

SELVI CHEMICALS

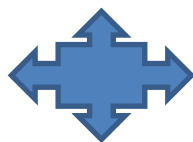
(A QUALITY MANUFACTURING PRODUCTS)



**A WIDE RANGE OF EMULSIFIER
AND EO/PO BLOCK CO POLYMER.**



API Bulk Drugs, Cosmetic and personal care
Products & Grades



HYROXY PROPYL METHYL CELLULOSE
(HYPROMELLOSE GRADES)

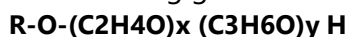
: EO/PO BLOCK CO-POLYMERS:

EO/PO co-polymers are manufactured by reacting ethylene oxide and propylene oxide in combination with an alcohol. These products have various applications as low-foaming non-ionic surfactants. We manufacture a wide range of EO/PO block co-polymers as per customer required. Below is a tentative list of products that we manufacture:

EO/PO Block Co-Polymers:
• Tridecyl Alcohol EO/PO
• Lauryl Alcohol EO/PO
• Decyl Alcohol EO/PO
• Oleyl Cetyl Alcohol EO/PO
• Oleyl Alcohol EO/PO
• Stearyl Alcohol EO/PO
• Glycerol based Polyol (Mol. Wt. 4800)
• Butanol EO/PO Copolymer (random) Mol. Wt. 1450
• Butanol EO/PO Copolymer (random) Mol Wt. 1650
• Butanol EO/PO Copolymer (random) Mol. Wt. 4000
• Aminopolyol (N,N,N,N tetrakis-2-hydroxypropyl ethylenediamine)
• Bisphenol A-2 Mole PO
• Castor Oil EO/PO
• Nonyl Phenol EO/PO
• Polyoxyethylene Polyoxypropylene (30) polymer, 40% EO (L-64 equivalent)
• Polyoxyethylene Polyoxypropylene (30) polymer, 10% EO (L-61 equivalent)
• Polyoxyethylene Polyoxypropylene (30) polymer, 20% EO (L-62 equivalent)
• Polyoxyethylene Polyoxypropylene (39) polymer, 40% EO (P-84 equivalent)
• Polyoxyethylene Polyoxypropylene (39) Polymer, 50% EO (P - 85 Equivalent)
• Polyoxyethylene Polyoxypropylene Polymer Mol.Wt. 3150 (25 R2 Equivalent)
• Polyoxyethylene Polyoxypropylene Polymer Mol.Wt. 2150 (17 R2 Equivalent)
• Polyoxyethylene Polyoxypropylene (56) Polymer, 80% EO (L-68 Equivalent)
• Polyoxyethylene Polyoxypropylene (30) Polymer, 80% EO (F-108 Equivalent)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 3800 (L-101 Equivalent)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 1100 (L-31)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 5000 (F-38)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 2200 (L-44)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 2750 (L-81)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 2650 (17R4)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 3600 (25R4)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 7700 (F-87)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 12600 (F-127)
• Polyoxyethylene Polyoxypropylene Polymer, Mol Wt 4600 (P-94)

FATTY ALCOHOL ETHOXYLATE AND PROPOXYLATE:

The SELVI CHEMICALS product line results from the reaction of fatty alcohols with ethylene oxide and propylene oxide. Because of the fatty chain and the amounts of ethylene oxide and propylene oxide in each molecule, we obtain products with different degrees of water solubility and foaming power. This allows you to choose an appropriate product for each application. The SELVI CHEMICALS L and SELVI CHEMICALS I lines are represented by the following general formula:



where: R = alkyl group
x = average number of moles of ethylene oxide
y = average number of moles of propylene oxide

The products represented in the SC L and SC I lines are:

Product	Chemical Description	N°CAS 1	Est. HLB Value	% Renewable Carbon
SC L306 Q	Lauryl Alcohol 3 EO / 6 PO	68439-51-0	5.5	34
SC L405 Q	Lauryl Alcohol 4 EO / 5 PO	68439-51-0	7.0	36
SC L408 Q	Lauryl Alcohol 4 EO / 8 PO	68439-51-0	6.1	27
SC L540 Q	Lauryl Alcohol 5 EO / 4 PO	68439-51-0	8.2	37
SC L603 Q	Lauryl Alcohol 6 EO / 3 PO	68439-51-0	9.3	38
SC I406 Q	Isotridecyl Alcohol 4 EO / 6 PO	65150-81-4	6.5	-

1 CAS: CHEMICAL ABSTRACTS SOCIETY

2 ECL Method Ref: X. Guo et al. / Journal of Colloid and Interface Science / Vol 298 / Issue 1 / June 1, 2006 / pp. 441-450

Applications

The products of the SELVI CHEMICALS L and SELVI CHEMICALS I lines are nonionic compounds, whose lipophilic portion of the molecule comes from fatty alcohol and propylene oxide, and the hydrophilic part from the addition of ethylene oxide. This structure gives the line an extremely low foaming power, excellent wetting properties and good detergency.

Paints and Coatings

In addition to their significant surface tension reduction power in aqueous solutions, the products from the SELVI CHEMICALS L line have good wetting and dispersion properties, which enable their use in the manufacture of pigmented pastes, acrylic and vinyl latex paints. Being low foam non-ionic, the need for anti-foams used in such preparations is reduced.

Detergents

SELVI CHEMICALS Fatty Alcohol Alkoxylates present foaming properties significantly lower than traditional fatty alcohol ethoxylates, therefore are recommended for water based detergent formulations that require controlled foam. Though excellent wetting agents and low foam surfactants, SELVI CHEMICALS products have comparably lower cloud points and are less soluble in water. Depending on the formulation, the addition of hydrotopes or solvents, such as isopropanol, secbutanol, monoethyleneglycol, butylglycol or butyldiglycol may be required for formulation stability and cloud point control. SELVI CHEMICALS has a highly specialized team of experts that can assist in the correct SC choice and use level for your application.

SELVI CHEMICALS L products are recommended as wetting agents in rinse-aids, automatic dishwashing detergents and low foam I&I degreasers. These products are also useful in acidic truck cleaners, aluminum brighteners and commercial tunnel car washes.

SELVI CHEMICALS I has the lowest foaming capacity in the line, also functioning as an anti-foam agent in the presence of other surfactants. It is recommended for wetting and detergency in bottle washing and dairy & brewery tank cleaners where non-foaming surfactants stable in acidic formulations are required.

SELVI CHEMICALS L products are recommended as nonylphenol ethoxylate alternatives in auxiliary textile preparation formulas. SC I 406 can be used in textile purging since its hydrophobic part is branched, which increases compatibility of waxes from natural textile fibers.

Product Properties						
Characteristics	SC L306	SC L405	SC L408	SC	SC L603	SC I406
	Q	Q		L540 Q	Q	Q
Appearance, 25°C	Clear to turbid liquid	Clear to turbid liquid	Clear yellow liquid	Liquid	Liquid	Clear to turbid liquid
Hydroxyl value, mgKOH/g	-	-	66-75	96-108	80-95	-
Avg Molecular Weight, g/mol	675	661	796	550	646	724
Water, % max.	0.5	0.5	0.5	1.0	1.0	0.5
Density, g/ml, 25°C	0.96	0.97	0.97	-	0.98	0.97
Flash point (open cup), °C	222	221	240	-	>230	>200
Cloud point, 1% aqueous, °C	15	22	21-27	24-34	39	15
Cloud point, 20% in BDG 25% ,°C	25-28	31-35	35	-	47	26-30
pH, 1% aqueous, 25°C	6.0 - 8.0	6.0 - 8.0	5.0 -7.0	9.0 -11.0	6.0 - 8.0	6.0 - 8.0

(1) The properties described above are for information purposes only and may be altered without prior notice. Please contact SELVI CHEMICALS for the current specification as needed.

Handling and Storage

When handling these products, we recommend using proper PPE (personal protective equipment), e.g. PVC gloves, safety goggles, and coat. In case of accidental contact, proceed as follows:

- Eyes: wash immediately with abundant water for at least 15 minutes;
- Skin: remove the contaminated clothing and wash affected sites with abundant water;
- Ingestion: seek urgent medical care.

The products from the SELVI CHEMICALS line are low viscosity liquids above their pour points.

The products from the SELVI CHEMICALS line should be stored in sealed containers in a covered, dry place away from sources of heat or ignition.

For bulk storage of SELVI CHEMICALS products, we recommend using tanks made of 304 or 316 or 316 L stainless steel or carbon steel coated with vinyl resin, having recirculation systems for homogenization of the products at the time of use. This is necessary because these products can layer and should be mixed before use.

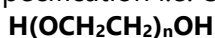
Avoid overheating with steam or hot water as this can cause darkening and increase turbidity.

DISCLAIMER: - This bulletin contains information given in good faith, based on SELVI CHEMICALS current knowledge on the subject, and is purely indicative. Any information, including suggestions for using the products, should not preclude experimental testing and verification, which are essential to ensure the suitability of the products to each specific application. All users shall also abide by local laws and obtain all necessary permits. When handling the product, consult the safety data sheet. In case of questions or additional needs, please contact SELVI CHEMICALS.

