ALKOXYLATES

ETHOXYLATES
PROPPOXYLATES  EO/PO
BLOCK COPOLYMERS

Alkoxylation is a chemical process wherein ethylene oxide or EO/PO in desired molar ratios with an alcohol, acid, amine or vegetable oils to make surfactants. We manufacture a wide range of ethoxylates according to our customer's specifications on cloud point, hydroxyl value, saponification value, pH etc.

Natural Oil Ethoxylates

Aryl Alcohol

Castor Oil – 5 – 200 EO Moles
Nonyl Phenol – 4.5-100
EO Moles

Hydrogenerates Castor Oil-10-100 EO Moles Octyl Phenol – 1-70 EO Moles.

Neem Oil – 10-30 EO Moles
Dodecyl Phenol – 5-20
EO Moles

Soya Oil – 3-10 EO Moles
Styrenated Phenol – 18-25 EO Moles

Linseed Oil -3-10 EO Moles
Phenoxyethanol (>99.5%)

Lanolin Oil 75 EO Moles

Fatty Alcohol

Fatty Acid Ethoxylates

Oleyl Cetyl Alcohol – 2-60
EO Moles.

Oleic Acid – 2.5-15 EO Moles
Oleyl Alcohol – 5-60 EO Moles

Stearic Acid -8-70 EO Moles
Tri Decyl Alcohol – 3-100
EO Moles

Coconut fatty acid – 10-12 EO Moles
Decyl Alcohol -4-10 EO Moles

Rice Barn Fatty acid 5 EO Moles
Ceto Stearyl Alcohol – 2.5-80 EO Moles.

Fatty Amine Ethoxylates

Lauryl Alcohol – 2.5-25
EO Moles

Stearyl Amine – 10-30 EO Moles
Behnyl Alcohol – 5-40 EO Moles

Tallow Amine and Tallow Diamine – 3-20 EO Moles Stearyl Alcohol- 2-15 EO Moles

Coco Amine – 10-30 EO Moles
2-Ethyl Hexanol – 2.5-4.5
EO Moles

Octyl Decyl (C18/10) Alcohol 2-10 EO Moles

Amino Propyl Behnyl Amine – 10-90 EO Moles Capric/Caprylic Alcohol 2-5 EO Moles

TEA ethoxylates -100 EO Moles
Glycerine – 10-23 EO Moles.
**Polysorbates**
- Polysorbate 20 (Sorbitan Mono Laurate 20 EO)
- Polysorbate 40 (Sorbitan Mono Palmitate 20 EO)
- Polysorbate 60 (Sorbitan Mono Stearate 20 EO)
- Polysorbate 65 (Sorbitan Tri Stearate 20 EO)
- Polysorbate 80 (Sorbitan Mono Oleate 20 EO)
- Polysorbate 81 (Sorbitan Mono Oleate 5 EO)
- Polysorbate 85 (Sorbitan Tri Oleate 20 EO)

**EO-PO Copolymers**
- EO-PO (30) polymer, 40% EO (L-64)
- EO-PO (30) polymer, 10% EO (L-61)
- EO-PO (30) polymer, 20% EO (L-62)
- EO-PO (39) polymer, 40% EI (P-84)
- EO-PO (39) Polymer, 50% EO (P-85)
- EO-PO Polymer Mol. Wt. 3150 (25 R2)
- EO-PO Polymer Mol. Wt. 2150 (17 R2)
- EO-PO (56) Polymer, 80% EO (L-68)
- EO-PO 930) Polymer, 80% EO (F-108)
- EO-PO Polymer, Mol Wt 3800 (L-101)
- EO-PO Polymer, Mol Wt 1100 (L-31)
- EO-PO Polymer, Mol Wt 5000 (F-38)
- EO-PO Polymer, Mol Wt 2200 (L-44)
- EO-PO Polymer, Mol Wt 2750 (L-81)
- EO-PO Polymer, Mol Wt 2650 (17R4)
- EO-PO Polymer, Mol Wt 3600 (25R4)
- EO-PO Polymer, Mol Wt 7700 (F-87)
- EO-PO Polymer, Mol Wt 12600 (F-127)
- EO-PO Polymer, Mol Wt 4600 (P-94)
- EO-PO Polymer, Mol Wt 3600 (25R4)

