

SELENA PRESENTS

# Ethoxylates

Holder of an Integrated management system certificate (IMS)









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SELENA is a leading supplier of a full range of surfactants including anionic, cationic and nonionic variants. Among the chemicals offered are all kinds of ethoxylated products, propoxylated products, EO/PO copolymers and polyols. These surface-active agents are used in formulation of industrials and house-hold cleaning, emulsifiers, demulsifiers and production of rigid and elastic polyurethane foam.





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# products

TRADE NAME	CHEMICAL NAME	APPLICATION
NPEn	Nonyl Phenol Ethoxylated with 2 to 23 mol E.O	Antifoam Agent, Wetting Agent, Dispersing Agent, Intermediate for Esterification In Detergents: the NPE grades can be used in liquid and solid detergents, liquid dishwashers, window cleaners. In Textile: as scouring, emulsifying, antistatic and lubricating agent. In Agricultural: as emulsifier. In Latex and Waxes: as a water soluble emulsifier. In Fats, Oil and Waxes: as emulsifier.
LAEn	Lauryl Alcohol Ethoxylated with 2 to 23 mol E.O	Solubilizer, Dispersing Agent, Thickener, Foam-booster, Emoolient In Detergents: the LAE grades can be used in liquid and solid detergents, house-hold cleaners, industrial cleaners and hand cleaners as a basic surfactant. The LAE2 & LAE3: are good for sulphonating process. In Textile: as scouring, lubricating, dyeing and finishing agent. In Agriculture: as emulsifier. In Paper: as rewetting and absorbency agent. In Rubber: as excellent stabilizer In Leather: as degreasing, tanning, fat-liquoring agent and surfactant. In Paint: as wetting agent and emulsifier. In Cosmetics: as row material for shampoos, skin cleaners.
PEGn	Poly Ethylene Glycol (Chemical Grade) with 2to 150 mol E.O	In Cosmetics: the PEGS are neutral, odor-less, hygroscopic, no volatile compounds with no irritating properties that are used as water soluble, lubricant and plasticizer in wide range of cosmetics and personal care products such as creams, lotions, sticks, cakes, powders and jellies.  In House-hold Products: soaps, detergents, polishes and cleaners are main applicant of poly ethylene glycols, because these products are water soluble and inert with low volatility and toxicity.  In Ceramics and Tile: PEGs are widely use in ceramic and tile industry as plasticizer, lubricant, binder and carriers.  Adhesives and Textile: PEGs are used in adhesives and textile industry as plasticizer, lubricant, softener, antistatic agent and conditional agents.  In Agriculture: as water soluble and solubilizer for organic insecticides.  In Paper, printing and Inks: as softener, humectant, solvent, lubricant and carrier.  In Paint and Coating: as an intermediate for alkyd and polyester resins.

TRADE NAME	CHEMICAL NAME	APPLICATION
PEG7	Glyceryl Cocoate	In leather, textile and food industries In shampoos and cosmetic products as a softener.
GLEn	Glycerin Ethoxylate	In cosmetic products as a softener It is used as lubricant and tackifier for adhesive
TAEn	Tallow Amine Ethoxylate	In textile and leather industries as surfactant and softeners corrosion inhibitors in metal. It is used as an oil additive
COEn	Castor Oil Ethoxylated with 10 to 100 mol E.O	Emulsifier, lubricant, wetting agent, antistatic agent, paper ink, solubilizer, textile and leather industries
OAEn	Oleic Acid Ethoxylated with 5 to 40 mol E.O	Emulsifier, dyeing assistant cosmetic, textile processing, nonionic detergent lubricant softener, anti-foam dispersant for cosmetic
CAEn	Coconut Fatty Acid Ethoxylated with 5 to 40 mol E.O	Emulsifier, plasticizer, lubricant, suspending agent for textile, leather treating
Copolymer EO/PO	Low Foaming Surfactants Alcohol EO/PO Adduct Block Copolymer EO/PO Random Copolyethers EO-PO (Heteropolyether Polyols) Polyols for Polyurethans Oligo-polyols for Polyuretans Polyether Polyols for Rigid Polyurethane Foam	Low-foaming EO-PO copolymers can be used in various solvent or water-based formulation types like emulsifiable concentrate
BG	Butyl Glycol	As a low-volatility solvent, butyl glycol can be used to extend the drying time of coatings and improves their flow. It is especially recommended for paints for brush-application based on cellulose nitrate, chlorinated binders or cellulose ethers, because when it is applied to dry coatings, it only softens them very slowly.  Small proportions of butyl glycol improve the brushability of, for example, alkyd resin paints and reduce their viscosity.  It is also an extremely efficient flow improver for urea, melamine or phenolic stoving finishes.  Butyl glycol has proved to be the most effective of a large number of organic solvents tested in a very wide range of aqueous coating systems. In particular, it improves the properties of the paint by reducing the viscosity peak when oxidatively and physically drying water-based paints, including those for stove-enameling, are diluted with water as a coalescing aid, butyl glycol can significantly lower the minimum film forming temperature (MFFT) and improve flow in many physically drying paint systems.

