PERFORMANCE CHEMICALS FOR COSMETICS, PHARMACEUTICALS, AGRICHEMICALS AND DETERGENTS

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IMPORTANT:
Before handling these products, refer to the Safety Data Sheet for recommended protective equipment, and detailed precautionary and hazards information.
Performance Chemicals for Cosmetics

1. Base Materials for Shampoos (Anionic Type)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEAULIGHT LCA</td>
<td>SODIUM LAURETH-4</td>
<td>Sodium polyoxyethylene(3) lauryl ether carboxylate (Paste and liquid)</td>
<td>These products have moderate detergency and produce a large amount of foam even under acidic conditions. They exhibit low irritancy.</td>
</tr>
<tr>
<td>BEAULIGHT LCA-25F</td>
<td>CARBOXYLATE, WATER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEAULIGHT LCA-25N</td>
<td>月桂醇聚醚-4羧酸钠,水(有)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEAULIGHT LCA-30D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEAULIGHT ECA</td>
<td>SODIUM TRIDECETH-4</td>
<td>Sodium polyoxyethylene(3) tridecyl ether carboxylate (Liquid)</td>
<td></td>
</tr>
<tr>
<td>BEAULIGHT LCA-25NH</td>
<td>LAURETH-4 CARBOXYLIC ACID, WATER月桂醇聚醚-4羧酸,水(有)</td>
<td>Polyoxyethylene(3) lauryl ether carboxylic acid (Liquid)</td>
<td>BEAULIGHT LCA-25NH is used as a base material for shampoos after neutralized with alkalis such as sodium hydroxide.</td>
</tr>
<tr>
<td>BEAULIGHT SHAA</td>
<td>SODIUM LAURYL GLYCOL CARBOXYLATE, WATER月桂基甘醇羧酸钠,水(有)</td>
<td>Sodium ((2-hydroxydodecyl)-oxy) acetate (Liquid)</td>
<td>BEAULIGHT SHAA has moderate detergency and does not cause excessive degreasing of hair. It produces a large amount of foam.</td>
</tr>
<tr>
<td>BEAULIGHT ESS</td>
<td>DISODIUM C12-14 PARETH-2 SULFOSUCCINATE, WATER月桂氨基丙酸钠,水(有)</td>
<td>Disodium polyoxyethylene(2) alkyl (C12-14) sulfosuccinate (Liquid)</td>
<td>These products have moderate detergency and produce a large amount of foam even under acidic conditions. They exhibit low irritancy.</td>
</tr>
<tr>
<td>BEAULIGHT A-5000</td>
<td>DISODIUM LAURAMIDO PEG-5 SULFOSUCCINATE, WATER月桂酰胺基PEG-5磺基琥珀酸酯二钠,水(有)</td>
<td>Disodium mono-(lauroylethanolamide polyoxyethylene) sulfosuccinate (Liquid)</td>
<td></td>
</tr>
<tr>
<td>BEAULIGHT NA-25S</td>
<td>SODIUM LAURETH SULFATE, WATER月桂醇聚醚硫酸酯钠,水(有)</td>
<td>Sodium polyoxyethylene lauryl ether sulfate (Liquid)</td>
<td>BEAULIGHT NA-25S has high detergency and produces a large amount of foam. It exhibits low irritancy, and is compatible with various surfactants.</td>
</tr>
<tr>
<td>SANDET EN</td>
<td>SODIUM LAURETH SULFATE, WATER月桂醇聚醚硫酸酯钠,水(有)</td>
<td>Sodium polyoxyethylene(2) lauryl ether sulfate (Liquid)</td>
<td>These products have high detergency and produce a large amount of foam.</td>
</tr>
<tr>
<td>SANDET LTD</td>
<td>TEA-C12-13 ALKYL SULFATE, WATER月桂醇聚醚硫酸酯TEA盐,水(有)</td>
<td>Triethanolamine alkyl(12,13)sulfate (Liquid)</td>
<td></td>
</tr>
</tbody>
</table>
### 2. Base Materials for Shampoos (Amphoteric Type)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEBON 2000</td>
<td>COCAMIDOPROPYL BETAINTE, WATER</td>
<td>Sodium cocamidopropyl betaine (Liquid)</td>
<td>These products impart excellent tactile properties to hair. LEBON 2000 contains minimal amounts of sodium chloride.</td>
</tr>
<tr>
<td>LEBON 2000HG</td>
<td>LARUAMIDOPROPYL BETAINTE, WATER</td>
<td>Lauramidopropyl betaine (Liquid)</td>
<td>LEBON 2000L exhibits an excellent thickening effect when used with anionic surfactants.</td>
</tr>
<tr>
<td>LEBON HC-30W</td>
<td>MYRISTAMIDOPROPYL BETAINTE, WATER</td>
<td>Myristamidopropyl betaine (Liquid)</td>
<td>LEBON MY-30W exhibits an excellent foaming property when used with anionic surfactants.</td>
</tr>
<tr>
<td>LEBON 2000L</td>
<td>LAURYL BETAINTE, WATER</td>
<td>Lauryl betaine (Liquid)</td>
<td>LEBON LD-36 produces a large amount of foam and exhibits high foam stability.</td>
</tr>
<tr>
<td>LEBON 105</td>
<td>SODIUM COCOAMPHOACETATE, WATER</td>
<td>Cocoamphoglycinate (Liquid)</td>
<td>LEBON 105 exhibits low irritancy to skin and eyes. It is tolerant to hard water and compatible with various surfactants.</td>
</tr>
<tr>
<td>LEBON APL</td>
<td>SODIUM LAURAMINOPROPIONATE, WATER</td>
<td>Sodium β-laurylaminopropionate (Liquid)</td>
<td>LEBON APL produces a large amount of foam and is easily biodegradable.</td>
</tr>
</tbody>
</table>

#### Formulation Examples for Shampoos

Shown below are two examples of shampoo formulas recommended. However, it is recommended to develop the formulas further in order to satisfy your requirements.