:POLYETHYLENEGLYCOL SPECIFICATION:

POLY ETHYLENE GLYCOL is produced by the reaction of ethylene oxide with either ethylene glycol or water or Diethylene Glycol. SELVI CHEMICALS offers a wide range of Polyethylene glycol in the brand name of PEG with average molecular weight of 200, 300, 400, 600, 1500, 3350, 4000, 6000, 8000, 10000, 12000, 20,000 and 35000. The range has a gradual variation in properties which has enabled them to find their ways into wide variety of industries - either alone or in blends, in aqueous solution and as intermediates in the production of surfactants, lubricants and plasticizers.

SC's PEG complies to the Pharmacopoeia Specification i.e. USP-NF/Ph. Eur/ IP.



Where n Represent the Average number of Oxyethylene groups.

Poly Erhylene Glycol Specification

Product	Appearance	Avg. Molecular Weight	Moisture %	pH (5%aq.)	Hydroxyl Value	Viscosity @ 98.9°C, cSt	Dioxane (ppm)	Pour Point °C	Surface Tension mN/m @ 20°C
PEG – 200	Clear Liquid@25°C	190 - 210	0.2	5 - 6	550 - 570	4.0 - 4.2	--	-50	44.6
PEG – 300	Clear Liquid@25°C	285 - 315	0.2	4.5 - 7.5	350 - 390	5.4 - 6.2	<10	-15	44.6
PEG – 400	Clear Liquid@25°C	280 - 420	0.2	6-7	265 - 295	7-8	<10	-6	44.6
PEG – 600	Clear Liquid@25°C	570 - 630	0.2	6-7	180 - 197	10-11	<10	-25	44.6
PEG – 1500	Waxy Flakes@25°C	1400 - 1600	0.2	6-7	70 - 80	26 - 32	<10	42 - 48	53.1
PEG – 4000	Waxy Flakes@25°C	3100 - 3700	0.2	6-7	30 - 36	76 - 100	<10	54 - 58	54.4
PEG - 4000S	Waxy Flakes@25°C	3800 - 4300	0.2	6-7	26 - 29.5	110 - 158	<10	54 - 59	54.4
PEG – 6000	Waxy Flakes@25°C	5400 - 6600	0.2	6-7	16 - 20.5	230 - 300	<10	55 - 61	53.3
PEG - 10000	Waxy Flakes@25°C	8800 - 11200	0.2	4.5 - 7.5	10 - 13	450 - 580	<10	58 - 62	--

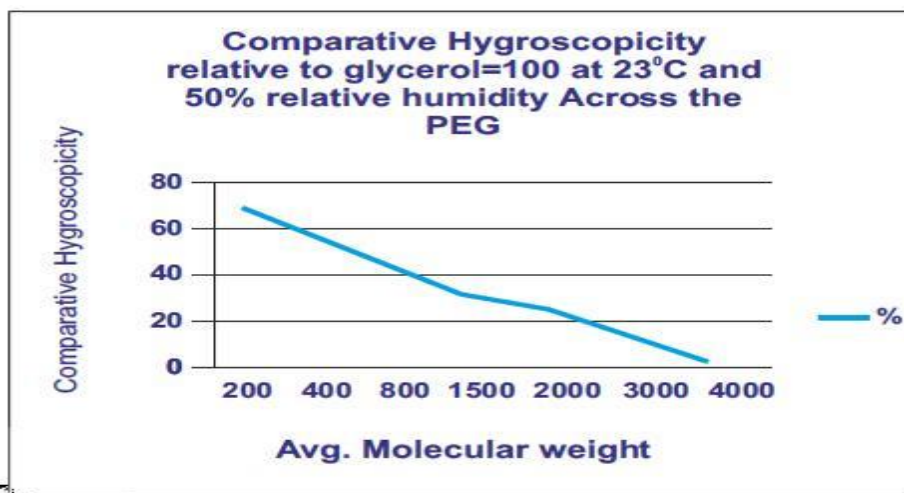
PROPERTIES OF PEG :

The outstanding features of the PEG include their wide compatibility over a range of solvents, wide viscosity and hygroscopicity ranges. The PEG also show excellent lubricity, no or little toxicity, low volatility and colour. They are odorless products.

PEG possess a hygroscopic property. Normally the hygroscopic property diminishes as the molecular weight increases. For example, PEG 200 possesses slightly less hygroscopicity as compared with glycerin.

A PEG with molecular weight more than 1000 has little hygroscopicity.

All the PEG, either in liquid or solid wax, are readily soluble in water and in many organic solvents excepting aliphatic hydrocarbons. However, as the molecular weight increases, the compatibility with organic solvent decreases. Besides, PEG possess excellent compatibility with various other chemicals.



PEG as described below, find a wide range of application

Industry	Application	PEG 200	PEG 300	PEG 400	PEG 600	PEG 1500	PEG 4000	PEG 6000
Agriculture	Pesticide Vehicle	•	•	•	•			
Ceramic and glass	Binder for glazes	•			•			
	Screen print viscosity control	•	•	•	•			
Chemical manufacture	Intermediate for copolymer						•	•
	PEG ester surfactant	•	•	•	•	•	•	•
	Complexing agent			•	•			
	Methacrylate resin component	•						
Cosmetic and Personal care	Antiseptic dental cream		•			•	•	•
	Deodorant sticks and roll-ons		•	•		•		
	Hair dressing Preparation				•	•		
	Shaving Cream				•	•		
	Soaps		•	•	•			
Pharmaceuticals	Capsule and pill binder	•	•	•	•		•	•
	Ointment bases					•	•	
	Liquid preparation		•	•		•	•	•
Textile Treatment	Antistatic agent			•		•		
	Finishing aids		•	•	•	•		
	Sizing agents					•	•	
	Spinning lubricant component		•		•	•	•	
Rubber processing aid	Mould release agents		•	•	•		•	
	Heat transfer agents-latex	•	•					
Metals working	Electro Polishing			•	•	•	•	
	Lubricants	•	•	•	•		•	•
	Brazing and soldering fluxes			•	•			
	Lost wax casting						•	•

APPLICATIONS IN PHARMACEUTICAL FORMULATION OR TECHNOLOGY

Polyethylene glycols are widely used in a variety of pharmaceutical formulations including parenteral, topical, ophthalmic, oral and rectal preparations.

Polyethylene glycols are stable, hydrophilic substances that are essentially nonirritant to the skin. Although they do not readily penetrate the skin, polyethylene Glycols are water soluble and as such are easily removed from the skin by washing; they are therefore useful as ointment bases. Solid grades are generally employed in topical ointments with the consistency of the base being adjusted by the addition of liquid grades of polyethylene glycol.

Mixtures of polyethylene glycols can be made higher to withstand exposure to warmer climates; release of the drug is not dependent upon melting point; physical stability on storage is better; suppositories are readily miscible with rectal fluids. Disadvantages of using polyethylene glycols are: they are chemically more reactive than fats; greater care is needed in processing to avoid inelegant contraction holes in the suppositories; the rate of release of water-soluble medications decreases with the increasing molecular weight of the polyethylene glycol; polyethylene glycols tend to be more irritating to mucous membranes than fats.

Aqueous polyethylene glycol solutions can be used either as suspending agents or to adjust the viscosity and consistency of other suspending vehicles. When used in conjunction with other emulsifiers, polyethylene glycols can act as emulsion stabilizers.

Liquid polyethylene glycols are used as water-miscible solvents for the contents of soft gelatin capsules. However, they may cause hardening of the capsule shell by preferential absorption of moisture from gelatin in the shell.

In concentrations up to approximately 30% v/v, PEG 300 and PEG 400 have been used as the vehicle for parenteral dosage forms.

In solid dosage formulations, higher molecular weight polyethylene glycols can enhance the effectiveness of tablet binders and impart plasticity to granules. However, they have only limited binding action when used alone, and can prolong disintegration if present in concentrations greater than 5% w/w. When used for thermoplastic granulations, a mixture of the powdered constituents with 10-15% w/w/ PEG 6000 is heated to 70-75°C. The mass becomes paste-like and forms granules if stirred while cooling. This technique is useful for the preparation of dosage forms such as lozenges when prolonged disintegration is required.

Polyethylene glycols can also be used to enhance the aqueous solubility or dissolution characteristics of poorly soluble compounds by making solid dispersions with an appropriate polyethylene glycol. Animal studies have also been performed using polyethylene glycols as solvents for steroids in osmotic pumps.

In film coatings, solid grades of polyethylene glycol can be used alone for the film coating of tablets or can be useful as hydrophilic polishing materials. Solid grades are also widely used as plasticizers in conjunction with film forming polymers. The presence of polyethylene glycols, especially liquid grades, in film coats tends to increase their water permeability and may reduce protection against low pH in enteric coating films. Polyethylene glycols are useful as plasticizers in micro-encapsulated products to avoid rupture of the coating film when the microcapsules are compressed into tablets. Polyethylene glycol grades with molecular weights of 6000 and above can be used as lubricants, particularly for soluble tablets. The lubricant action is not as good as that of magnesium stearate, and stickiness may develop if the material becomes too warm during compression. An anti-adherent effect is also exerted, again subject to the avoidance of over-heating.

In addition, polyethylene glycols have been used in the preparation of urethane hydrogels which are used as controlled release agents.