# Nonyl phenol Ethoxylates (NPE)



Nonyl phenol ethoxylates are nonionic surfactants obtained by adding ethylene oxide (EO) to nonyl phenol. The nonyl phenol ethoxylates labeled by the name of "NPE" followed by a number of ethylene oxide molecules added.

NPE2, NPE3, NPE4, NPE5, NPE6, NPE9, and NPEIO are viscous liquid, NPE12 to NPE15 are high viscous liquid at room temperature and higher grades are white waxy solids. Other grades of NPE are available on request.

#### **Properties:**

The NPE products are ethoxylated of nonyl phenol (C6H6 [C6H4] OH) and all grades have good water/oil (W/O) or O/W emulsifying, wetting, lubricating and dispersing properties and as stabilizer in high grades.

#### **Applications:**

In detergents: the NPE grades can be used in liquid and solid detergents, liquid dishwashers, window cleaners.

In textile: as scouring, emulsifying, antistatic and lubricating agent.

In agricultural: as emulsifier.

In latex and waxes: as a water soluble emulsifier.

In fats, oil and waxes: as emulsifier.



**TEST METHOD** 

**ASTM D-2024** 

ASTM D-1172

ASTM D-4252

ASTM D-1298

CHARACTERISTIC

CLOUD POINT°C

pH

HYDROXYL NO.mgKOH/gr

DENSITY@25°c kg/lit

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VISCOSITY@25°c cp	ASTM D-445	200±10	.55 No.	220±10			252±10
M.W K g/Kmol	CALCULATED	295-312		374-401		470-490	
HLB	CALCULATED	5.6-6.0		8.8	-9.4	10.8-11.3	
WATER CONTENT wt%	ASTM E-203	MAX 0.5		MAX	( 0.5		MAX 0.5
POLYETHYLENE GLYCOL,%	ASTM D-4252	MAX 2.0		MAX	2.0		MAX 2.0
CHARACTERISTIC	TEST METHOD	NPE 9EO		NPE	10EO		NPE 12EO
CLOUD POINT°c	ASTM D-2024	54-60		59-	64		80-86
рН	ASTM D-1172	5-7		5-7	7		5-7
HYDROXYL NO.mgKOH/gr	ASTM D-4252	87-95		81-	91	75-79	
DENSITY@25°c kg/lit	ASTM D-1298	1.05±0.02		1.06±0.02		1.06±0.02	
VISCOSITY@25°c cp	ASTM D-445	274±10		278±10		308±10	
M.W K g/Kmol	CALCULATED	603-630		630-660		710-748	
HLB	CALCULATED	12.2-13	13.2-14.0		14.1-14.9		
WATER CONTENT wt%	ASTM E-203	MAX 0.5		MAX 0.5		MAX 0.5	
POLYETHYLENE GLYCOL,%	ASTM D-4252	MAX 2.0		MAX 2.0		MAX 2.0	
			17.5 17.5 1				
CHARACTERISTIC	TEST METHOD	NPE 16EO	NF	PE 20EO	NPE 30	EO	NPE 40EO
CLOUD POINT°c	ASTM D-2024	68-72		73-76	74-79		75-79
рН	ASTM D-1172	5-7		5-7	5-7		5-7
HYDROXYL NO.mgKOH/gr	ASTM D-4252	60-63		49-52	35-40		30-35
DENSITY@25°c kg/lit	ASTM D-1298	1.07±0.02 1.0		06±0.02	-		-
VISCOSITY@25°c cp	ASTM D-445			-			
M.W K g/Kmol	CALCULATED	904-938	10	79-1145	1440-16	640	18580-2220
HLB	CALCULATED	14.9-15.6	15	5.4-16.3	17-17.2	2	17.6-18

NPE 2EO

25-30

5-7

175-190

1.02±0.02

#### **Storage Condition:**

WATER CONTENT wt%

POLYETHYLENE GLYCOL,%

NPE grads are generally not regarded difficulties in handling and storage.