### 1. Conditioning Shampoo

<table>
<thead>
<tr>
<th>Component</th>
<th>wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANDET EN:</td>
<td>40</td>
</tr>
<tr>
<td>LEBON 2000:</td>
<td>15</td>
</tr>
<tr>
<td>PROFAN EXTRA24:</td>
<td>3</td>
</tr>
<tr>
<td>CATION LO:</td>
<td>4</td>
</tr>
<tr>
<td>Stearic acid:</td>
<td>Small quantity</td>
</tr>
<tr>
<td>Perfume, coloring agent, etc.:</td>
<td>Proper quantity</td>
</tr>
<tr>
<td>Water:</td>
<td>Balance</td>
</tr>
<tr>
<td>Total:</td>
<td>100</td>
</tr>
</tbody>
</table>

### 2. Shampoo with Low Irritancy

The formula shown below is particularly suited for child and baby shampoos

<table>
<thead>
<tr>
<th>Component</th>
<th>wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEAULIGHT LCA-30D:</td>
<td>40</td>
</tr>
<tr>
<td>LEBON 2000:</td>
<td>15</td>
</tr>
<tr>
<td>PROFAN EXTRA24:</td>
<td>3</td>
</tr>
<tr>
<td>O-[2-Hydroxy-3-(trimethylammonio) propyl] hydroxyethyl cellulose chloride:</td>
<td>1</td>
</tr>
<tr>
<td>Polyoxyethylene methyl glucoside dioleate:</td>
<td>Small quantity</td>
</tr>
<tr>
<td>Perfume, coloring agent, etc.:</td>
<td>Proper quantity</td>
</tr>
<tr>
<td>Water:</td>
<td>Balance</td>
</tr>
<tr>
<td>Total:</td>
<td>100</td>
</tr>
</tbody>
</table>
### 3. Foam Stabilizers and Thickeners for Shampoos

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFAN EXTRA24</td>
<td>COCAMIDE DEA (有)</td>
<td>Coconut fatty acid diethanolamide (Liquid)</td>
<td>These products are used as foaming agents, foam stabilizers and thickeners. PROFAN EXTRA24, PROFAN 128 EXTRA and PROFAN AB-20 are generally used for the above mentioned purpose in shampoos, and PROFAN ME-20 is suitable mainly for acidic shampoos.</td>
</tr>
<tr>
<td>PROFAN AB-20</td>
<td>COCAMIDE MEA (有)</td>
<td>Coconut fatty acid monoethanolamide (Flake)</td>
<td></td>
</tr>
<tr>
<td>PROFAN 128 EXTRA</td>
<td>COCAMIDE DEA (有)</td>
<td>Coconut fatty acid diethanolamide (Liquid)</td>
<td></td>
</tr>
<tr>
<td>PROFAN ME-20</td>
<td>PEG-3 COCAMIDE PEG-3 椰油酰胺 (有)</td>
<td>Polyoxyethylene(2) coconut fatty acid monoethanolamide (Liquid)</td>
<td></td>
</tr>
</tbody>
</table>

### 4. Base Materials for Body Washes

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEAULIGHT LCA</td>
<td>SODIUM LAURETH-4 CARBOXYLATE, WATER 月桂醇聚醚-4 羧酸钠, 水 (有)</td>
<td>Sodium polyoxyethylene(3) lauryl ether carboxylate (Paste and liquid)</td>
<td>These products produce a large amount of foam even under acidic conditions and do not cause excessive degreasing of skin.</td>
</tr>
<tr>
<td>BEAULIGHT LCA-25F</td>
<td>SODIUM TRIDECETH-4 CARBOXYLATE, WATER 十三烷醇聚醚-4 羧酸钠, 水 (有)</td>
<td>Sodium polyoxyethylene(3) tridecyl ether carboxylate (Liquid)</td>
<td></td>
</tr>
<tr>
<td>BEAULIGHT LCA-25N</td>
<td>SODIUM LAUROYL GLYCOL CARBOXYLATE, WATER 月桂基甘氨酸羧酸钠, 水 (有)</td>
<td>Sodium ((2-hydroxydodecyl)-oxy) acetate (Liquid)</td>
<td>BEAULIGHT SHAA produces a large amount of foam even under acidic conditions and generates refined foam.</td>
</tr>
<tr>
<td>BEAULIGHT LCA-30D</td>
<td>SODIUM LAUROYL GLYCOL CARBOXYLATE, WATER 月桂基甘氨酸羧酸钠, 水 (有)</td>
<td>Disodium monolaurylsulfosuccinate (Paste)</td>
<td>BEAULIGHT SSS produces a large amount of foam even under acidic conditions and exhibits low irritancy.</td>
</tr>
</tbody>
</table>

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**Notes:**
- **PROFAN EXTRA24, PROFAN 128 EXTRA, and PROFAN AB-20** are suitable for acidic shampoos.
- **PROFAN ME-20** is suitable for acidic shampoos.
- **EMULMIN 862** is used as a thickener, especially useful for thickeners in shampoos and hair conditioners.
- **FROTHMEISTER HG-375** is used as foaming auxiliaries and foam stabilizers for shampoos and body washes.
- **FROTHMEISTER GC-48** is used for its thickening properties.
- **FROTHMEISTER SP-10** is used for its thickening and stabilizing properties.

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**Biodegradability and Skin Compatibility:**
- **PROFAN EXTRA24, PROFAN 128 EXTRA, and PROFAN AB-20** are relatively easily biodegradable.
- **EMULMIN 862** contains relatively biodegradable alcohol and stearyl alcohol.
- **FROTHMEISTER HG-375** contains cetyl alcohol and stearyl alcohol.
- **FROTHMEISTER GC-48** contains cetyl alcohol and stearyl alcohol.
- **FROTHMEISTER SP-10** contains cetyl alcohol and stearyl alcohol.