▣ STABILITY AND STORAGE CONDITIONS:

Polyethylene glycols are chemically stable in air and in solution although grades with a molecular weight less than 2000 are hygroscopic. Polyethylene glycols do not support microbial growth, nor do they become rancid.

Polyethylene glycols and aqueous polyethylene glycol solutions can be sterilized by autoclaving, filtration or gamma irradiation. Sterilization of solid grades by dry heat at 150°C for one hour may

induce oxidation, darkening and the formation of acidic degradation products. Ideally, sterilization should be carried out in an inert atmosphere. Oxidation of polyethylene glycols may also be inhibited by the inclusion of a suitable antioxidant.

If heated tanks are used to maintain solid polyethylene glycols in a molten state, care must be taken to avoid contamination with iron, which can lead to discoloration. The temperature must be kept to the minimum necessary to ensure fluidity; oxidation may occur if polyethylene glycols are exposed for long periods to temperatures exceeding 50°C. However, storage under nitrogen reduces the possibility of oxidation.

Polyethylene glycols should be stored in well-closed containers in a cool, dry place. Stainless steel, aluminum, glass or lined steel containers are preferred for the storage of liquid grades.

INCOMPATIBILITIES:

The chemical reactivity of polyethylene glycols is mainly confined to the two terminal hydroxyl groups, which can be either esterified or etherified. However, all grades can exhibit some oxidizing activity due to the presence of peroxide impurities and secondary products formed by autoxidation. Liquid and solid polyethylene glycol grades may be incompatible with some colors.

The anti-bacterial activity of certain antibiotics, particularly penicillin and bacitracin, is reduced in polyethylene glycol bases. The preservative efficacy of the parabens may also be impaired due to binding with polyethylene glycols.

Physical effects caused by polyethylene glycol bases include softening and liquefaction in mixtures with phenol, tannic acid and salicylic acid. Discoloration of sulfonamides and dithranol can also occur and sorbitol may be precipitated from mixtures. Plastics, such as polyethylene, phenol form aldehyde, polyvinyl chloride and cellulose-ester membranes (in filters) may be softened or dissolved by polyethylene glycols. Migration of polyethylene glycol can occur from tablet film coating, leading to interaction with core components.

SAFETY:

Polyethylene glycols are widely used in a variety of pharmaceutical formulations. Generally, they are regarded as nontoxic and nonirritant materials. However, adverse reactions to polyethylene glycols have been reported and although of relatively low toxicity, any toxicity appears to be greatest with polyethylene glycols of low molecular weight.

HANDLING PRECAUTIONS:

Observe normal precautions appropriate to the circumstances and quantity of material handled. Eye protection is recommended.

:XP SERIES:

XP SERIES produced by the reaction of ethylene oxide with C-10 Alcohols. These products find application in textile formulation and many other industrial application.



Where 'R' represents the C-10 alcohol and 'n' = number of molecules of ethylene oxide.

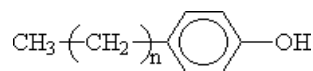
Chemical Properties						
Product	HLB	Appearance	Moisture %	pH 1%	Cloud Point	
XP-30	9.1	Clear to Turbid Liquid	0.5	6 - 8	45-48 (5g in 25g of 25% BDG)	
XP-50	10.0	Clear to Turbid Liquid	0.5	6 - 8	58-64 (10% in 25% BDG)	
XP-60	12.4	Clear to Turbid Liquid	0.5	6 - 8	34-38 (1% Aqueous sol.)	
XP-270	13.2	Clear to Turbid Liquid	0.5	6 - 8	54-60 (1% Aqueous sol.)	
XP-290	13.8	Clear to Turbid Liquid	0.5	6 - 8	66-70 (1% Aqueous sol.)	
XP-120	15.4	Semi Solid	0.5	6 - 8	58-65 (1% in 10% NaCl sol.)	

: ALKYLPHENOL ETHOXYLATE:

Alkyl phenol Ethoxylate produced by the reaction of ethylene oxide with Alkyl phenol. SELVI CHEMICALS offer a wide range of Alkyl phenol ethoxylate i.e. Nonyl Phenol, Octyl phenol, Card phenol and Styrenated phenol. They are excellent Oil/water soluble detergents, emulsifier / co-emulsifier, wetting / cleaning & dispersing agents, intermediate for sulphation and find application in various industries such as Textile, Detergent, Agrochemical, Emulsion Polymerization & Paints.



Where 'R' represents the alkyl group of the parent phenol and
'n' = number of molecules of ethylene oxide.



Nonyl Phenol Specifications											
Product	HLB	Appearance	Moisture (%)	pH (1%aq.)	Hydroxyl Value mgKOH/g	Cloud Point			Colour (APHA)	Surface tension mM/m, 0.1%	Pour Point°C
						10%in 25%BDG	1% aq	1%in 10% NaCl			
PA 40	5.6	Clear Liquid@25°C	0.2	6 - 7.5	173-193	85-91 (1% in 25% BDG)	-	-	50max	-	<0
NP-4.5	9.8	Clear Liquid@25°C	0.2	6 - 7.5	123-133	58 - 63	-	-	50max	-	<0
NP-6	10.9	Clear Liquid@25°C	0.2	6 - 7.5	112-120	65 - 70	-	-	50max	-	<0
NP-8.8	12.7	Clear Liquid@25°C	0.2	6 - 7.5	90-96	-	44 - 49	-	50max	-	<0
NP-9	12.8	Clear Liquid@25°C	0.2	6-7 (5%aq)	90-95	-	52 - 56	-	50max	30.6	0
NP-9.5	13.1	Clear Liquid@25°C	0.2	6 - 7.5	85 - 91	-	57 - 60	-	50max	30.9	4
NP-9.8	-	Clear Liquid@25°C	0.2	6 - 7.5	81 - 95	-	60-65	-	50max	31	5
NP-10	13.3	Clear Liquid@25°C	0.2	6 - 7.5	82-88	-	65-68	-	50max	31.2	5
NP-12	14.1	Pasty liquid@25°C	0.2	6 - 7.5	72-82	-	76-80	-	50max	32.3	12
NP-13	14.4	Pasty liquid@25°C	0.2	69-73	72-82	-	-	57-63	50max	34.9	15
NP-15	15	Waxy solid to paste@25°C	0.2	6 - 7.5	64 - 69	-	-	64-69	50max	36.3	25
NP-20	16	Waxy solid @25°C	0.2	6 - 7.5	49 - 53	-	-	73 - 76	50max	41.7	30
NP-26	16.8	solid @25°C	0.2	6 - 7.5	38 - 43	-	-	72 - 76 (1% in 5% Nacl)	50max	42	40
NP-30	17.1	Waxy flakes @25°C	0.2	6 - 7.5	34.5-38.5	-	-	76 - 80	50max	42.8	40
NP-40	17.8	Waxy flakes @25°C	0.2	6 - 7.5	23 -33	-	-	76 - 80	100max	41	-

Octyl Phenol Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (1%aq.)	Hydroxyl Value mgKOH/g	Cloud Point			Surface tension mM/m, 0.1%	Pour Point °C	
						10%in 25%BDG	1% aq	1%in 10% NaCl			
OP-05	10.5	Clear Liquid@25°C	0.2	6 - 7.5	125 -135	58 – 65	-	-	50max	0	<0
OP-07	11.9	Clear Liquid@25°C	0.2	6 - 8	105 - 115	71 – 77	-	-	50max	-	<0
OP-10	13.6	Clear Liquid@25°C	0.2	6 - 7.5	84 - 90	-	64 - 68	-	50max	31.8	<7
OP-20	16.8	Waxy solid to paste@25°C	0.2	6 - 8	38 - 48	-	-	72 - 76	100max	-	38
OP-40	17.9	Waxy flakes@25°C	0.2	6.5 - 7.5	23 -33	-	-	76 - 81	100max	36	40

Card Phenol Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Hydroxyl Value	Cloud Point		
						10%in 25%BDG	1% aq	1%in 10% NaCl
CP - 5	8.6	Clear Liquid@30°C	0.2	6 - 8	100 - 110	58 – 63	-	-
CP - 10	12.1	Clear Liquid@30°C	0.2	6 - 8	-	57 – 60	-	-
CP - 15	13.9	Clear Liquid@30°C	0.2	6 - 8	33 - 43	55 – 65	-	64 - 69

Styrenated Phenol Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Hydroxyl Value	Cloud Point		
						10%in 25%BDG	1% aq	1%in 10% NaCl
SP - 15	11.9	Clear Liquid@30°C	0.2	6 - 8	55 - 70	-	62 – 66	-
SP - 20	13.6	Clear Liquid@30°C	0.2	6 - 7	50 - 60	-	-	49 - 53
SP - 25	15.2	Clear Liquid@30°C	0.2	6 - 8	33 - 43	-	-	56 - 60
SP - 30	16.8	Clear Liquid@35°C	0.2	6 – 7 (10%)	32 - 40	-	-	65 - 70

HLB BY DISPENSABILITY

Solubility	HLB Range
No dispensability in water	1-4
Poor dispersion	3-6
Milky dispersion after vigorous agitation	6-8
Stable milky dispersion	8-10
Translucent to clear dispersion	10-13
Clear solution	13+

HLB RANGES AND APPLICATIONS	
HLB RANGE	APPLICATIONS
3-6	W/o. emulsifier
7-9	Wetting agent
9-13	O/w. emulsifier
13-15	Detergent
15-18	Solubilizer

APPLICATION

SELVI CHEMICALS NP

Emulsifier, co-emulsifier, surfactant, dispersant, detergent wetting agent, Foaming agent Penetrant, Emoilient, Solubilizer stabilizer, viscosity control agent, intermediate raw material Demulsifier, Corosion inhibitor Degreasing agent.