They aren't volatile or corrosive.

They are stable materials with high flash point.

**ASTM E-203** 

ASTM D-4252

For the bulk liquid prolonged storage, stainless 304/316 material and tanks under nitrogen blanketing are recommended.

**MAX 0.5** 

MAX 0.5

Recommended storage condition: 20-30 °C.

## Packaging:

Bulk or 220 Lit (net 200 kg) drums, each 4 drums strapped on a pallet.

#### **Shelf Life:**

24 Months in indoor

NPE 6EO

57-62

5-7

112-120

1.04±0.02

NPE 4EO

54-59

5-7

139-150

1.03±0.02

# Lauryl Alcohol Ethoxylates (LAE)



Lauryl alcohol ethoxylates are non-ionic surfactants obtained by adding ethylene oxide (EO) to linear fatty alcohols having alkyl carbon atoms ranging more between 12 and 14. The Lauryl alcohol ethoxylates labeled by the name of "LAE" followed by a number indicating the average number of ethylene oxide molecules added.

LAE2, LAE3, LAE5, LAE7, are viscose liquid at room temperature and LAE9 is a white waxy solid. The higher EO adducts are available on request.

#### **Properties:**

The LAE products are ethoxylated of straight-chain oleochemical alcohols. Overall, they exhibit good wetting, dispersion and emulsifying properties.

#### Applications:

In detergents: **t**he LAE grades can be used in liquid and solid detergents, household cleaners, industrial cleaners and hand cleaners as basic surfactant.

The LAE2 & LAE3: are good for sulphonating process.

In textile: as scouring, lubricating, dyeing and finishing agent.

In agriculture: as emulsifier.

In paper: as rewetting and absorbency agent.

In rubber: as excellent stabilizer.

In leather: as degreasing, tanning, fat-liquoring agent and surfactant.

In paint: as wetting agent and emulsifier.

In cosmetics: as row material for shampoos, skin cleaners.

CHARACTERISTIC	TEST METHOD	LAE 2EO	LAE 3EO	LAE 5EO
CLOUD POINT°c	ASTM D-2024	48-53	55-62	70-75
На	ASTM D-1172	5-7	5-7	5-7
HYDROXYL NO.mg KOH/gr	ASTM D-1172	195-205	165-175	130-140
DENSITY@25°c kg/lit	ASTM D-1298	0.87±0.02	0.92±0.02	0.96±0.02
M.W Kg/Kmol	CALCULATED	270-280	310-320	400-410
HLB	CALCULATED	6.0-6.4	8.0-8.2	10.4-10.6
WATER CONTENT wt%	ASTM DE-203	MAX 0.1	MAX 0.1	MAX 0.1
REFRACTIVE INDEX, n50/D	ASTM D-1218	1.439±0.002	1.442±0.002	-
VISCOSITY @25°cp	ASTM D-445	20±2	30±3	37±3
POLYETHYLENE GLYCOL %	ASTM D-4252	MAX 2	MAX 2	MAX 2
CHARACTERISTIC	TEST METHOD	LAE 7EO	LAE 9EO	LAE 10EO
CLOUD POINT°c	ASTM D-2024	56-64	83±3	87±3
рН	ASTM D-1172	5-7	5-7	5-7
HYDROXYL NO.mg KOH/gr	ASTM D-1172	107-115	90-95	87-91
DENSITY@25°c kg/lit	ASTM D-1298	0.98±0.02	1.005±0.002	1.015±0.004
M.W Kg/Kmol	CALCULATED	500-510	580-590	620-630
HLB	CALCULATED	12.2-12.4	13.4-13.6	13.8-14
WATER CONTENT wt%	ASTM DE-203	MAX 0.5	MAX 0.5	MAX 0.5
REFRACTIVE INDEX, n50/D	ASTM D-1218			
VISCOSITY @25°cp	ASTM D-445	51±3	67±3	
POLYETHYLENE GLYCOL %	ASTM D-4252	MAX 2	MAX 2	MAX 2

#### **Storage Condition:**

LAE grades are generally not regarded difficulties in handling and storage. They are inert, low order of toxicity, no volatile, stable, incorrosive and with high flash point. Due to the hygroscopic nature of LAE grades, for the bulk liquid prolonged storage, stainless

304/316 tank that should be done under a nitrogen blanketing is recommended.