---

**Formula Examples for Hair Conditioner**

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Balance</td>
</tr>
<tr>
<td>Perfume, coloring agent</td>
<td>Proper quantity</td>
</tr>
<tr>
<td>Glycerin</td>
<td>2.0</td>
</tr>
<tr>
<td>ECONOL TM-22</td>
<td>4.5</td>
</tr>
</tbody>
</table>

**Total:** 100%

---

**Formula Examples for Hair Conditioner (2)**

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Balance</td>
</tr>
<tr>
<td>Perfume, coloring agent</td>
<td>Proper quantity</td>
</tr>
<tr>
<td>Glycerin</td>
<td>3.0</td>
</tr>
<tr>
<td>TG-C (Glyceryl monostearate, Sanyo Chemical product)</td>
<td>0.5</td>
</tr>
<tr>
<td>Polyoxyethylene polyoxypropylene cetyl ether phosphate</td>
<td>0.2</td>
</tr>
<tr>
<td>CATION LQ</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**Total:** 100%

---

**Inactive Ingredients:**
- Isopropyl alcohol
- Stearalkonium chloride, water
- Stearyltrimonium chloride, water
- Stearalkonium chloride, propylene glycol
- Stearalkonium chloride, water
- Behenyltrimonium chloride, water
-季铵盐
-丁二醇
-Quaternium-33, Butylene
-异丙醇

---

**Recommended Use:**
- Recommended to develop the formulas further in order to satisfy your requirements.

- **Recommended Use:**
- Shown below are two examples of hair conditioner formula recommended. However, it is recommended to develop the formulas further in order to satisfy your requirements. 

---

**Inactive Ingredients:**
- Isopropyl alcohol
- Stearalkonium chloride, water
- Stearyltrimonium chloride, water
- Stearalkonium chloride, propylene glycol
- Stearalkonium chloride, water
- Behenyltrimonium chloride, water
5. Base Materials for Hair Conditioners

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONOL TM-22</td>
<td>BEHENTRIMONIUM CHLORIDE (and) CETEARYL ALCOHOL 山嵛基三甲基氯化铵, 鲸蜡硬脂醇 (有)</td>
<td>Behenyltrimethylammonium chloride (Solid)</td>
<td>ECONOL TM-22 contains cetyl alcohol and stearyl alcohol. However, it does not contain any low-boiling-point solvents. Therefore, solvent stripping process is not required. It is relatively easily biodegradable.</td>
</tr>
<tr>
<td>ECONOL TMS-28</td>
<td>STEARTRIMONIUM CHLORIDE, WATER 硬脂基三甲基氯化铵, 水 (有)</td>
<td>Stearytrimethylammonium chloride (Liquid)</td>
<td>These products impart smoothness and elasticity, and an excellent detangling ability to hair.</td>
</tr>
<tr>
<td>LEBON TM-18</td>
<td>STEARTRIMONIUM CHLORIDE, PROPYLENE GLYCOL 硬脂基三甲基氯化铵, 丙二醇 (有)</td>
<td>Stearytrimethylammonium chloride (Paste)</td>
<td></td>
</tr>
<tr>
<td>LEBON TM-18PA</td>
<td>STEARTRIMONIUM CHLORIDE, ISOPROPYL ALCOHOL, WATER 硬脂基三甲基氯化铵, 异丙醇, 水 (有)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEBON TM-16</td>
<td>CETRIMONIUM CHLORIDE, WATER 西曲氯铵, 水 (有)</td>
<td>Cetyltrimethylammonium chloride (Liquid)</td>
<td></td>
</tr>
<tr>
<td>CATION DSV</td>
<td>DISTEARYLIDIMONIUM CHLORIDE, ISOPROPYL ALCOHOL 二硬脂基二甲基氯化铵, 异丙醇 (有)</td>
<td>Distearlyldimethylammonium chloride (Solid)</td>
<td>CATION DSV is easily adsorbed in hair because it has high molecular weight, and imparts smoothness to hair.</td>
</tr>
<tr>
<td>CATION S</td>
<td>STEARALKONIUM CHLORIDE, ISOPROPYL ALCOHOL 司拉氯铵, 异丙醇 (有)</td>
<td>Benzyltrimethylstearylammonium chloride (Liquid)</td>
<td>CATION S imparts smoothness and elasticity, and an excellent detangling ability to rinsed hair.</td>
</tr>
<tr>
<td>CATION LQ</td>
<td>QUATERNIUM-33, BUTYLENE GLYCOL, WATER 季铵盐-33, 丁二醇, 水 (有)</td>
<td>N(N'-Lanolin fatty acid amide propyl)N-ethyl-N, N-dimethylammonium ethosulfate (Paste)</td>
<td>CATION LQ imparts long-lasting smoothness and softness to hair. It performs as a conditioning agent when used in shampoos.</td>
</tr>
</tbody>
</table>

### Formula Examples for Hair Conditioner

Shown below are two examples of hair conditioner formula recommended. However, it is recommended to develop the formulas further in order to satisfy your requirements.

#### 1. Creamy Hair Treatment (wt %)

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATION LQ:</td>
<td>4.0</td>
</tr>
<tr>
<td>Polyoxyethylene polyoxypropylene cetyl ether phosphate:</td>
<td>0.2</td>
</tr>
<tr>
<td>Cetostearyl alcohol:</td>
<td>4.5</td>
</tr>
<tr>
<td>TG-C (Glyceril monostearate, Sanyo Chemical product):</td>
<td>0.5</td>
</tr>
<tr>
<td>Glycerin:</td>
<td>3.0</td>
</tr>
<tr>
<td>Perfume, coloring agent, etc.:</td>
<td>Proper quantity</td>
</tr>
<tr>
<td>Water:</td>
<td>Balance</td>
</tr>
<tr>
<td>Total:</td>
<td>100</td>
</tr>
</tbody>
</table>