SELVI CHEMICALS OP

Dispersant, Detergent, Wetting agent, Emulsifier, Co-emulsifier Penetrant, Surfactant, Solubilizer, coupling agent, Stabilizer, Lubricant, Dyeing assistant.

FUNCTIONAL APPLICATION ALKYLPHENOL ETHOXYLATE

SELVI CHEMICALS ALKYLPHENOL –2 MOLES EO(PA 40)

Deforming agent in surfactant blends
Oil –soluble detergent in petroleum oils
Dispersing agent in petroleum oils
Co emulsifier in surfactant blends

SELVI CHEMICALS ALKYLPHENOL – 4 AND 6 MOLES EO

Oil –soluble detergent and dispersing agent
Intermediate in the synthesis of anionic esters
Oil –soluble emulsifying agent
Dinking of paper.

SELVI CHEMICALS ALKYLPHENOL –9 , 10 AND 11 MOLES EO

Surfactant for textile processing & Textile detergent
Pitch control in paper pulp manufacture
Rewetting agent for paper towels
Surfactant for cleaning paper-machine felts
Wetting agent and penetrate in leather manufacture
Surfactant in light-duty and heavy-duty detergent formulations
Wetting agent for inhibited acid cleaners
Wetting agent for caustic cleaners

SELVI CHEMICALS ALKYLPHENOL –15 AND 20 MOLES EO

Surfactant for high-temperature detergency
Surfactant for detergency and wetting in high electrolyte concentration
Emulsifier for fats, oil, and waxes, Penetrate and wetting agent in caustic solution
Stabilizer for synthetic lattices

SELVI CHEMICALS ALKYLPHENOL-30,40,50 AND 100 MOLES EO

Stabilizer for synthetic lattices
Emulsifier for vinyl acetate and acryl ate emulsion polymerization
Dyeing assistant and leveling agent
Lime-soap dispersant in solid formulations
Surfactant in high-temperature or high-electrolyte applications.

FATTY ALCOHOL ETHOXYLATE

Fatty Alcohol Ethoxylate produced by the reaction of ethylene oxide with fatty alcohol. SELVI CHEMICALS offer a wide range of fatty alcohol ethoxylate i.e. Lauryl alcohol, Ceto stearyl alcohol and iso decyl alcohol. They are excellent Oil / water soluble detergents, emulsifier / co - emulsifier, wetting / cleaning & dispersing agents, intermediate for sulphation and find application in various industries such as Textile, Detergent, Agrochemical, Emulsion, personal care, Emulsion Polymerization & Paints.



Where 'R' represents the alkyl group of the parent alcohol and 'n' = number of molecules of ethylene oxide.

Lauryl Alcohol Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (1%aq.)	Hydroxyl Value mgKOH/g	Cloud Point			Colour (APHA)	Free Alcohol	PEG %	Surface Tension mM/m, 0.1%	Free EO ppm
						10%in 25%BDG	1% aq	1%in 10% NaCl					
Desizol-1	3.66	Clear Liquid@30°C	0.2	6 - 7.5 (3%)	196 - 200	-	-	-	20	52 Max	1 Max	-	10 Max
Desizol-1.8	5.8	Clear Liquid@30°C	0.2	6.0 - 7.5 (10%)	204 - 208	-	-	-	20	30 Max	1 Max	-	10 Max
Desizol-2	6.2	Clear Liquid@30°C	0.2	6.0 - 7.5 (10%)	196 - 200	-	-	-	20	25 Max	1 Max	-	10 Max
Desizol-2.2	6.6	Clear Liquid@30°C	0.15	6.0 - 7.0 (3%)	188 - 192	-	-	-	20	25 Max	1 Max	-	10 Max
Desizol-2.5	7.2	Clear Liquid@30°C	0.15	6.0 - 7.0 (5%)	184 - 188	-	-	-	30	25 Max	1.5 Max	-	10 Max
Desizol-2.75	7.63	Clear Liquid@30°C	0.15	6.0 - 7.0 (1%)	173 - 180	-	-	-	20	-	-	-	-
Desizol-3.0	8.05	Clear Liquid@30°C	0.2	7.0 - 8.5 (1%)	167 - 173	60 - 62	-	-	50	20 Max	1.5 Max	-	-
Desizol-4.0	9.5	Clear Liquid@25°C	0.2	5.0 - 7.0 (5%)	145 - 155	65 - 69	-	-	50	-	1.5 Max	-	-
Desizol-5.0	10.6	Clear Liquid@25°C	0.5	7.0 - 8.0 (10%)	126 - 136	70 - 74	-	-	50	-	-	-	-
Desizol-6.0	11.5	Clear Liquid@35°C	0.5	6.0 - 7.5 (3%)	118 - 124	-	41 - 45	-	50	-	-	27.8	-
Desizol-7.0	12.2	Clear Liquid@35°C	0.5	7.0 - 8.5 (3%)	106 - 116	-	54 - 58	-	50	-	-	30	-
Desizol-8.5	13.1	Liquid/Paste@35°C	0.5	6.0 - 8.0 (3%)	92 - 105	-	62 - 74	-	50	-	-	-	-
Desizol-9	13.4	Solid@25°C	0.3	6.0 - 7.5 (1%)	92 - 100	-	72 - 82	-	50	-	-	30.5	-
Desizol-10	13.8	Solid@25°C	0.2	7 - 8 (10%)	83 - 93	-	84 - 88	-	50	-	-	32	-
Desizol-12	14.6	Solid@25°C	0.15	6.5 - 7.5 (5%)	73 - 78	-	-	80 - 83	50	-	-	35.6	-
Desizol-23 (LA-23)	16.75	Solid@25°C	0.2	6.0 - 8.0 (1% aq)	40 - 50	-	-	76 - 80	50	-	-	35.7	-
Desizol-30	17.4	Waxy Solid@25°C	0.15	6.0 - 7.0 (5%)	34.5-37.5	-	-	91 - 95 (1% in 5% NaCl)	50	-	-	-	-

Tridecyl Alcohol Ethoxylates

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Hdroxyl Value mgKOH/g	5gm in 25ml of 25%BDG	Cloud Point	
							1% aq	1%in 10% NaCl
TFD – 03	8.0	Clear Liquid@30°C	1	6.5 - 7.5 (1%aq)	168 - 178	44 - 48	-	-
TFD – 05	10.5	Clear Liquid@30°C	1	6.0 - 7.5 (5%)	128 - 138	63 - 68	-	-
TFD – 06	11.4	Clear Liquid@30°C	0.5	6.5 - 7.5 (5%)	115 - 125	70 - 76	-	-
TFD – 07	12.2	Clear Liquid@30°C	0.5	6.0 - 7.0 (5%)	110 - 120	70 - 80 (10% in 25% BDG)	-	-
TFD - 8.5	13.1	Turbid Liquid@30°C	0.5	6.0 - 8.0 (1%)	93 - 103	78 - 85 (10% in 25% BDG)	-	-
TFD – 9	13.3	Turbid Liquid@35°C	0.5	6 - 7.5 (1%)	90 - 98	-	70 - 75	-
TFD – 10	13.8	Clear to turbid Liquid@40°C	0.5	6.0 - 8.0 (1%)	84 - 96	-	70 - 78 (5% aq)	-
TFD – 12	14.5	Clear to turbid Liquid@40°C	0.5	6.0 - 8.0 (1%)	70 - 80	-	-	76 - 82 (1% in 5% NaCl)
TFD – 13	14.8	Clear to turbid Liquid@40°C	0.5	6.0 - 8.0 (1%)	68 - 78	-	-	80 - 86 (1% in 5%)
TFD – 20	16.3	Waxy solid@20°C	0.2	6.5 - 7.5 (5%)	50 - 54	-	-	73 - 75

CSA (CETOSTEARYL ALCOHOL ETHOXYLATE)

Product	HLB	Appearance at 25°	pH 1% aqueous	Moisture %	Hydroxyl Value mg koH/g	Cloud Point 1% in 10% NaCl	Surface Tension mM/m 0.1%
CSA-5 (P-500)	9.4	White soft solid	5-7	0.5	110-120	-	40
CSA-20	15.4	White waxy solid	5-7	0.5	40-52	38	41.3
CSA-25	16.2	White waxy solid	5-7	0.5	37-47	76-80	46.2
CSA-30	16.7	White waxy solid	5-7	0.5	31-41	-	-
CSA-40	17.4	White waxy solid	5-7	0.5	25-35	-	-
CSA-50	17.9	White waxy solid	5-7	0.5	22-26	-	-

BA - BEHENYL ALCOHOL ETHOXYLATE(C 22 ALCOHOL)