## Packaging:

Bulk or in 220 Lit drums, each 4 drums strapped on a pallet.

Shelf life: 24 Months in indoor

# Poly Ethylene Glycols (PEG)



Poly ethylene glycols (PEGs) are family of water-soluble linear polymers formed by the additional reaction of ethylene oxide (EO) with mono ethylene glycol (MEG) or diethylene glycol (DEG). The generalized formula for polyethylene glycol is H(OCH2CH2)nOH, n is average number of repeating ethylene oxide groups. There are many grades of PEGs that represent them by their average molecular weight.

For example, PEG 400 consists of a distribution of polymers of varying molecular weights with an average of 400, which corresponds to an approximate average number of repeating EO groups (n) of about 9.

Polyethylene glycols are available in average molecular weight ranging from 200 to 1000 gr/mol. Depending on their average molecular weights, the poly ethylene glycols may be liquid or solid at STD condition.

PEG grades are in liquid form, and PEG 1000 is a soft solid (white).

#### **Applications:**

In cosmetics: the PEGs are neutral, odorless, hygroscopic, no volatile compounds with no irritating properties that are used as water soluble, lubricant and plasticizer in wide range of cosmetics and personal care products such as creams, lotions, cakes, powders and jellies. In house-hold products: soaps, detergents, polishes and cleaners are main applicant of poly ethylene glycols, because these products are water soluble and inert with low volatility and toxicity.

In ceramics and tile: PEGs are widely used in ceramic and tile industry as plasticizer, lubricant, binder and carriers.

In adhesives and textile: PEGs are used in adhesives and textile industry as plasticizer, lubricant, softener, antistatic agent and conditional agents.

#### Other applications:

In agriculture: as water soluble and solubilizer for organic insecticides.

In paper printing and inks: as softener, humectant, solvent, lubricant and carrier.

In paint and coating: as an intermediate for alkyd and polyester resins.



ChARACTERISTIC	TEST METHOD	PEG 200	PEG 300	PEG 400	PEG 600
APPEARANCE @ 20°C		COLORLESS	COLORLESS	COLORLESS	COLORLESS
DENSITY@25°C Kg/lit	ASTM D-1298	1.124 ± 0.02	1.125 ± 0.02	1.125 ± 0.02	1.125 ± 0.02
pH	ASTM D-1172	4.5-7.5	4.5 - 7.5	4.5-7.5	4.5-7.5
HYDROXYL NO. mg KOH/gr	ASTM D-4252	534-590	356-394	264-300	178-196
M.W Kg/Kmol	CALCULATED	190-210	275-315	380-420	570-630
WATER CONTENT wt.%	ASTM E-203	Max. 2.0	Max. 2.0	Max. 2.0	Max. 2.0
VISCOSOTY@ 25 °C cp	ASTM D-445	51± 5	70± 5	89 <u>+</u> 5	136 <u>+</u> 5

#### Handling and Storage:

PEG products are only slightly toxic and safe for use in domestic cleaning products. When handling products, recommended that use safety goggles, PVC gloves and apron.

In contact with eye: wash with running water for 15 minutes with skin, wash area with water. Ingestion: seek medical.

The PEG products should be stored in dry, covered area and far away from sources of heat and ignition.

Packaging and Shelf Life: liquid forms of PEG (200 to 1000) are packed in 220 lit (net 200 Kg) drums, each 4 drum strapped on a pallet.

Shelf Life: 24 Months in indoor.

The most important physical properties depend on molecular weight the wide range of the physical properties such as solubility, hygroscopic, vapor pressure, melting or freezing point and viscosity are variable.