**MPEGs**
- Methoxy PEG 400-5000 MW

**APEGs**
- Allyl PEG upto 5000 MW

**Polyethylene Glycols**
- Polyethylene glycols (PEGs)-200, 400, 600,
  800,1500, 4000,6000,8000, 12000,20000 Mol.wt.

**EO/PO CO-Polymers (APEO-free products)**
- 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 (R) Mol.Wt. 1450
- Butanol EO/PO Copolymer (R) Mol Wt. 1650
- Butanol EO/PO Copolymer (R) Mol Wt. 4000
- Bisphenol A-2 Mole PO
- Castor Oil EO/PO
- Ethylene Diamine 4PO, 4EO

**Polyglycerates**
- Polyethylene Glycerol Mono Oleate -200-600 Mole EO
- Polyethylene Glycerol Di Oleate-200-600 Mole EO
- Polyethylene Glycerol Di Stearate- 200-600 Mole EO

**Specialty Ethoxylates**
- N-2-Hydroxyethyl Morpholine
- N,N-Bis(Hydroxyethyl) Aniline
- NP Resin ethoxylates X Mole EO
- Hydroxyethyl Methacrylate (>95% purity,Crude)
- Alkanolamide ethoxylates (CMEA-3/5EO)
- End-Capped (benzyl) alkoxylates
- Methacrylic acid ethoxylates 4-10 EO Moles
- Acrylinic Diol ethoxilates (TMDD-20,40,65,85)
- Salt-free alkoxylates (Na/K <10ppm)
- Methyl ester ethoxylates
- Narrow Range Alkoxylates (Harcros Patented Cat.)
SULFATES & SULFOUCCINATES

Sulfated fatty alcohols have excellent emulsifying, wetting, lime soap dispersing and foaming properties. They also have high electrolyte tolerance. Alkyl ether sulphated (ethoxylates) also show improved water solubility and resistance to hardness. These products are widely used in emulsion polymerization, cosmetic formulations, detergents and textile industry. We offer a variety of sulphates based on natural and synthetic alcohols and ethoxylates. Our plant has exclusive facility for sulfonation using Oleum and other sulphating agent. We also offer phenol and naphthalene sulfonates for leather industry.

2-Ethylhexyl Sulphate  
Nonyl Phenol-4.5EO Sulphate  
Octyl Phenol-25EO Sulphate  
EO-PO Copolymer Sulphate  
Castor Oil-25EO Sulphate

C11 alcohol-7EO Sulphate (APEO-Free)  
Tridecyl Alcohol-25 Sulphate (APEO-Free)  
Allyl alcohol 10EO sulnate (ammonium salt)  
Phenol sulfonate (oleum based)  
Napthalene sulfonate (oleum based)

Sulfosuccinic mono- and di-esters are used as emulsifiers in polymerization processes. They are highly effective wetting agents and are used in various industry segments. We can offer a wide range of sulfosuccinate esters based on different alkyl groups and can customize the properties as per requirement. Sulfosuccenate products are available in solution with different solvents such as linear alcohols or PEGs/PPGs.

DiOctyl Sodium Sulfosuccenate  
DiSodium Lareth(3) Sulfosuccinate  
DiLauryl Sodium Sulfosuccenate  
DiTriDecyl Sodium Sulfosuccenate

CocoMonoethanolamide Sulfosuccenate  
Disodium Oleic-(5) Sulfosuccinate  
Custom Sulfosuccenates of ethoxylates
**ESTERS**

Ester are formed by the reaction of an alcohol and an acid under basic or acid conditions. Esters have a wide range of applications in every industry segment. We can offers a comprehensive list of esters as per required specifications.