#### 2. Creamy Hair Conditioner (wt %)

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONOL TM-22:</td>
<td>4.5</td>
</tr>
<tr>
<td>Cetostearyl alcohol:</td>
<td>3.5</td>
</tr>
<tr>
<td>Glycerin:</td>
<td>2.0</td>
</tr>
<tr>
<td>Perfume, coloring agent, etc.:</td>
<td>Proper quantity</td>
</tr>
<tr>
<td>Water:</td>
<td>Balance</td>
</tr>
<tr>
<td>Total:</td>
<td>100</td>
</tr>
</tbody>
</table>
### 6. Compounding Ingredients for Cosmetics

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEWPOL DDE-10</td>
<td>PEG-1 LAURYL GLYCOL</td>
<td>Dodecanediol ethoxylate (Paste)</td>
<td>NEWPOL DDE-10 is an alkane diol derivative having excellent antibacterial and antifungal properties for use in cosmetics. When this product is mixed with surfactants, the mixture has a thickening property.</td>
</tr>
<tr>
<td>PEG Products</td>
<td>See page 11</td>
<td>Polyethylene glycol (Liquid, paste, wax or solid)</td>
<td>PEG products have low toxicity and exhibit mild irritancy. They are easily soluble in water, and compatible with various substances. Because of these features, they are widely used in the cosmetic industry as anticaking agents and ingredients for creams, lotions, hair preparations, etc. See page 11.</td>
</tr>
</tbody>
</table>

### 7. Emulsifiers for Cosmetics

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>IONET S Products</td>
<td>See page 13</td>
<td>Sorbitan fatty acid ester (Liquid or solid)</td>
<td>IONET S products are nonionic and lipophilic surfactants. They have low toxicity and exhibit low irritancy. They are used as emulsifiers together with hydrophilic surfactants such as IONET T products and EMULMIN products, to produce creamy cosmetics and creamy ointments. IONET S-60V is used for nonfluidic cosmetics, while IONET S-80, IONET S-85 and IONET S-20 are used for fluidic cosmetics. See page 13.</td>
</tr>
<tr>
<td>IONET T Products</td>
<td>See page 13</td>
<td>Polyoxyethylene sorbitan monofatty acid ester (Liquid)</td>
<td>IONET T products are ethylene oxide adducts of IONET S products and are more hydrophilic. They are used as emulsifiers together with lipophilic surfactants such as IONET S products, to produce creamy cosmetics and creamy ointments. IONET T-60V is used for nonfluidic cosmetics, while IONET T-80V and IONET T-20C are used for fluidic cosmetics. IONET T-80V and IONET T-20C are used as solubilizing agents for perfumes, refined oils and fats of various kinds. See page 13.</td>
</tr>
<tr>
<td>IONET M Products</td>
<td>See page 13</td>
<td>Polyoxyethylene monofatty acid ester (Liquid or solid)</td>
<td>These products have excellent dispersibility and emulsifiability, and low toxicity, suitable for a wide variety of uses in cosmetic applications. Various products with different HLB values are available. See page 13.</td>
</tr>
<tr>
<td>IONET D Products</td>
<td>See page 13</td>
<td>Polyoxyethylene difatty acid ester (Liquid or solid)</td>
<td></td>
</tr>
<tr>
<td>NEWPOL PE Products</td>
<td>See page 12</td>
<td>Polyethylene glycol (Liquid, paste or solid)</td>
<td>NEWPOL PE products are nonionic surfactants. They have low toxicity and exhibit low irritancy. They produce less foam. See page 12.</td>
</tr>
<tr>
<td>TG-C</td>
<td>GLYCERYL STEARATE</td>
<td>Glycerol monostearate (Solid)</td>
<td>TG-C is used also as a softener, applicable with anionic, cationic and amphoteric surfactants. It exhibits low irritancy to skin.</td>
</tr>
</tbody>
</table>

### 8. Gelling Agents for Cosmetics

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANFRESH ST-100MC</td>
<td>SODIUM POLYACRYLATE</td>
<td>Starch/acrylic acid graft copolymer sodium salt (Powder)</td>
<td>These products are thickeners for easy to be compatible and light texture.</td>
</tr>
<tr>
<td>SANFRESH ST-100SP</td>
<td>STARCH, WATER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Performance Chemicals for Pharmaceuticals

1. Tablet Binders

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Official Compendium</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACROGOL 4000</td>
<td>Japanese Pharmacopoeia (JP)</td>
<td>Polyethylene glycol 4000 (Wax)</td>
<td>These products enhance tablet processing efficiency. The resulting tablets exhibit excellent mechanical strength and have a good appearance.</td>
</tr>
<tr>
<td>MACROGOL 6000</td>
<td>Japanese Pharmacopoeia (JP)</td>
<td>Polyethylene glycol 6000 (Flake or Powder)</td>
<td></td>
</tr>
</tbody>
</table>

2. Base Materials for Ointments

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Official Compendium</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACROGOL 200</td>
<td>Japanese Pharmaceutical Excipients (JPE)</td>
<td>Polyethylene glycol 200 (Liquid)</td>
<td>These products have low toxicity, good affinity to skin, and desirable moisturizing effects. They show low irritancy to skin. They are rinsed easily and are not sticky, compatible with and easily dissolved in various chemical substances.</td>
</tr>
<tr>
<td>MACROGOL 400</td>
<td>Japanese Pharmacopoeia (JP)</td>
<td>Polyethylene glycol 400 (Liquid)</td>
<td></td>
</tr>
<tr>
<td>MACROGOL 1500</td>
<td>Japanese Pharmacopoeia (JP)</td>
<td>Polyethylene glycol 1500 (Paste)</td>
<td></td>
</tr>
<tr>
<td>MACROGOL 4000</td>
<td>Japanese Pharmacopoeia (JP)</td>
<td>Polyethylene glycol 4000 (Flake)</td>
<td></td>
</tr>
<tr>
<td>MACROGOL 6000</td>
<td>Japanese Pharmacopoeia (JP)</td>
<td>Polyethylene glycol 6000 (Flake or Powder)</td>
<td></td>
</tr>
<tr>
<td>MACROGOL 20000</td>
<td>Japanese Pharmacopoeia (JP)</td>
<td>Polyethylene glycol 20000 (Flake)</td>
<td></td>
</tr>
</tbody>
</table>