# Glyceryl Cocoate (PEG-7)





### CAS name: PEG-7 glyceryl monococoate

Non-ionic, ethoxylated polyethylene glycol ester made from glycerin and coconut oil, clear oily liquid, characteristic odor. Soluble in water and alcohols, insoluble in oils. HILB value is 11 (gives oil-in-water emulsions).

Multifunctional agent with excellent emulsifying, emollient, refatting and thickening properties, also it is appropriate as surfactant and foam booster, good conditioning effect for soft and smooth skin.

#### Application:

PEG-7 glyceryl cocoate has found its application in various industries. It is used for wide range of application such as:

In shampoos, and personal cleaning products: as a conditioner and emollient.

As an emulsifier and solubilizer for essential oils.

As a super-fatting agent in cosmetic products without lowering the foam.

In bubble bath, bath soaps, and skin care preparations.

In baby shampoos, and hair conditioners.

In leather, textile, and food industries.



TEST STANDARD	TEST METHOD	STANDARD
APPEARANCE at 20°C		Clear liquid
COLOR at 25°C, apha	ASTM D-1209	Yellowish Oily liquid
pH (5% in water)	ASTM D-1172	4.5-7.5
ACID VALUE (on 5.0 g)	AOCA TI 1a-64	5-7
SAPONIFICATION VALUE	ASTM D-5558	85-105
WATER, PERCENT	ASTM E-203	Max. 1
HYDROXYL VALUE, mg KOH/g	ASTM D-4252	170-210

#### Storage and Handling:

Store in a clean, dry area.

Keep drums tightly closed.

Recommended storage temperature is 23-35 °C.

In original, sealed containers and kept at suggested storage conditions, the product can be stored for 1 year.

Spills may be cleaned by flushing with sufficient amount of water, avoid ingestion and direct inhalation, (where air concentration is high, appropriate mask is suggested), and also avoid contact with eyes, skin and clothing.

In case of contact with eyes and skin, seek adequate and timely medical attention.

Safety Principal Routes of Exposure: ingestion skin.

Eye Contact: cause eye irritation.

Ingestion: ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Skin Contact: cause skin irritation

Inhalation: cause irritation of respiratory tract.

# Glycerine Ethoxylates (GLE)



Glycerin ethoxylates are nonionic surfactants obtained by adding ethylene oxide (EO) to glycerin. The glycerin ethoxylates labeled by name of "GLE" followed by a number of ethylene oxide molecules added. GLE-2, GLE-3, GLE-5, GLE-7 are viscous liquid at room temperature and higher grades are white waxy solids. Other grades Of GLE are available on request.

## Application:

lubricants and surfactants.

Glycerin ethoxylate (glycerol ethoxylate) is used in preparing cosmetics, which gives texture to the material.

Glycerin ethoxylate is also used as humectants and tackifier for adhesive.

Glycerol ethoxylate is applied to construction industry also as an important emulsifier. SELENA offers high quality, concentrated glycerin ethoxylate that can be used to produce



CHARACTERISTIC	GLE-2	GLE-3	GLE-5	GLE-7
APPERANCE at 25 °C	Clear colorless liquid	Clear colorless liquid	Clear colorless liquid	Clear colorless liquid
рН	6.5-7.5	6.5-7.5	6.5-7.5	6.5-7.5
HLB	9.8	11.8	14.1	15.4
MOLCULAR WEIGHT	175-185	220-230	307-317	395-405
MOISTURE CONTENT	≤1%	≤1%	≤1%	≤1%

CHARACTERISTIC	GLE-9	GLE-10	GLE-15	GLE-20
APPERANCE at 25 °C	Clear colorless liquid	Clear colorless liquid	waxy liquid	waxy liquid
рН	6.5-7.5	6.5-7.5	6.5-7.5	6.5-7.5
HLB	16.2	16.5	17.5	18.1
MOLCULAR WEIGHT	483-493	527-537	747-757	968-978
MOISTURE CONTENT	≤1%	≤1%	≤1%	≤1%

#### Storage:

Glycerin ethoxylate is stable for 2 years when stored in the original sealed containers in a cool, dry place. Furthermore, the containers should not be exposed to direct sun light. Ambient temperature for long term storage is preferably between 10 °C and 25 °C and between 0 °C and 30 °C as maximum.