**Glycol Esters**

We can offer a comprehensive range of esters based on ethylene glycol/propylene glycol and fatty acids such as Stearic, lauric, oleic and palmitic. We offer both, mono and di-esters. Glycol esters are used as pearlizing agents in shampoos, cleansing creams, liquid soaps, bath gels. Propylene glycol esters also have applications as industrial solvents, emulsifies, in antifreeze, paints and coatings and lubricants.

<table>
<thead>
<tr>
<th>PEG (MW)</th>
<th>ESTER TYPE</th>
<th>FATTY ACID</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Mono/Di</td>
<td>Stearic/Lauric/Palmitic/Oleic</td>
</tr>
<tr>
<td>400</td>
<td>Mono/Di</td>
<td>Stearic/Lauric/Palmitic/Oleic</td>
</tr>
<tr>
<td>600</td>
<td>Mono/Di</td>
<td>Stearic/Lauric/Palmitic/Oleic</td>
</tr>
<tr>
<td>1000</td>
<td>Mono/Di</td>
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</tr>
<tr>
<td>2000</td>
<td>Mono/Di</td>
<td>Stearic/Lauric/Palmitic/Oleic</td>
</tr>
<tr>
<td>4000</td>
<td>Mono/Di</td>
<td>Stearic/Lauric/Palmitic/Oleic</td>
</tr>
<tr>
<td>6000</td>
<td>Mono/Di</td>
<td>Stearic/Lauric/Palmitic/Oleic</td>
</tr>
</tbody>
</table>

**Methoxy PEG Esters**

There are fatty acid esters of ethoxylated methanol. We can offer these esters either by esterification route of by ethoxylation of methyl esters using Harcros patented catalyst.

Methoxy PEG 350 Laurate

Methoxy PEG 350 Oleate
Glycerol Esters.

Glycerine can be reacted with various fatty acids to give their corresponding Mono/Di or tri esters. Glycerol esters are widely used as food additives, preservatives, as thickeners, emulsifiers, in cosmetics, leather, lubricant and other industries. We offers a wide range of Glycerol esters.

- Glycerol Mono Stearate (40%) NSE
- Glycerol Mono Stearate (SE)
- Glycerol Tri Stearate
- Glycerol (PEG-3) Mono Stearate
- Glycerol (PEG-10) Mono Stearate
- Glycerol Mono Laurate

Sorbitan esters and Polysorbates

Sorbitan esters are made from the reaction of sorbitol and various fatty acids. These esters have wide applications as emulsifies in food products, as dispersing agents, as machining fluids, in coatings, in lubricants, pharmaceutics. Their corresponding ethoxylated products have excellent emulsifying and stabilizing property and find applications as emulsifies in various industry segments.

- Sorbitan Mono Laurate (SML)
- Sorbitan Sesqui Oleate (SSO)
- Sorbitan Mono Palmitate (SMP)
- Polysorbate 20 (SML-20EO)
- Sorbitan Mono Stearate (SMS)
- Polysorbate 40 (SMP-20EO)
- Sorbitan Tri Stearate (STS)
- Polysorbate 60 (SMS-20EO)
- Sorbitan Mono Oleate (SMO 40/70)
- Polysorbate 65 (STS-20EO)
- Sorbitan RL Oleate (STO)
- Polysorbate 80 (SMO-20EO)

*Oleic esters can be offered a sOleic 40% and Oleic 70% min content.

Other Fatty Esters:

We offers a wide range of fatty esters based on variety fatty acids and fatty alcohols. These esters are often used in textile lubricants, as viscosity builders, in cosmetics as emulsifiers as rust inhibitors, as synthetic defamers, as pigment carrying agents etc. Fatty esters may be solid or liquid form. Behenyl Esters are widely used as emulsifies. They also have excellent emollient properties. They make the skin smoother and prevent moisture loss. They improve rub-out of formulas and controls viscosity.