3. Coating Agents for Tablets

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Official Compendium</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYQUID PA-30</td>
<td>Japanese Pharmaceutical Excipients (JPE)</td>
<td>Copolymer of methacrylic acid and ethyl acrylate (Liquid)</td>
<td>POLYQUID PA-30 is an enteric-soluble coating agent (methacrylic acid copolymer dispersion). It conforms to USP/NF and EP.</td>
</tr>
<tr>
<td>POLYQUID PA-30S</td>
<td>Japanese Pharmaceutical Excipients (JPE)</td>
<td>Copolymer of methacrylic acid and ethyl acrylate (Liquid)</td>
<td>POLYQUID PA-30S is an enteric-soluble coating agent (methacrylic acid copolymer dispersion), suitable for coating at low temperatures. Compared to POLYQUID PA-30, its minimum film forming temperature is lower.</td>
</tr>
</tbody>
</table>
4. Germicides (Pharmaceutical Use)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Official Compendium</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEM</td>
<td>Japanese Pharmacopoeia (JP)</td>
<td>Benzalkonium chloride (Liquid)</td>
<td>GEM is a cationic surfactant type germicide, having powerful antibacterial effects on a wide variety of bacteria. It is colorless and its odor is faint.</td>
</tr>
<tr>
<td>LEBON 15</td>
<td>Sodium lauryldiminoethylglycine (Liquid)</td>
<td></td>
<td>These products are effective materials for external disinfectants having a wide range of uses in medical institutions. They neither precipitate when brought into contact with organic substances including protein, nor reduce their germicidal activities to significant degrees.</td>
</tr>
<tr>
<td>LEBON LAG-40</td>
<td>Alkyldiminoethylglycine hydrochloride (Liquid)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Other Products for Pharmaceuticals

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Official Compendium</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYSORBATE 80</td>
<td>Japanese Pharmacopoeia (JP), the United States Pharmacopoeia / National Formulary (USP/NF) and the European Pharmacopoeia (EP)</td>
<td>Polyoxyethylene sorbitan monooleate (Liquid)</td>
<td>POLYSORBATE 80 is a nonionic surfactant, suitable for various pharmaceutical preparations such as a plasticizer of coating agents, and an emulsifier and an emulsion stabilizer for ointments. It does not contain any animal-derived or genetically-modified ingredients.</td>
</tr>
<tr>
<td>NEWDET PE-85</td>
<td>Japanese Pharmaceutical Excipients (JPE)</td>
<td>Polyoxyethylene polyoxypropylene glycol (Paste)</td>
<td>NEWDET PE-85 is a nonionic surfactant, suitable for pharmaceutical detergents. It shows high stability and has high detergency.</td>
</tr>
</tbody>
</table>

Performance Chemicals for Agrichemicals

1. Dispersants for Agrichemical Granule Preparations

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOXANON GR-31A</td>
<td>Polycarboxylic acid type anionic surfactant (Liquid)</td>
<td>Dispersants and binders for inorganic carriers such as clay. Finely disperse fillers and improve mechanical strength of resulting granules. TOXANON GR-31A is weak alkaline, while TOXANON GR-30 is neutral. The latter is suitable for agrichemicals that are unstable under alkaline conditions.</td>
</tr>
<tr>
<td>TOXANON GR-30</td>
<td>Polycarboxylic acid type anionic surfactant (Liquid)</td>
<td></td>
</tr>
</tbody>
</table>
### Performance Chemicals for Detergents

#### 1. Base Materials for Detergents

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAROACTY CL Products</td>
<td></td>
<td>Polyoxyaalkylene alkyl ether (Liquid, wax or flake)</td>
<td>These products are suitable to formulate detergents. They have high detergency and are easily biodegradable. See page 11.</td>
</tr>
<tr>
<td>SANNONIC Products</td>
<td>See page 11</td>
<td>Polyoxyaalkylene alkyl ether (Liquid)</td>
<td></td>
</tr>
<tr>
<td>EMULMIN Products</td>
<td>See page 12</td>
<td>Polyoxyaalkylene alkyl ether (Liquid, paste or wax)</td>
<td>EMULMIN products are suitable to formulate detergents. They are easily biodegradable. See page 12.</td>
</tr>
<tr>
<td>SEDORAN FF Products</td>
<td></td>
<td>Proprietary nonionic surfactant (Liquid or paste)</td>
<td>SEDORAN FF products are suitable to formulate detergents, used in mechanical cleaning. They have high wetting properties and detergency, and produce less foam. See page 12.</td>
</tr>
<tr>
<td>NEWPOL PE Products</td>
<td>See page 12</td>
<td>Polyoxylethylene polyoxypropylene glycol (Liquid, paste or flake)</td>
<td>NEWPOL PE products are suitable to formulate industrial and household detergents. They are effective even in acidic, alkaline, or metallic salt solutions. They have high detergency irrespective of water hardness, and produce less foam. See page 12.</td>
</tr>
<tr>
<td>IONET M Products</td>
<td>See page 13</td>
<td>Polyoxylethylene monofatty acid ester (Liquid or solid)</td>
<td>These products are widely used as emulsifiers, dispersants, and leveling agents. Various products from lipophilic to hydrophilic are available. See page 13.</td>
</tr>
<tr>
<td>IONET D Products</td>
<td>See page 13</td>
<td>Polyoxylethylene difatty acid ester (Liquid or solid)</td>
<td></td>
</tr>
<tr>
<td>PUREMEEL EP-300S</td>
<td></td>
<td>Polyoxyaalkylene alkyl amine (Liquid)</td>
<td>PUREMEEL EP-300S is a laundry detergent base having high detergency for grease. This product has high solubility in water. Even when this product is mixed with water, the change in viscosity is small. The foam washes out easily with water.</td>
</tr>
<tr>
<td>SANDET EN</td>
<td>SODIUM LAURETH SULFATE, WATER, 月桂醇聚醚硫酸酯钠, 水 (有)</td>
<td>Sodium polyoxyethylene(2) lauryl ether sulfate (Liquid)</td>
<td>These products have high detergency and produce a large amount of foam. They are easily biodegradable.</td>
</tr>
<tr>
<td>SANDET END</td>
<td>SODIUM C12-15 PARETH SULFATE, WATER, C12-15烷醇聚醚硫酸酯钠, 水 (有)</td>
<td>Sodium polyoxyethylene(3) alkyl(12-15) ether sulfate (Liquid)</td>
<td></td>
</tr>
</tbody>
</table>
2. Germicides (Industrial Use)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATION G-50</td>
<td>BENZALKONIUM CHLORIDE, WATER 肽扎氯铵, 水 (有)</td>
<td>Benzalkonium chloride (Liquid)</td>
<td>These products are cationic surfactants for industrial use, having powerful antibacterial effects on a wide variety of bacteria. They cause no primary skin irritation at the concentration normally used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Didecyldimethylammonium chloride (Liquid)</td>
<td>OSMORIN DA-50 has a minimal corrosive effect on metals and do not generate dioxins when incinerated because it is a halogen-free product.</td>
</tr>
<tr>
<td>OSMORIN DA-50</td>
<td></td>
<td>Didecyldimethylammonium adipate (Liquid)</td>
<td>These products have powerful antibacterial effects on a wide variety of bacteria. They neither precipitate when brought into contact with organic substances including protein, nor reduce their germicidal activities to significant degrees. Compared to the conventional cationic antibacterial agents, they have low toxicity and irritancy.</td>
</tr>
<tr>
<td>LEBON S</td>
<td>LAURYL DIETHYLENEDIAMINOGLYCINE 月桂基二亚乙二氨基甘氨酸（有）</td>
<td>Sodium alkyldiaminoethylglycine (Liquid)</td>
<td></td>
</tr>
<tr>
<td>LEBON T-2</td>
<td></td>
<td>Alkyldiaminoethylglycine hydrochloride (Liquid)</td>
<td>BG-1 is an antibacterial agent for industrial use. It has low toxicity and produces less foam.</td>
</tr>
<tr>
<td>BG-1</td>
<td></td>
<td>Poly(hexamethylenebiguanidine) (Liquid)</td>
<td></td>
</tr>
</tbody>
</table>