Storage at higher temperatures is possible only for a short time and should be kept below the solidification point of the products.

The most suitable material for storage tanks is stainless steel, pure aluminum, rubber or polyethylenelined containers and storage tanks made from glass-fibre-reinforced polyester (GRP). Conventional steel tanks are of limited suitability because after prolonged storage the product may become discoloured owing to traces of iron.

#### Packaging:

Bulk or 220 Lit (net 200 kg) drums, each 4 drums strapped on a pallet.



Fatty amine ethoxylate are made by ethoxylation of primary fatty amines and have combination of wetting, emulsifying and dispersing properties of nonionic and cationic surfactants. At neutral and acid conditions, fatty amine ethoxylates have a positive charge. At alkaline conditions they act just like nonionic surfactants. **Application:** 

Fatty amines ethoxylates have many uses, primarily as nonionic surfactants in various formulations both, industrial and domestic. These are also used as cleaning agents, antistatic agents, dispersants or emulsifiers, in textile formulations, corrosion inhibitors in metal and emulsifier.

CHARACTERISTIC	TAE-2	TAE-3	TAE-5	TAE-10	TAE-15	TAE-20
рН	6.5-7.5	6.5-7.5	6.5-7.5	6.5-7.5	6.5-7.5	6.5-7.5
HLB	5	6.7	9.1	12.5	14.3	15.4
MOLCULAR WEIGHT	345-355	390-400	480-490	700-710	920-930	1140-1150
MOISTURE CONTENT	≤1%	≤1%	≤1%	≤1%	≤1%	≤1%

#### Storage:

Tallow amine ethoxylate is stable for 2 years when stored in the original sealed containers in a cool, dry place. Furthermore, the containers should not be exposed to direct sun light. Ambient temperatures for long term storage are preferably between 10 °C and 25 °C and between 0 °C and 30° C as maximum.

Storage at higher temperatures is possible only for a short time and should be kept below the solidification point of the products.

The most suitable material for storage tanks is stainless steel, pure aluminum, rubber-or polyethylenelined containers and storage tanks made from glass-fibre-reinforced polyester (GRP). Conventional steel tanks are of limited suitability because after prolonged storage the product may become discolored owing to traces of iron.

#### Packaging:

Bulk or 220 Lit (net 200 kg) drums, each 4 drums strapped on a pallet.

# Castor Oil Ethoxylates (COE)



Ethoxylated castor oil is a nonionic surfactant having many industrial applications. Polyoxyethylene castor oil derivatives are complex mixtures of various hydrophobic and hydrophilic components. In the polyethoxylated castor oil, the hydrophobic constituents comprise about 80% of the total mixture, the main component being glycerol polyethylene glycol ricinolate. Other hydrophobic constituents include fatty acid esters of polyethylene glycol along with some unchanged castor oil. The hydrophilic part consists of polyethylene glycols and glycerol ethoxylates.

#### **Application:**

Polyoxyethylene castor oil derivatives are nonionic surfactants used oral and topical pharmaceutical formulations.

They are used as emulsifying and solubilizing agents in pharmaceutical preparations and cosmetics.

They are also used in cosmetics, animal feeds and Textile as emulsifying and solubilizing agents. Ethoxylated castor oil is also used in the wool scouring industry.

It is an excellent cleaning agent for grease and oil. Over all COEs are used as emulsifier, coemulsifier, dispersant.

Solubilizer, lubricant, antistatic, wetting agent, scouring agent, defoamer, softener, viscosity control agent, dyeing assistant, dye carrier, stabilizer.

#### Stability:

COE36 forms stable solutions in many organic solvents such as chloroform, ethanol and propan–2–0l; it also forms dear, stable, aqueous solutions. COE36 is miscible with other polyoxyethylene castor oil derivatives and on heating with fatty acids, fatty alcohols and some animal and vegetable oils. Solutions of COE36 in aqueous alcohols are also stable. On heating an aqueous solution the solubility of COE36 is reduced and the solution becomes turbid. Aqueous solutions of polyoxyl castor oil heated for prolonged periods may separate into solid and liquid phases on cooling.

However, the product can be restored to its form by homogenization. Aqueous solutions of COE36 are stable in the presence of low concentrations of electrolytes as acids or salts, with the exception of mercuric chloride.