Product	Appearance At 25° C	Hydroxyl Value	HLB	Acid Value Max	Color Gardner Max
SC BA-2	White translucent plastic wax	137±5	4.3	1.0	1
SC BA-5	White translucent soft solid	103±5	8.2	1.0	1
SC BA-7	White translucent soft solid	88±5	8.2	1.0	1
SC BA-10	White waxy solid	73±5	11.6	1.0	1
SC BA-15	White waxy solid	57±5	13.5	1.0	1
SC BA-20	White waxy solid	46±5	14.7	1.0	1
SC BA-25	White waxy solid	39±5	15.5	1.0	1
SC BA-30	White waxy solid	34±5	16.1	1.0	1

OCA –OLEYL CETYL (50/55) ALCOHOL ETHOXYLATE

Product	Appearance at 25° C	pH Value	Iodine Value	HLB	Acid Value Max	Color Gardner Max
OCA-2	Clear to slightly hazy, colorless to pale yellow liquid	6.0-7.5	36-40	5.19	0.5	150
OCA-2.5	Clear to slightly hazy, colorless to pale yellow liquid	6.0-7.5	34-38	6.01	0.5	150
OCA-5	Opaque white to off white liquid	6.0-7.5	25-29	9.25	0.5	150
OCA-6.5	Opaque white to off white liquid	6.0-7.5	22-26	10.57	0.5	150
OCA-10	White soft paste	6.0-7.5	17-21	12.67	0.5	150
OCA-15	White soft paste	6.0-7.5	12-16	14.43	0.5	150
OCA-20	White waxy solid	6.0-7.5	10-14	15.51	0.5	150

APPLICATION

SELVI CHEMICALS surfactants are used by a variety of industries as diverse as cosmetics and steelmanufacture. They are employed as:

- **Antistatic Agents**
- **Plasticizers**
- **Detergents**
- **Scouring agents**
- **Dispersants**
- **Solubilizers**
- **Emulsifiers**
- **Wetting Agents**
- **Leveling Agents**
-
-

DETERGENTS AND CLEANERS

Hard surface cleaners are usually on acidic or alkaline systems and therefore necessitate a surfactant which is chemically stable at extreme pH. SELVI CHEMICALS are often preferred in these cases because of their stability and relatively low foaming properties. High wetting and detergency are imparted to the product. The highest solubility, wetting and detergency properties are found in the SELVI CHEMICALS TDA range, making them suitable surfactants for detergent and cleaner formulations.

SELVI CHEMICALS are effective emulsifiers and dispersing agents for many of the solvents used in liquid cleaners and degreasers. SELVI CHEMICALS OCA5 is most effective.

The diverse properties of SELVI CHEMICALS suggest their use in many other cleaners, such as liquid detergents, metal cleaners, car. Washing compounds, dairy and glass cleaners. They can be employed alone or in conjunction with anionic; cationic or other non-ionic surfactants.

Nonionic surfactants can deactivate certain bactericides and SELVI CHEMICALS should not be employed in germicidal cleaners based on phenolics such as PCMX or DCMX.

DETERGENTS INTERMEDIATES

Polyethoxylated fatty alcohols are used as intermediates in the manufacture of other surfactants like alkyl ether sulphates - a group of high foaming detergents used by many industries.

They are also the precursors of alkyl ether phosphates, a versatile class of anionic detergents, wetting and emulsifying agents.

METAL WORKING COMPOUNDS

SELVI CHEMICALS OCA3 and OCA5 are effective emulsifiers for oil based and EP additives used in rolling oils and cutting fluids.

Metal pickling baths require surfactants of high wetting ability and SELVI CHEMICALS TDA10 or TDA15 may be employed.

The 5 molar adducts of the SELVI CHEMICALS range are useful wetting agents for pressing lubricants.

Good surface wetting is also important in maximizing the performance of metal grinding fluids and members of the SELVI CHEMICALS TDA range are suitable. Improved performance here can be achieved by combining SELVI CHEMICALS TDA with the triethanolamine salt or tridecyl ester phosphates.

Combinations of SELVI CHEMICALS and alkyl ether phosphates, produce excellent, non-corrosive emulsifiers and confer improved EP properties to metal working fluids.

TEXTILE PROCESSING AIDS

SELVI CHEMICALS have many applications in the processing of textile; they are used as lubricants, and as emulsifying, antistatic, scouring, wetting, dye leveling agents and lime soap dispersants.

SELVI CHEMICALS are effective at all temperatures their cloud point, through maximum wetting is observed in conditions just below this critical temperature.

The more water-soluble members of the range are useful detergents, wetting agents and dye leveling agents in both acidic and alkaline solutions and in environments where ionic are unsuitable.

Textile oils and fiber lubricants can be emulsified by products within the SELVI CHEMICALS LA, OCA and CSA series. They may also impart lubricity and antistatic properties to the finish.

PAPER PROCESSING AIDS:

Absorbency and rewetting characteristics of paper toweling can be improved by the addition of a suitable SELVI CHEMICALS during processing.

DUST CONTROL:

The higher molar adducts of the SELVI CHEMICALS TDA range aid the wetting down of dust in mines, quarries, mills and chimneys.

ADHESIVES:

Animal glues are improved by the increased wetting properties by SELVI CHEMICALS TDA10
GUARGUM : CS-23 IS BEST SOFTENER FOR GUAR GUM

POLYMERS AND POLYMERISATION:

The 20 molar ethoxylates of Ceto-stearyl, Oleyl Cetyl and Tridecyl Alcohol's are suitable surfactants for the emulsion polymerization of vinyl resins. These SELVI CHEMICALS also wet and effectively stabilize rubber latex.

POLISHES:

SELVI CHEMICALS are excellent emulsifiers for wax/solvent combinations and can be used in many types of polish formulations, including dry brites. SELVI CHEMICALS CSA15, CSA20, OCA15 and OCA20 are particularly effective emulsifiers for many natural and synthetic waxes.

AGRICULTURE:

SELVI CHEMICALS used alone or in conjunction with anionic, cationic or other nonionic surfactants, are suitable emulsifiers and wetting agents for herbicides and pesticides etc. The choice of surfactant depends to a large extent on the solvent carrier and the active compound to be emulsified.

COSMETICS AND PHARMACEUTICALS:

The SELVI CHEMICALS CSA and OCA and LA series are general purpose emulsifying agents and are used extensively in cosmetic and pharmaceutical emulsion systems. Self-emulsifying wax bases can be produced by combining SELVI CHEMICALS CSA20 or SELVI CHEMICALS CSA15 with Ceto-stearyl alcohol.

Note: Above SELVI CHEMICALS Range are the running products. We can produce higher moles on customer specific demand and specifications can be altered as per customer requirement.

: VEGETABLE OIL ETHOXYLATE:

Triglyceride Ethoxylate produced by the reaction of ethylene oxide with naturally derived triglyceride i.e. Castor oil and Hydrogenated Castor oil SELVI CHEMICALS offer a wide range of Castor oil / hydrogenated castor oil ethoxylate. Castrol series are used as a emulsifier in Agro chemical formulation; dye leveling agent, antistatic Textile application, as tanning in Leather application; solublizer in Pharmaceutical and personal care application.

Castor Oil Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Saponification Value	Cloud Point	
						1% in 10% Acetic Acid	1% in 10% NaCl
CO - 2.5	2.1	Clear Liquid@30° C	0.2	6.5 - 7.5 (3%)	155 - 165	-	-
CO - 5	3.8	Clear Liquid@30° C	0.2	6.5 - 7.5 (10%)	140 - 150	-	-
CO - 5	3.8	Clear Liquid@30° C	0.2	6.5 - 7.5 (10%)	140 - 150	-	-
CO - 10	6.4	Clear Liquid@30° C	0.2	6.0 - 8.0 (3%)	118 - 128	-	-
CO - 15	8.3	Clear Liquid@30° C	0.2	6.0 - 8.0 (3%)	100 - 110	-	-
CO - 20	9.7	Clear Liquid@30° C	0.2	6.0 - 7.5 (3%)	90 - 96	-	-
CO - 25	10.8	Clear Liquid@30° C	0.2	6 - 7.5 (3%)	74 - 84	-	-
CO - 30	11.7	Clear Liquid@30° C	0.2	6.0 - 8.0 (3%)	68 - 72	66 - 69	-
CO - 36	12.6	Clear Liquid@30° C	0.2	6.5 - 8.5 (10%)	64 - 69	75 - 78 (1% in 25% Acetic acid)	70 - 80
CO - 40	13.1	Liquid Paste@30° C	0.2	6.0 - 7.5 (3%)	58 - 68	81- 85 (1% in 25% acetic acid)	-
CO - 42	13.3	Clear Yellow Liquid @30° C	0.2	6 - 8 (10%)	55 - 70	81 - 85 (1% in 25% acetic acid)	-
CO - 55	14.4	Semi Solid @25° C	0.2	6.0 - 8.0 (10%)	47 - 52	-	-

Hydrogenated Castor Oil Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Cloud Point	
					10%in 25%BDG	Saponification Value mgKOH/g
HCO - 10	6.4	Clear Liquid@35°C	0.5	6.5 - 8.0 (1%aq)	-	117 - 127
HCO -15	8.3	Clear Liquid@35°C	0.5	6.5 - 8.0 (1%aq)	-	100 - 110
HCO - 20	9.7	Clear Liquid@35°C	0.5	6.5 - 8.0 (1%aq)	68 - 75	80 - 88
HCO - 40	13.1	Clear Liquid@35°C	0.5	6.5 - 8.0 (1%aq)	77 - 81	55 - 65
HCO - 60	14.4	Clear Liquid@35°C	0.5	6.0 - 7.0	83 - 87	45 - 55

STABILITY AND STORAGE CONDITIONS:

SELVI CHEMICALS -CO-35 forms stable solutions in many organic solvents such as chloroform, ethanol and propan-2-ol; it also forms clear, stable, aqueous solutions. SELVI CHEMICALS -CO-35 is miscible with other polyoxyethylene castor oil derivatives and on heating with fatty acids, fatty alcohols and some animal and vegetable oils. Solutions of SELVI CHEMICALS -CO-40 in aqueous alcohols are also stable. Aqueous solutions of SELVI CHEMICALS -CO-35 are stable in the presence of low concentrations of electrolytes such as acids or salts, with the exception of mercuric chloride.