3. Additives for Detergents

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSA-17</td>
<td></td>
<td>Proprietary nonionic surfactant (Solid)</td>
<td>These products are detergency reinforcers and fluidity improvers for powdered detergents prepared by after-blending. NSA-17 has high detergency reinforcing and scum dispersing effects. NSA-400L exhibits excellent calcium-ion trapping capability, and high pH buffering and soil re-deposition inhibitive abilities.</td>
</tr>
<tr>
<td>NSA-400L</td>
<td></td>
<td>Polycarboxylic acid type anionic surfactant (Liquid)</td>
<td>PROFAN ME-20 is used as a foam stabilizer and thickener. It has high detergency and rust preventive properties.</td>
</tr>
</tbody>
</table>
4. Base Materials for Household Fabric Softeners

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATION SF-10</td>
<td>Alkylimidazoline type quaternary ammonium compound (Liquid)</td>
<td>CATION SF-10 is a high concentration type cationic agent. It imparts high softness and antistatic properties.</td>
</tr>
<tr>
<td>CATION SF-75PA</td>
<td>Alkylimidazoline type quaternary ammonium compound (Liquid)</td>
<td>CATION SF-75PA is a plant-derived agent. It imparts high softness and water absorbency.</td>
</tr>
</tbody>
</table>

**Formula Example for Household Fabric Softener**

Shown below is an example formula for a household fabric softener. However, it is recommended to develop the formula further in order to satisfy your requirements.

<table>
<thead>
<tr>
<th>(wt %)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CATION SF-75PA:</td>
<td>20</td>
</tr>
<tr>
<td>Ethylene glycol:</td>
<td>6</td>
</tr>
<tr>
<td>NAROACTY CL-200:</td>
<td>2</td>
</tr>
<tr>
<td>Na₂SO₄:</td>
<td>0.8</td>
</tr>
<tr>
<td>Water:</td>
<td>Balance</td>
</tr>
<tr>
<td>Total:</td>
<td>100</td>
</tr>
</tbody>
</table>