PRODUCT	APPEARANCE at 30 °C	HYDROXYL VALUE	IODINE VALUE	HLB	SOLID CONTENT MIN.%	WATER CONTENT MAX. %
COE 10	Pale yellow viscous liquid	111±5	35-45	6.49	99.5	0.2
COE 20	Pale yellow viscous liquid	85±5	25-35	9.8	99.5	0.2
COE 30	Pale yellow viscous liquid	68±5	19-29	11.8	99.5	0.2
COE 35	Pale yellow viscous liquid	60±5	17-27	12.54	99.5	0.2
COE 40	Pale yellow viscous liquid	56±5	15-25	13.15	99.5	0.2
COE 50	Pale yellow to waxy solid	55±5	10-20	14.83	99.5	0.2
COE 60	Pale yellow to waxy solid	41±5	10-15	15.0	99.5	0.2

#### Safety:

Polyoxyethylene castor oil derivatives are used in a variety of oral, topical and parenteral pharmaceutical formulations, acute and chronic toxicity tests in animals have shown polyoxyethylene castor oil derivatives to be essentially nontoxic and nonirritant materials. However, several serious anaphylactic reactions have been observed in humans and animals following parenteral, and more rarely, oral administration of formulations containing polyoxyethylene castor oil derivatives.

#### **Storage Condition:**

Polyoxyethylene castor oil derivatives stored in closed containers between 10 °C and 40°C. Keep away from oxidizing agents, excessive heat, and ignition sources, store and use in well ventilated areas.

Do not store or use near heat, spark, or sunlight. Do not puncture, drag, or slide this container. Drum is not a pressure vessel, never use pressure to empty. Polyoxyethylene castor oil derivatives are stable and under normal conditions do not corrode iron and steel. Since most surfactants are slightly hygroscopic, they should be kept in closed containers to avoid unnecessary moisture pick-up.

#### Packaging:

Bulk or 220 Lit (net 200 kg) drums, each 4 drums strapped on a pallet.

Shelf Life: 24 Months in indoor

## Coconut Fatty Acid Ethoxylates (CAE)



SELENA manufactures a wide range Of ethoxylates Of C12 to C18 fatty acids like coconut fatty acid, oleic acid, stearic acid, and etc.

Fatty acid ethoxylates have many uses, primarily as nonionic surfactants in various formulations both industrial and domestics.

These are also used as cleaning agents, wetting agents, dispersants or emulsifiers, softeners, spin finishing agents in textile formulations. Also, these are used as emulsifiers, solubilizers in cosmetics and health care formulations.

#### Application:

**OAE**: emulsifier, dyeing assistant cosmetic, textile processing, nonionic detergent, lubricant, softener, antifoam dispersant for cosmetic.

CAE: emulsifier, plasticizer, lubricant, suspending agent for textile, leather treating.



## Oleic Acid Ethoxylates (OAE)

PRODUCT	SAPONIFICATION VALUE	IODINE VALUE	HLB	ACID VALUE	MOLECULAR WEIGHT	pH
OAE 5.0	111±5	52-57	8.89	111-113	≈ 502	5.00-7.00
OAE 6.5	99±5	47-52	10.10	99-102	≈ 568	5.00-7.00
OAE 8.0	89 ± 5	42-47	11.11	89-91	≈ 634	5.00-7.00
OAE 10	78±5	37-41	12.19	78-80	≈ 723	5.00-7.00
OAE 15	61±5	28-31	14.01	59-61	≈ 943	5.00-7.00
OAE 20	49±5	23-26	15.15	48-50	≈ 1163	5.00-7.00
OAE 30	35±5	17-20	16.49	35-37	≈ 1603	5.00-7.00
OAE 40	28±5	13-15	17.24	27-29	≈ 2045	5.00-7.00

## Coconut Fatty Acid Ethoxylates (CAE)

PRODUCT	SAPONIFICATION VALUE	pH	HLB	MOISTURE CONTENT MAX.	MOLECULAR WEIGHT	IODINE VALUE
CAE 5.0	134±5	5.00-7.00	10.02	≤1	≈ 435	5±1
CAE 6.5	117±5	5.00-7.00	11.50	≤1	≈ 501	5±1
CAE 8.0	103±5	5.00-7.00	12.50	≤1	≈ 567	4±1
CAE 10	89±5	5.00-7.00	13.50	≤1	≈ 655	3±1
CAE 15	67±5	5.00-7.00	15.00	≤1	≈ 875	3±1
CAE 20	54±5	5.00-7.00	16.00	≤1	≈ 1095	2±1
CAE 30	38±5	5.00-7.00	17.00	≤1	≈ 1535	1±1
CAE 40	30±5	5.00-7.00	19.05	≤1	≈ 1975	1±1