- Butyl Stearate
- Butyl Oleate
- Octyl Stearate
- Octyl Palmitate
- Octyl Laurate

- Octyl Olate
- Cetyl Palmitate
- Oleyl Olate
- Tridecyl Stearate
- Lauryl Oleate

- Stearyl Stearate
- Stearyl Palmitate
- Stearyl Oleate
- behnyl Stearate
- Behnyl Laurate

- C1215 Alkyl Benzoate
- C13 Akyl benzoate
- Sodium Stearyl Lactylate
- Sodium Oleyl Lactylate
- Sodium Stearyl Lactylate
- Sodium Oleyl Lactylate
PHOSPHATE ESTERS

Phosphate esters are anionic surfactants which are produced by phosphation 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 P_2O_5.

<table>
<thead>
<tr>
<th>Butanol Phosphate (mono/Di-ester)</th>
<th>Nonyl Phenol (ethoxylated) Phosphate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethylhexyl Phosphate (mono/Di-ester)</td>
<td>Styrenated Phenol(ethoxylated) Phosphate</td>
</tr>
<tr>
<td>Lauryl alcohol (ethoxylated) Phosphate</td>
<td>Phenol (ethoxylated) phosphate</td>
</tr>
<tr>
<td>Tridecyl alcohol phosphate</td>
<td>Allyl alcohol (ethoxylated) phosphate</td>
</tr>
<tr>
<td>Tridecyl alcohol (ethoxlated) Phosphpate</td>
<td>Hydroxyethyl methacrylate phosphate</td>
</tr>
<tr>
<td>Cetyl Alcohol Phosphate</td>
<td>Methacrylic acid (ethoxylated) phosphate</td>
</tr>
<tr>
<td>Oleyl alcohol Phosphate</td>
<td>Methacrylic acid (propoxylated) phosphate</td>
</tr>
</tbody>
</table>
## MISCELLANEOUS

### Amides
- Octyl betaine
- Coco Monoethanol amide (CMEA)
- Coco Diethanol amide (CDEA)
- CMEA-3,5EO moles
- Oleic Diethanolamide
- Stearic Diethanolamide
- Cocofatty acid Aminoethyl ethanolamide 6EO

### Amine Oxides
- Amine Oxides
- Lauryl amine oxide

### Carboxylic Acids & salts
- Carboxylic Acids & salts
- Oleth-5EO Carboxylic acid
- PEG600 Di Carboxylic acid
- Behnol alcohol ethoxylated Methacrylate (BEM)
- CSA ethoxylated Methacrylate (CEM)
- Styrenated Phenol ethoxylated Methacrylate (SEM)
- Lauryl alcohol ethoxylated Methacrylate (LEM)
- Monomer Esters
- Monomer Esters
- Triazines (H2R Scavengers)
- Monoethanol amine Triazine (50-75%)
- Mono Methylamine Triazine (40%)
- Triazines (H2R Scavengers)
- Monomer Phosphates
- Monomer Phosphates
- Other copolymers
- Sodium Dimethyl Dithio carbamate (SDMDC)-40%
- Phenol-formaldehyde resins
- Potassium DimethylDithio carbamate (KDMDC)-40%
- Urea-formaldehyde resins
- Ethylene Bis Dithio Carbamate (NABAM)-40%
- Melamine formaldehyde resins
- Dimethyl amine Epichlorihydrin copolymers

### Carbamates
- Carbamates
- Sodium Dimethyl Dithio carbamate (SDMDC)-40%
- Phenol-formaldehyde resins
- Potassium DimethylDithio carbamate (KDMDC)-40%
- Urea-formaldehyde resins
- Ethylene Bis Dithio Carbamate (NABAM)-40%
- Melamine formaldehyde resins
- Dimethyl amine Epichlorihydrin copolymers

### Other copolymers
- Other copolymers
- Sodium Dimethyl Dithio carbamate (SDMDC)-40%
- Phenol-formaldehyde resins
- Potassium DimethylDithio carbamate (KDMDC)-40%
- Urea-formaldehyde resins
- Ethylene Bis Dithio Carbamate (NABAM)-40%
- Melamine formaldehyde resins
- Dimethyl amine Epichlorihydrin copolymers

### Betaines
- Betaines
- Coco Betaine
- Phosphonates
- Amino tris (methylene phosphonic acid)-50%