5. Industrial Defoaming Agents

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Principal Component (Product Form)</th>
<th>Uses and Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLORIN 102</td>
<td>Polyoxyalkylene glycol (Liquid)</td>
<td>These products are economical defoaming agents for industrial use. The effect is long-lasting.</td>
</tr>
<tr>
<td>COLORIN 104</td>
<td>Proprietary derivative of polyoxyalkylene glycol (Liquid)</td>
<td></td>
</tr>
<tr>
<td>COLORIN 202</td>
<td>Polyoxyalkylene glycol (Liquid)</td>
<td>COLORIN 202 is used as a defoaming agent, particularly suitable for producing amino acids in yeast growth. It controls foam generated in fermentation.</td>
</tr>
</tbody>
</table>
### 1. Typical Properties of PEG Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Appearance (20 ± 5°C)</th>
<th>Molecular Weight</th>
<th>Hydroxyl Value</th>
<th>pH</th>
<th>Color (APHA)</th>
<th>Acidity</th>
<th>Freezing Point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEG 200</td>
<td>PEG-4, 聚乙二醇-4 (有)</td>
<td>Colorless liquid</td>
<td>200</td>
<td>565</td>
<td>6.0</td>
<td>10</td>
<td>0.1</td>
<td>&lt; -35</td>
</tr>
<tr>
<td>PEG 300</td>
<td>PEG-6, 聚乙二醇-6 (有)</td>
<td></td>
<td>300</td>
<td>375</td>
<td>5.5</td>
<td>10</td>
<td>0.1</td>
<td>&lt; 8</td>
</tr>
<tr>
<td>PEG 400</td>
<td>PEG-8, 聚乙二醇-8 (有)</td>
<td></td>
<td>400</td>
<td>281</td>
<td>5.5</td>
<td>10</td>
<td>0.1</td>
<td>6</td>
</tr>
<tr>
<td>PEG 600</td>
<td>PEG-12, 聚乙二醇-12 (有)</td>
<td></td>
<td>600</td>
<td>187</td>
<td>6.0</td>
<td>10</td>
<td>0.1</td>
<td>21</td>
</tr>
<tr>
<td>PEG 1000</td>
<td>PEG-20, 聚乙二醇-20 (有)</td>
<td></td>
<td>1,000</td>
<td>113</td>
<td>6.5</td>
<td>10</td>
<td>0.1</td>
<td>37</td>
</tr>
<tr>
<td>PEG 1500</td>
<td>PPEG-6, PEG-32; 聚乙二醇-6, 聚乙二醇-32 (有)</td>
<td>White paste</td>
<td>550</td>
<td>207</td>
<td>5.5</td>
<td>10</td>
<td>0.1</td>
<td>40</td>
</tr>
<tr>
<td>PEG 1540</td>
<td>PEG-32, 聚乙二醇-32 (有)</td>
<td></td>
<td>1,450</td>
<td>79</td>
<td>6.0</td>
<td>10</td>
<td>0.1</td>
<td>45</td>
</tr>
<tr>
<td>PEG 2000</td>
<td>PEG-40, 聚乙二醇-40 (有)</td>
<td></td>
<td>2,000</td>
<td>56</td>
<td>5.5</td>
<td>10</td>
<td>0.1</td>
<td>51</td>
</tr>
<tr>
<td>PEG 4000N</td>
<td>PEG-75, 聚乙二醇-75 (有)</td>
<td></td>
<td>3,100</td>
<td>36</td>
<td>6.5</td>
<td>10</td>
<td>0.1</td>
<td>55</td>
</tr>
<tr>
<td>PEG 4000S</td>
<td>PEG-75, 聚乙二醇-75 (有)</td>
<td></td>
<td>3,400</td>
<td>33</td>
<td>6.5</td>
<td>10</td>
<td>0.1</td>
<td>56</td>
</tr>
<tr>
<td>PEG 4000E</td>
<td></td>
<td></td>
<td>3,800</td>
<td>29</td>
<td>6.5</td>
<td>10</td>
<td>0.1</td>
<td>56</td>
</tr>
<tr>
<td>PEG 6000S</td>
<td>PEG-150, 聚乙二醇-150 (有)</td>
<td></td>
<td>8,300</td>
<td>14</td>
<td>6.5</td>
<td>10</td>
<td>0.1</td>
<td>59</td>
</tr>
<tr>
<td>PEG 6000P</td>
<td>PEG-150, 聚乙二醇-150 (有)</td>
<td></td>
<td>8,600</td>
<td>13</td>
<td>7.0</td>
<td>10</td>
<td>0.1</td>
<td>58</td>
</tr>
<tr>
<td>PEG 20000</td>
<td>PEG-400, 聚乙二醇-400 (有)</td>
<td></td>
<td>20,000</td>
<td>5.6</td>
<td>7.0</td>
<td>10</td>
<td>0.1</td>
<td>60</td>
</tr>
<tr>
<td>PEG 20000P</td>
<td>PEG-400, 聚乙二醇-400 (有)</td>
<td></td>
<td>20,000</td>
<td>5.6</td>
<td>7.0</td>
<td>10</td>
<td>0.1</td>
<td>60</td>
</tr>
</tbody>
</table>

*1 5 wt % aq soln  *2 25 wt % aq soln

### 2. Typical Properties of NAROACTY CL Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Appearance (20 ± 5°C)</th>
<th>pH (1 wt % aq soln)</th>
<th>HLB</th>
<th>Cloud Point °C (2 wt % aq soln)</th>
<th>Freeze Point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAROACTY CL-20</td>
<td>Colorless to pale yellow liquid</td>
<td>6.5</td>
<td>5.7</td>
<td>&lt; 20</td>
<td>18</td>
</tr>
<tr>
<td>NAROACTY CL-40</td>
<td></td>
<td>6.5</td>
<td>8.9</td>
<td>&lt; 20</td>
<td>11</td>
</tr>
<tr>
<td>NAROACTY CL-50</td>
<td></td>
<td>6.5</td>
<td>10.0</td>
<td>&lt; 20</td>
<td>10</td>
</tr>
<tr>
<td>NAROACTY CL-70</td>
<td></td>
<td>6.5</td>
<td>11.7</td>
<td>&lt; 20</td>
<td>-7</td>
</tr>
<tr>
<td>NAROACTY CL-85</td>
<td></td>
<td>6.5</td>
<td>12.6</td>
<td>41</td>
<td>2</td>
</tr>
<tr>
<td>NAROACTY CL-95</td>
<td></td>
<td>6.5</td>
<td>13.1</td>
<td>54</td>
<td>8</td>
</tr>
<tr>
<td>NAROACTY CL-100</td>
<td></td>
<td>6.5</td>
<td>13.3</td>
<td>64</td>
<td>12</td>
</tr>
<tr>
<td>NAROACTY CL-120</td>
<td></td>
<td>6.5</td>
<td>14.1</td>
<td>80</td>
<td>22</td>
</tr>
<tr>
<td>NAROACTY CL-140</td>
<td></td>
<td>6.5</td>
<td>14.7</td>
<td>93</td>
<td>31</td>
</tr>
<tr>
<td>NAROACTY CL-160</td>
<td></td>
<td>6.5</td>
<td>15.2</td>
<td>99</td>
<td>36</td>
</tr>
<tr>
<td>NAROACTY CL-200</td>
<td></td>
<td>6.5</td>
<td>16.0</td>
<td>&gt; 100</td>
<td>42</td>
</tr>
<tr>
<td>NAROACTY CL-400</td>
<td>White solid</td>
<td>6.5</td>
<td>17.8</td>
<td>&gt; 100</td>
<td>52</td>
</tr>
</tbody>
</table>