#### Storage and Handling:

Fatty acids should be stored in a dry covered area at a distance from sources of heat or ignition. The extinguishing agents are carbon dioxide and dry chemical powder.

Recommended materials to store, handling, and distribution fatty acids are stainless steel, carbon steel, galvanized steel, and carbon steel coated with epoxy or PVC or polyester.

#### Packaging:

Bulk or 220 Lit (net 200 Kg) drums, each 4 drums strapped on a pallet.

Shelf Life: 24 Months in indoor

# Butyl Glycol (BG)





High-boiling, low-volatility liquid with a mild odor that is used as a solvent and starting material for synthesis. Excellent co-solvent in aqueous coating systems (water-based paints). Colorless, neutral, slightly hygroscopic, mobile liquid with a mild odor. The product is miscible with water and common organic solvents in all proportions at room temperature, butyl glycol shows the reactions typical Of an alcohol, such as esterification, etherification, oxidation and the formation of acetates and alcoholates. Like most ethers, it forms peroxides in the presence of atmospheric oxygen.

#### **Application:**

Selected applications of butyl glycol are described below:

Coatings Industry: As a low-volatility solvent butyl glycol can be used to extend the drying time of coating and improves their flow. It is especially recommended for paints for brush-application based on cellulose nitrate, chlorinated binders or cellulose ethers, because when it is applied to dry coatings, it only softens them very slowly. Small proportions of butyl glycol improve the brush ability of, for example, alkyd resin paints and reduce their viscosity. It is also an extremely efficient flow improver for urea, melamine or phenolic stoving finishes. Butyl glycol has proved to be the most effective of a large number of organic solvents tested in a very wide range of aqueous coating systems. In particular, it improves the properties of

the paint by reducing the viscosity peak when oxidatively and physically drying water-based paints, including those for stove-enameling, are diluted with water.

As a coalescing aid, butyl glycol can significantly lower the minimum film forming temperature (MFFT) and improve flow in many physically drying paint systems, butyl glycol

temperature (MFFT) and improve flow in many physically drying paint systems, butyl glycol improves the evaporation behavior of the volatile constituents (e.g. in water-based stoving enamels) during hot-air or infrared drying.

## Further applications of butyl glycol are as follows:

Solvent in printing inks for leather dyes, etc.

Component in surface cleaners, e.g. to degrease metal surfaces.

Component in hydraulic fluids.

Component in drilling and cutting oils (strong solvent).

Starting material in the production of butyl glycol acetate which is also an excellent solvent. Starting material in the production of plasticizers, e.g. by reaction with phthalic anhydride.

NO.	TEST	STANDARD TEST METHOD	STANDARD
1	Appearance/Physical State		liquid
2	Color at 25°C, APHA	ASTM D-1209	transparent colorless
3	Odor		mild ethereal
4	Molecular weight (g/mol)	Calculated	118.2
5	Density @ 25 °C (g/cm <sup>3</sup> )	ASTM D-1298	0.900±0.02
6	Viscosity (cP or mPas @ 25 °C)	ASTM D-445	3±0.2
7	Solubility, g/100 g @ 25°C Solvent in water		complete

#### Storage Precautions:

Keep containers tightly closed.

Keep in original container.

Suitable containers: mild steel, stainless steel.

BG is packed in 220 lit. galvanized or steel drum.

Shelf life: butyl glycol has a shelf life of at least 24 months in room temperature from the date of manufacture.

#### Safety

Inhalation: remove victim immediately from source of exposure.

Get medical attention.

Ingestion: immediately rinse mouth and drink plenty of water (200–300 ml).

Get medical attention.

Skin Contact: remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

Eye Contact: immediately flush with plenty of water for up to 15 minutes.

Remove any contact lenses and open eyes wide apart.

Contact physician if irritation persists.









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