Aqueous solutions of SELVI CHEMICALS -CO-35 can be sterilized by autoclaving for 20 minutes at 121°C. In this process a product may acquire a deeper color although this has no significance for product stability. Aqueous solutions of polyoxyl castor oil can similarly be sterilized by autoclaving at 121°C, but this may cause a slight decrease in the pH value.

Polyoxyethylene castor oil derivatives should be stored in a well-filled, airtight container, protected from light, in a cool, dry, place.

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.

HANDLING PRECAUTIONS:

Observe normal precautions appropriate to the circumstances and quantity of material handled. Eye protection and gloves are recommended. Applications in Pharmaceutical Formulation or Technology Polyoxyethylene castor oil derivatives are nonionic surfactants used in oral, topical and parenteral pharmaceutical formulations. They are also used in cosmetics animal feeds and Textile.

SELVI CHEMICALS -CO-35 is mainly used as an emulsifying and solubilizing agent, and is particularly suitable for the production of aqueous liquid preparations containing volatile oils, fat-soluble vitamins and other hydrophobic substances.

SELVI CHEMICALS -CO-35 has also been used as a solvent in proprietary injections of diazepam, propanidid and alfaxalone with alfadolone acetate. SELVI CHEMICALS -CO-35 is also used in the production of glycerin suppositories.

In veterinary practice, SELVI CHEMICALS -CO-35 can be used to emulsify cod liver oil, and oils and fats incorporated into animal feeding stuffs.

In cosmetics, SELVI CHEMICALS -CO-35 is mainly used as a solubilizing agent for perfume bases and volatile oils in vehicles containing 30-50% v/v alcohol (ethanol or propan-2-ol). In hand lotions it can be used to replace castor oil.

SELVI CHEMICALS -CO-40 may be used in preference to SELVI CHEMICALS -CO-35 in oral formulations since it is almost tasteless. In aqueous alcoholic or completely aqueous solutions, SELVI CHEMICALS -CO-40 can be used to solubilize vitamins, essential oils and certain drugs. Other materials which can be solubilized are, alfadolone, alfaxalone, hexacholrophane, hexetidine, methotrimeprazine, miconazole, propanidid, and thiopentone.

In aerosol vehicles which include water, the addition of SELVI CHEMICALS -CO-40 improves the solubility of the propellant in the aqueous phase. This enhancement applies both to dichlorodifluoromethane and to propane/butane mixtures.

Foam formation in aqueous ethanol solutions containing SELVI CHEMICALS -CO-40 can be suppressed by the addition of small amounts of polypropylene glycol 2000.

SELVI CHEMICALS -CO-40 is also used as an emulsifier of fatty acids and alcohols.

FUNCTIONAL CATEGORY:

Emulsifier, Co-emulsifier, Dispersant, Solubilizer, Lubricant, Anti-static, Emollient Wetting agent, Scouring agent, Deformer, Softener, Lubricant, Viscosity control Agent, Dying Assistant Dye Carrier, Levelling agent, Stabilizer, Penetrant.

: FATTYALCOHOL ETHOXYLATE:

Fatty acid Ethoxylate produced by the reaction of ethylene oxide with Fatty acid i.e. Coconut oil fatty acid, Stearic acid, oleic acid, SELVI CHEMCALS offer a wide range of Lauric acid, Coconut oil fatty acid, Stearic acid and Oleic acid ethoxylates. These products find application in textile formulation and the manufacture of spin finishes.



Where 'R' represents the alkyl group of the parent alcohol and 'n' = number of molecules of ethylene oxide.

Coconut Fatty Acid Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Saponification Value mgKOH/g	Cloud Point
						10% in 25%BDG
CFA - 5	10.4	Clear Yellowish Paste@30°C	1	6.5 - 8.5 (1%)	130 - 140	-
CFA - 8	12.5	Clear Yellowish Paste@30°C	1	6.5 - 8.5 (1%)	98 - 108	-
CFA - 10	13.5	Clear Yellowish Paste@30°C	1	6.5 - 8.5 (1%)	75 - 85	68 - 72

Lauric Acid Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Saponification Value mgKOH/g
LAE - 5	10.5	Soft viscous Paste@25° C	0.5	6.5 - 8.0 (1%)	130 - 140
LAE - 8	12.7	Soft viscous Paste@25° C	0.5	6.0 - 8.0 (1%)	98 - 108
LAE - 10	13.75	Clear liquid@35° C	0.5	6.0 - 8.0 (1%)	80 - 90

Stearic Acid Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Saponification Value
RF - 5	8.7	Soft Solid@25° C	0.5	6.5 - 8.5 (3%)	106 - 116
RF - 6.5	10.0	Waxy Paste@25° C	0.5	6.5 - 8.5 (3%)	90 - 110
RF - 8	11.0	Waxy Paste@25° C	0.5	6.5 - 8.5 (3%)	83 - 93
RF - 10	12.1	Waxy Paste@25° C	0.5	6.5 - 7.5 (3%)	73 - 83
RF - 12	13.0	Paste solid@25° C	0.5	6.0 - 8.5 (3%)	64 - 74
RF - 20	15.1	Paste solid@25° C	0.5	6.5 - 8.5 (3%)	45 - 60

Oleic Acid Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%)	pH (aqueous)	Saponification Value	Cloud Point
OA - 3	6.4	Pale yellow to amber coloured liquid @30° C	1.0	6.5 - 8.5 (1%)	130 - 140	-
OA - 6	10.0	Pale yellow to amber coloured liquid @30° C	0.5	6.5 - 8.5 (1%)	90 - 110	52 - 58 (20 % in 25% BDG)
OA - 8	11.1	Pale yellow to amber coloured liquid @35° C	0.5	6.0 - 7.5 (1%)	83 - 93	-
OA - 10	12.2	Pale yellow to amber coloured liquid @35° C	0.5	6.0 - 8.5 (1%)	73 - 83	-
OA - 12	13.0	Pale yellow to amber coloured liquid @35° C	0.5	6.0 - 8.5 (1%)	66 - 72	68 - 74 (5g in 25gm of 25% BDG)

: FATTY AMINE ETHOXYLATE:

Fatty amine Ethoxylate produced by the reaction of ethylene oxide with Fatty amine i.e. Cocoamine, Tallow amine, Oleyl amine ethoxylate, SELVI CHEMICALS offer a wide range of Fatty amine ethoxylates. These products find application in textile, Agro and miscellaneous application (eg: in Refinery).



Where 'R' represents the Fatty Amine, and 'n' represents the number of oxyethylene groups.

Cocoamine Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%) Max	pH (aqueous)	Amine Value mgKOH/g	Cloud Point		
						10%in 25%BDG	1% in 10% Acetic Acid	1%in 10% NaCl
CAM - 5	10.5	Yellowish brown liquid@30°C	1	9 - 11 (1%)	133 - 144	-	-	-
CAE-1000	13.75	Yellowish brown liquid@30°C	1	7 - 11 (1%)	83 - 93	-	-	72 - 76
CAE- 1100	15.3	Yellowish brown liquid@30°C	1	9 - 11 (1%)	58 - 68	-	-	82 - 84
CCA - 20	16.3	Yellowish brown liquid@30°C	1	9 - 11 (1%)	42 - 62	-	-	-

Tallow Amine Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%) Max	pH (aqueous)	Amine Value mgKOH/g	Cloud Point		
						10%in 25%BDG	1% in 10% Acetic Acid	1%in 10% NaCl
TA - 5	9.1	Yellowish brown liquid@30°C	1	9.0 - 11.0 (1%)	110 - 120	-	-	-
TA - 10	12.5	Yellowish brown liquid@30°C	1	9.0 - 11.0 (1%)	75 - 85	-	-	-
TA - 15	14.3	Yellowish brown liquid@30°C	1	9.0 - 11.0 (1%)	56 - 68	-	-	78 - 84
TS - 50	4.6	Yellowish brown liquid@30°C	1	9.0 - 11.0 (1%)	145 - 165	-	-	-

Oleyl Amine Ethoxylate Specifications

Product	HLB	Appearance	Moisture (%) Max	pH (aqueous)	Amine Value mgKOH/g	Cloud Point		
						10%in 25%BDG	1%aq.	1% in 10% NaCl
ATS - 150	4.98	Yellowish brownish liquid@30°C	1	7 - 11 (1%)	155 - 165	-	-	-
ATS - 550	9.1	Yellowish brownish liquid@30°C	1	7 - 11 (1%)	110 - 120	-	-	-
ATS - 100	12.5	Yellowish brownish liquid@30°C	1	7 - 11 (1%)	75 - 85	-	-	-
ATS - 650	14.3	Yellowish brownish liquid@30°C	1	7 - 11 (1%)	58 - 68	-	-	-

: GLYCOL ETHERS:

It is difficult to imagine solvents more versatile than the Glycol Ethers. They find virtually limitless applications as resin solvents in surface coatings and inks; ingredients in hydraulic brake fluids; dye solvents in textile and leather applications; as coupling solvents in a variety of chemical specialties; and as intermediates in the production of plasticizers of improved solubility characteristics.

