACOL 18-98 P	16
S T	Triheptanoin	Spezialöl 107	4
	Trimyristin	DYNASAN 114	8
	Tristearin	DYNASAN 118	8
	Tricaprylin	MIGLYOL 808	4

Register of trademarks and product names

	Product	INCI name	Page
D	DYNACERIN® 660	Oleyl Erucate	4
	DYNACERIN CAP	Cetearyl Ethylhexanoate (and) Isopropylmyristate	4
	DYNACERIN CP	Cetyl Palmitate	8
	DYNACERIN DO	Decyloleate	4
	DYNACET® 211 P	Acetylated Glycerides	14
	DYNACET 212 P	Acetylated Glycerides	14
	DYNACET 285	Diacetylated Monoglycerides	4, 14
	DYNASAN® 114	Trimyrustin	8
	DYNASAN 118	Tristearin	8
	DYNASAN P 60	Hydrogenated Palm Oil	8
G	GALENOL® 1618 CSP	Cetearyl Alcohol (and) Sodium Cetearyl Sulfate	17
	GALENOL 1618 DSNP	Cetearyl Alcohol (and) Sodium Lauryl Sulfate	17
I	IMWITOR® 372 P	Glyceryl Stearate Citrate	12
	IMWITOR 375	Glyceryl Citrate/Lactate/Linoleate/Oleate	12
	IMWITOR 491	Glyceryl Stearate	10, 12
	IMWITOR 600	Polyglyceryl-3-Polyricinoleate	12
	IMWITOR 642	Glyceryl Mono-, Di-, Tri - Hexanoate	10
	IMWITOR 742	Caprylic/Capric Glycerides	10
	IMWITOR 780 K	Isostearyl Diglyceryl Succinate	12
	IMWITOR 900 K	Glyceryl Stearate	10, 12
	IMWITOR 900 P	Glyceryl Stearate	10, 12
	IMWITOR 928	Glyceryl Cocoate	10
	IMWITOR 948	Glyceryl Monooleate	10
	IMWITOR 960 K	Glyceryl Stearate SE	10, 12
	IMWITOR 988	Glyceryl Caprylate	10
	ISOVOL 20 P	Octyldodecanol	16

	Product	INCI name	Page
L	LIPOXOL® 300 MED	PEG-6, Macrogol 300	18
	LIPOXOL 400 MED	PEG-8, Macrogol 400	18
	LIPOXOL 600 MED	PEG-12, Macrogol 600	18
	LIPOXOL 1000 MED	PEG-20, Macrogol 1000	18
	LIPOXOL 1500 MED	PEG-32, Macrogol 1500	18
	LIPOXOL 3000 MED	PEG-60, Macrogol 3000	18
	LIPOXOL 3350 MED	PEG-75, Macrogol 3350	18
	LIPOXOL 4000 MED	PEG-90, Macrogol 4000	18
	LIPOXOL 6000 MED	PEG-150, Macrogol 6000	18
	LIPOXOL 8000 MED	PEG-180, Macrogol 8000	18
M	MASSA ESTARINUM® 299	Hydrogenated Coco-Glycerides	8
	MASSA ESTARINUM B	Hydrogenated Coco-Glycerides	8
	MASSA ESTARINUM BC	Hydrogenated Coco-Glycerides + Glyceryl Ricinoleate	8
	MASSA ESTARINUM C	Hydrogenated Coco-Glycerides	8
	MASSA ESTARINUM E	Hydrogenated Coco-Glycerides + Ceteareth-25 + Bees Wax	8
	MIGLYOL® 612	Glyceryl Trihexanoate	4
	MIGLYOL 808	Tricaprylin	4
	MIGLYOL 810	Caprylic/Capric Triglyceride	4
	MIGLYOL 812	Caprylic/Capric Triglyceride	4
	MIGLYOL 818	Caprylic/Capric/Linoleic Triglyceride	4
	MIGLYOL 829	Caprylic/Capric/Succinic Triglyceride	4
	MIGLYOL 840	Propylene Glycol Dicaprylate/Dicaprate	4
	MIGLYOL 840 Gel B	Propylene Glycol Dicaprylate /	
		Dicaprate (and) Stearalkonium	
		Hectorite (and) Propylene Carbonate	14
	MIGLYOL 8108	Caprylic/Capric Triglyceride	4
	MIGLYOL 8810	Butylene Glycol Dicaprylate/Dicaprate	4
	MIGLYOL Gel B	Caprylic / Capric Triglyceride	
		(and) Stearalkonium Hectorite	
		(and) Propylene Carbonate	14
	MIGLYOL Gel T	Caprylic / Capric Triglyceride	
		(and) Stearalkonium Bentonite	
		(and) Propylene Carbonate	14

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	Product	INCI name	Page
N	NACOL 8-99 P	Caprylic Alcohol	16
	NACOL 16-98 P	Cetyl Alcohol	16
	NACOL 10-99 P	Decyl Alcohol	16
	NACOL 12-99 P	Lauryl Alcohol	16
	NACOL 14-98,5 P	Myristyl Alcohol	16
	NACOL 18-98 P	Stearyl Alcohol	16
S	SOFTIGEN® 701	Glyceryl Ricinoleate	10, 14
	SOFTIGEN 767	PEG-6 Caprylic/Capric Glycerides	14
	SOFTISAN® 154	Hydrogenated Palm Oil	8
	SOFTISAN 378	Caprylic/Capric/Myristic/Stearic Triglyceride	8
	SOFTISAN 601	Glyceryl Cocoate (and) Hydrogenated Coconut Oil (and) Ceteareth-25	14
	SOFTISAN 645	Bis-Diglyceryl Polyacyladipate-1	4, 14
	SOFTISAN 649	Bis-Diglyceryl Polyacyladipate-2	4, 14
	Spezialöl 107	Triheptanoin	4
W	WITEPSOL® E 75	Hydrogenated Coco-Glycerides + Bees Wax	8
	WITEPSOL E 76	Hydrogenated Coco-Glycerides	8
	WITEPSOL E 85	Hydrogenated Coco-Glycerides	8
	WITEPSOL H 5	Hydrogenated Coco-Glycerides	6
	WITEPSOL H 12	Hydrogenated Coco-Glycerides	6
	WITEPSOL H 15	Hydrogenated Coco-Glycerides	6
	WITEPSOL H 19	Hydrogenated Coco-Glycerides + Glyceryl Ricinoleate	6
	WITEPSOL H 32	Hydrogenated Coco-Glycerides	6
	WITEPSOL H 35	Hydrogenated Coco-Glycerides	6
	WITEPSOL H 37	Hydrogenated Coco-Glycerides	6
	WITEPSOL H 185	Hydrogenated Coco-Glycerides	6

W

WITEPSOL S 51	Hydrogenated Coco-Glycerides + Ceteareth-25	6
WITEPSOL S 52	Hydrogenated Coco-Glycerides + Ceteareth-25	6
WITEPSOL S 55	Hydrogenated Coco-Glycerides + Ceteareth-25 + Bees Wax	6
WITEPSOL S 58	Hydrogenated Coco-Glycerides + Ceteareth-25 + Glyceryl Ricinoleate	6
WITEPSOL W 25	Hydrogenated Coco-Glycerides	6
WITEPSOL W 31	Hydrogenated Coco-Glycerides	6
WITEPSOL W 32	Hydrogenated Coco-Glycerides	6
WITEPSOL W 35	Hydrogenated Coco-Glycerides	6
WITEPSOL W 45	Hydrogenated Coco-Glycerides	6
WITOCAN® 42/44	Hydrogenated Coco-Glycerides	8

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