SELVI SOLVE AND SELVI TOL Glycol Ethers are colorless liquids with mild pleasant odors. Due to the presence of an alcohol and an ether group in these products they make excellent solvents unmatched by other products. They virtually find limitless applications as solvents. They are completely soluble in acetone, benzene, carbon tetrachloride, ethyl ether and methanol.

Physical properties of SELVI SOLVE AND SELVI TOL Glycol Ether Products.

Glycol Ethers Ethoxylate Specifications

Product	Chemical Name	Molecular Weight	Boiling Point Deg. C.	Vapour Pressure at 760 Mm. Hg.	Specific Gravity At 20 Deg. C.	Viscosity (Centistokes) At 20/20	Flash Point Deg.f.(Open Cup)
Solve MEM	Mono Ethylene Glycol Methylether	76.10	124.60	6.20	0.964 - 0.969	1.83	115.00
Solve EG	Mono Ethylene Glycol Methylether	90.00	135.00	3.80	0.929 - 0.934	2.30	120.00
Solve MEB	Mono Ethylene Glycol Butyl Ether	118.00	171.00	0.60	0.905 - 0.910	5.90	165.00
Tol EDG	Diethylene Glycol Ethylether	134.00	202.00	0.20	0.989 - 1.30	5.10	205.00
Tol DEB	Diethylene Glycol Butyl Ether	162.00	230.00	0.10	0.925 - 0.955	6.80	230.00
Solve EPH	Mono Ethylene Glycol Phenyl Ether	138.00	248.00	0.30	-	-	265.00

Packing and Storage

SOLVE & TOL Glycol Ethers are provided in drums and may be stored in them. Where drum storage is employed, it is important that the drum cap be replaced tightly after each withdrawal. If this is not done, the SOLVE & TOL Glycol Ether, being hygroscopic, will gradually pick up humidity from the air.

Toxicological and Handling Information

The following discussion which is general in nature is intended to acquaint you with the characteristic toxicological information of these products.

SOLVE & TOL Glycol have relatively a low degree of toxicity and present no serious health hazards in anticipated handling at ordinary room temperatures.

They have a moderate to low single dose oral toxicity; however they are sufficiently toxic and some injury may result if large amount are swallowed accidentally.

Undiluted SOLVE & TOL Glycol Ethers are slightly painful and irritating to the eyes. Transient corneal injury may occur, but healing is expected to be complete within a few days. SOLVE EPH is capable of causing serious injury which may be slow in healing.

Prolonged, repeated inhalation of sufficiently high concentrations of the vapors of nearly all solvents including the SOLVE & TOL Glycol Ether products is capable of causing some adverse effects.

Precautions for Safe Handling And First Aid Measures

When handling SOLVE & TOL Glycol Ethers appropriate precautions should be taken to avoid contact with the eyes are contaminated, they should be flushed with copious amount of flowing water. Medical attention should then be obtained promptly.

Precautions should be taken to prevent prolonged or repeated skin contact. Contaminated skin should be washed thoroughly with soap and water.

If a person should experience any noticeable ill effects from breathing vapors SOLVE & TOL Glycol Ethers, medical attention should be obtained promptly.

NOTICE: The information given in the leaflet is in good faith but without warranty.

: GLYCEROL ETHOXYLATE:



Where 'R' represents the Glycerin and 'n' represent the Moles.

Glycerine Ethoxylate (Glycerol Ethoxylate) (GE)						
Product	APPEARANCE AT 25°c	PH	HLB	Molecular Weight	Moisture Content Max.	
GE-2	Clear colorless liquid	6.5-7.5	9.8	175-185	≤1%	
GE-3	Clear colorless liquid	6.5-7.5	11.84	220-230	≤1%	
GE-5	Clear colorless liquid	6.5-7.5	14.12	307-317	≤1%	
GE-7	Clear colorless liquid	6.5-7.5	15.41	395-405	≤1%	
GE-9	Clear colorless liquid	6.5-7.5	16.23	483-493	≤1%	
GE-9	Clear colorless liquid	6.5-7.5	16.23	483-493	≤1%	
GE-10	Clear colorless liquid	6.5-7.5	16.55	527-537	≤1%	
GE-12	Semi waxy liquid	6.5-7.5	17.04	615-625	≤1%	
GE-15	Waxy solid	6.5-7.5	17.56	747-757	≤1%	
GE-20	Waxy solid	6.5-7.5	18.11	968-978	≤1%	

Above SELVI CHEMICALS Range are the running products. We can produce higher moles on customer specific demand and specifications can be altered as per customer requirement.

: PARAFFIN WAXEMULSIFIER:

SELVI CHEMICALS PWE is a specially manufactured product to emulsify paraffin wax. It has excellent emulsifying property. It finds use in emulsify paraffin wax to get stable emulsion.

USES OF EMULSIFIER (DOSE)

PARAFFIN WAX	80%
SELVI CHEM PWE	20 %

	100 %

the above formulation is heated at 80 degree centigrade.

A (Above mixture)	4 - 40 %
Hot water (80-degree)	96 - 60 %

	100%

This give stable emulsion at room Temperature.

Parameter	
Chemical composition	: Property blend of non-ionic surfactant
Appearance at 25°c	: White to off white waxy solid
HLB	: 10.4
Hydroxyl value	: 90 - 110
Ionic Nature	: Nonionic
pH	: 6.0 to 7.5

BIODEGRADABILITY:

SELVI CHEM PWE is based on the components mainly derived from natural fatty alcohols and undergoes biodegradation easily.

Above SELVI CHEM Range are the running products. We can produce higher moles on customer specific demand and specifications can be altered as per customer requirement.

:AMINO SILICONE OILEMULSIFIER:

SELVI CHEM ASE is specially manufactured product to emulsify amino as well as silicon oils which are the polymers of silicones, oxygen, carbon elements and amino group. It has excellent emulsifying property. It finds use in emulsify amino silicone oils to get stable micro emulsion thus it is a surfactant of choice for these types of oils.

Recommended Dose

In case of micro emulsion, the doses depend upon the type of amino silicon oil having different amine number. However, the following recipe is recommended for better results:

Amino Silicon Oil	: 25
SELVI CHEM ASE	: 25
Water	: 50

How To Use SELVI CHEM ASE For Micro-Emulsion:

SELVI CHEM ASE is to be blended with the amino silicon oils and water is added to this mollifiable concentrate under constant stirring to get stable micro emulsion.

	Specification
Chemical composition	: Propriety blend of non-ionic surfactant
Appearance	: Clear colorless liquid
Ionic nature	: Nonionic
pH (1% aqueous)	: 6 –8
Clarity (1% aqueous)	: Clear

Above SELVI CHEM Range are the running products. We can produce higher moles on customer specific demand and specifications can be altered as per customer requirement.

: SILICONE OIL EMULSIFIER:

SELVI CHEM SE - Emulsifier for silicon oil

Composition	: Composed of alcohol ethoxylate
Appearance	: Colorless liquid at 30 degree having a specific gravity of 0.98.
HLB	: 11.5
Water contain	: 10 %
ph (1 % aq.solu.)	: 6 – 8
Cloud point	: 66 -72(measure for 10 % solution in 25 % butyl diglycol)--- -(25 % butyl diglycol =25 % BDG +75 % WATER)
Solubility	: SELVI CHEM SE forms clear solutions at room temperatureIn lower alcohols. it is dispersible in water with silicon oil.

Above SELVI CHEM Range are the running products. We can produce higher moles on customer specific demand and specifications can be altered as per customer requirement.

:DE-EMULSIFIER:

SELVI CHEM OSD is a totally organic liquid formulation of surfactants and dispersants in a water and soluble in toluene, Xylene, Aromatic solvent, crude oil for the demulsification of water in oil and oil in water.

SELVI CHEM OSD capable of performance at room temperature, but with improved speed and percentage of oil removed when applied at temperatures near 60 deg. C (140 deg. F).

SELVI CHEM OSD destabilizes the oil-water interface that surrounds each water particle in the emulsion, replaces the emulsifier molecules (if any), and allows the water to coalesce.

SELVI CHEM OSD is a completely combustible, non-abrasive, non-ash-forming treatment which will improve the quality of the fuel it is added too.

Characteristics	
Physical Appearance	: Homogenous Liquid
Density	: 0.9 +- 0.5
Solubility	: Toluene, xylene, crude oil, aromatic solvent
PH range	: 6.5 to 8.0
Soluble in water	: Dispersion

Advantages

Does not stay with the water phase, therefore does not contribute to water pollution

Stays with the fuel and actually improves burning characteristics of the fuel

Uses lower dosages than most competing products

Dosage

Because of the diverse nature of oil and waste amenable to treatment with SELVI CHEM OSD, specific recommendations have to be made on a case-by-case basis. The dosage of SELVI CHEM OSD prescribed to break a particular emulsion varies from as little as 1 gallon per 20,000 gallons (50 ppm) of oil to as much as 1 gallon per 10,000 gallons (100 ppm) of oil. A few clients have even found that 20 ppm was more effective than the higher dosages, so we suggest adding the lower levels to your laboratory bench tests to verify the correct dosage for the specific application. Finding the most cost-effective dosage, as well as determining the best conditions of temperature, slow mixing, settling time, etc., is best done in the laboratory, using a sample of the actual oil or waste and a sample of SELVI CHEM OSD

Application

Once you have determined the correct dose of SELVI CHEM OSD, fill the tank with the waste-oil-water solution and inject the correct dose of SELVI CHEM OSD directly from the drum. Mix thoroughly, with the assistance of a pump, for two to five hours. Mixing time varies depending on the size of the tank and the speed of the motor. Allow the fuel to settle and check for water separation. Depending on the configuration of the tank, either remove the water by means of a drain in the bottom or suck the clean oil off from the top of the tank.

Packaging And Handling

SELVI CHEM OSD is packaged in 55 gallon mild steel drums (208 liters) It contains a h aromatic solvent, and should be handled easily semi-skilled workers.

Above SELVI CHEM Range are the running products. We can produce higher moles on customer specific demand and specifications can be altered as per customer requirement.

: TRIETHANOLAMINE:

TEA is used as intermediate in the manufacture of surface-active agents, textile specialties, antirust compounds, waxes, polishes, herbicides, petroleum demulsifiers, cement additives and cutting oils. It also finds extensive use in the manufacture of Synthetic resins, as a solvent for casein, shellac and dyes, for increasing the penetration of organic liquids into wood and paper in the production of lubricants for textile industry and in making emulsions with mineral and vegetable oils, paraffin and waxes.

More information is given below the information furnished in this pamphlet is according to best of our knowledge and experience however no warranty is expressed or implied.

Triethanolamine is a colorless to pale yellow, hygroscopic viscous liquid with slight ammoniacal odor

Triethanolamine content Wt. %	85 min.	98 min.
Diethanolamine content Wt. %	15 max.	1 max.
Specific Gravity at 20/20 c	1.125 to 1.43	1.125 to 1.43
Water content % Wt	0.5 Max.	0.5 Max.
Color, Hazen unit	50 max.	50 max.
Molecular weight	149.19	147-152
Equivalent Wt	140 min.	140 min.
Viscosity at 25°C [Centipoise (cps)]	590	~600

Adhesives :

Hot melt/Polyesters, Urea/Phenol/formaldehyde, Asphalt/Bituminous, Refractory binders.

Agricultural Chemicals :

Neutralize, Algaecide lye peeling assist.

Antistatic Agents :

Polyethylene, Polypropylene, Polyamide Polyester, Cotton Fibers, Carpet Backings.

Cement Concrete :

Grinding Aid, Fluidity improver strength improver, Mechanical Stability agent, Workability improver, Set Accelerator, Whiteness improver.

Coatings :

Water-borne, metal, Glass/film solvent free/Accelerators, Electroplating.

Coating Remover:

Penetrant/Accelerant

Corrosion Inhibitor :

In Lub Oils, in Hydraulic Fluids, Coolants with Bactericidal effect, for Aluminium, for Ferrous Metals.

Electroless Plating :

Copper

Electroplating :

Silver, Tin, Zinc, Cadmium, Copper-Nickel, Tin-Nickel, Tin-Cobalt Alloy.

Expoxy:

Hardner.

Fuels :

High Octane, .Propellent

Inks, Printing :

Diazo Dyes, Inks.

Lithography:

Developer

Metal Working Cleaning Lubricating :

Metal Forming Lubricant, aqueous Lubricant, Cutting Fluid, Cleaners/Degreasers, Etchant.

Mining :

Floatation, Dust control

Paint / Pigments :

Adhesion improver Thixotropic additive, TiO₂ dispersant, Grinding Aid, Pigment dispersant

Petroleum-Coal :

Drilling Mud stabilizers, thermal oxidation stabilizers, chemical washes, Tertiary recovery, surfactant, Demulsifier, Oxygen scavenger, Gelling Agent-Fuel.

Polymers :

Thermal oxidation stabilizers, Polymerization initiator, Cross-linker, Plasticizer, Chain transfer agent.

Rubber Processing :

Vulcanization Accelerator, Stabilizer/ Antioxidant, Activater-filled rubber Dispersant, Chain termination agent.

Soldering Flux :

Penetrent.

Textiles :

Finishes-Dispersant, Cross linker, Softeners, Lubricant, Bleaching aid, Dye-neutralizers, Fixation catalyst, Extruder cleaner.

Urethanes :

Polyol, Chain extender cross linking/curing agent, Catalyst, Modifier, Solubilizer, Degradation waste foam.

Wood Pulping :

Swelling Agent.

: SCLXSERIES:

LX SERIES produced by the reaction of ethylene oxide with Guerbet Alcohols. These products find application in textile formulation and many other industrial application.



Where 'R' represents the Guerbet alcohol and 'n' = number of molecules of ethylene oxide.

SC LX – 40		
Sr no.	Parameter	Specification
1	Appearance	Clear To Hazy Liquid
2	Colour	Colourless
3	Cloud point (5gm in 25gm of 25% BDG soln.)	45 – 49
4	pH (5% aqu. soln.)	5.0 – 7.5
5	Solubility	Water Dispersible
6	Moisture	0.50 max
6	HLB	10.5 – 10.6

SC LX – 50		
Sr no.	Parameter	Specification
1	Appearance	Clear to hazy liquid
2	Colour	Colourless
3	Cloud point (10% in 25% BDG soln.)	58 – 64
4	pH (5% in aqu. soln.)	5.5 – 7.5
5	Moisture	0.50% max

SC LX – 80		
Sr no.	Parameter	Specification
1	Appearance	Clear to hazy liquid
2	Colour	Colourless
3	Cloud point (1% aqu. soln.)	55 – 59
4	pH (1% in aqu. soln.)	5.5 – 7.5
5	Density	1.0 – 1.04
6	Moisture	0.50 max
7	HLB	13.8 – 14.0

:TWEEN SERIES:

TWEEN(POLYSORBATE)SERIES				
Product Name	Appearance at 25°C	Hydroxyl Value mg KOH/g	Saponification Value mg KOH/g	pH 5% Aqueous
TWN – 20 (Polysorbate 20)	Yellow to Amber Liquid	96 - 108	40 – 50	5.0 - 7.0
TWN – 40 (Polysorbate 40)	Yellow to Amber Liquid	89 – 105	41 - 52	5.0 - 7.0
TWN – 60 (Polysorbate 60)	Yellow to Amber Liquid	81 - 96	45 - 55	5.0 - 7.0
TWN – 80 (Polysorbate 80)	Yellow to Amber Liquid	65 - 80	45 - 55	6.0 - 8.0
TWN – 85 (Polysorbate 85)	Yellow to Amber Liquid	39 - 52	80 - 95	6.0 - 8.0

:PHOSPHATE ESTER:

Phosphate esters are anionic surfactants which are produced by phosphating of fatty alcohols and ethoxylated aliphatic and aromatic alcohols. Compared to other anionic surfactants, Phosphate esters offer specific advantages, including stability over a broad pH range, good solubility and corrosion inhibiting properties. Phosphate esters are highly suitable for use as emulsifying agents, wetting agents, anti-stats, corrosion inhibitors and hydro tropes in cleaning formulations. We have dedicated manufacturing facilities for production of mono phosphate esters, di-esters and mixed esters. All our phosphates are based on P2O5 & Poly phosphoric acid.

Below is a tentative list of products that we manufacture:

PHOSPHATE ESTER
• RE 610
• DESZOL 610
• TFD 610
• XL 810
• RE 410
• PAE 802
• PAE 147

HYROXY PROPYL METHYL CELLULOSE

(HYPROMELLOSE GRADES)

Grades	Viscosity	Trade Names
HPMC 3 cps	3	SEL3
HPMC 5 cps	5	SEL 5
HPMC 6 cps	6	SEL6
HPMC 15 cps	15	SEL15
HPMC 50 cps	50	SEL50
PREMIUM GRADES		
HPMC 100 cps (Premium Grade)	100	SEL100P
HPMC 4000 cps (Premium Grade)	4000	SEL 4000P
HPMC 15000 cps (Premium Grade)	15000	SEL15000P
HPMC 100000 cps (Premium Grade)	100000	SEL100000P
HPMC 200000 cps (Premium Grade)	200000	SEL200000P
CR GRADES		
HPMC 100 CR	100	SEL100CR
HPMC 4000 CR	4000	SEL 4000CR
HPMC 15000 CR	15000	SEL15000CR
HPMC 100000 CR	100000	SEL100000CR
HPMC 200000 CR	200000	SEL200000CR
HPMC 4000 cps	4000	SEL4000

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