### 3. Typical Properties of SANNONIC Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Appearance (20 ± 5°C)</th>
<th>pH (1 wt % aq soln)</th>
<th>HLB</th>
<th>Cloud Point °C (2 wt % aq soln)</th>
<th>Pour Point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANNONIC SS-50</td>
<td>C12-14 PARETH-7 C12-14 链烷醇聚醚-7 (有)</td>
<td>Pale yellow liquid</td>
<td>6.5*1</td>
<td>10.5</td>
<td>&lt; 20</td>
<td>-27</td>
</tr>
<tr>
<td>SANNONIC SS-70</td>
<td>C12-14 PARETH-9 C12-14 链烷醇聚醚-9 (有)</td>
<td>Pale yellow liquid</td>
<td>6.5*1</td>
<td>12.1</td>
<td>33*2</td>
<td>0</td>
</tr>
<tr>
<td>SANNONIC SS-90</td>
<td>C12-14 PARETH-12 C12-14 链烷醇聚醚-12 (有)</td>
<td>White liquid</td>
<td>6.5*1</td>
<td>14.5</td>
<td>83*2</td>
<td>17</td>
</tr>
<tr>
<td>SANNONIC SS-120</td>
<td>Colorless to pale yellow liquid</td>
<td>7.0</td>
<td>10.6</td>
<td>&lt; 20</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>SANNONIC SD-50</td>
<td>Pale yellow liquid</td>
<td>6.5</td>
<td>–</td>
<td>34</td>
<td>-23</td>
<td></td>
</tr>
<tr>
<td>SANNONIC FN-80</td>
<td>Pale yellow liquid</td>
<td>6.5</td>
<td>–</td>
<td>56</td>
<td>-13</td>
<td></td>
</tr>
<tr>
<td>SANNONIC FN-100</td>
<td>Pale yellow liquid</td>
<td>6.5</td>
<td>–</td>
<td>81</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

*1 5 wt % aq soln  *2 1 wt % aq soln
### 4. Typical Properties of EMULMIN Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Appearance</th>
<th>pH (1 wt % aq soln)</th>
<th>HLB</th>
<th>Cloud Point °C (2 wt % aq soln)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMULMIN 40</td>
<td>CETOLETH-4</td>
<td>Pale yellow liquid</td>
<td>7.0</td>
<td>8.0</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>EMULMIN 50</td>
<td>CETOLETH-5</td>
<td>Straw-colored liquid</td>
<td>6.5</td>
<td>9.0</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>EMULMIN 70</td>
<td>CETOLETH-14</td>
<td>Pale yellow liquid</td>
<td>5.0</td>
<td>10.8</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>EMULMIN 110</td>
<td>CETOLETH-11, 鲸蜡醇聚醚链-11 (有)</td>
<td>Pale yellow liquid to paste</td>
<td>7.0</td>
<td>13.2</td>
<td>78°</td>
</tr>
<tr>
<td>EMULMIN 140</td>
<td>CETOLETH-14</td>
<td>White to pale yellow wax</td>
<td>7.0</td>
<td>14.2</td>
<td>91</td>
</tr>
<tr>
<td>EMULMIN 180</td>
<td>CETOLETH-18</td>
<td>Colorless to pale yellow liquid</td>
<td>7.0</td>
<td>15.1</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>EMULMIN 200</td>
<td>CETOLETH-20, 鲸蜡醇聚醚链-20 (有)</td>
<td>Pale yellow liquid</td>
<td>7.0</td>
<td>15.5</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>EMULMIN 240</td>
<td>CETOLETH-24, 鲸蜡醇聚醚链-24 (无)</td>
<td>Pale yellow liquid</td>
<td>7.0</td>
<td>16.1</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>EMULMIN FL-80</td>
<td></td>
<td></td>
<td>7.0</td>
<td>–</td>
<td>52</td>
</tr>
<tr>
<td>EMULMIN FL-100</td>
<td></td>
<td></td>
<td>7.0</td>
<td>–</td>
<td>61</td>
</tr>
<tr>
<td>EMULMIN LS-80</td>
<td>LAURETH-8, 月桂醇聚醚-8 (有)</td>
<td>Colorless to pale yellow liquid</td>
<td>7.0</td>
<td>12.9</td>
<td>71</td>
</tr>
<tr>
<td>EMULMIN LS-90</td>
<td>LAURETH-9, 月桂醇聚醚-9 (有)</td>
<td></td>
<td>6.5</td>
<td>13.4</td>
<td>82</td>
</tr>
<tr>
<td>EMULMIN NL-70</td>
<td>LAURETH-7, 月桂醇聚醚-7 (有)</td>
<td></td>
<td>6.5</td>
<td>12.4</td>
<td>58°</td>
</tr>
<tr>
<td>EMULMIN NL-100</td>
<td>LAURETH-10, 月桂醇聚醚-10 (有)</td>
<td></td>
<td>6.5</td>
<td>14.0</td>
<td>90°</td>
</tr>
<tr>
<td>EMULMIN NL-110</td>
<td>LAURETH-11, 月桂醇聚醚-11 (有)</td>
<td>Pale yellow liquid</td>
<td>6.5</td>
<td>14.4</td>
<td>98°</td>
</tr>
</tbody>
</table>

### 5. Typical Properties of SEDORAN FF Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Appearance</th>
<th>pH (1 wt % aq soln)</th>
<th>Pour Point °C</th>
<th>Cloud Point °C (2 wt % aq soln)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEDORAN FF-180</td>
<td>Pale yellow liquid</td>
<td>7.0</td>
<td>&lt; 0</td>
<td>31</td>
</tr>
<tr>
<td>SEDORAN FF-200</td>
<td></td>
<td>6.0</td>
<td>10</td>
<td>44</td>
</tr>
<tr>
<td>SEDORAN FF-210</td>
<td></td>
<td>6.0</td>
<td>10</td>
<td>53</td>
</tr>
</tbody>
</table>

### 6. Typical Properties of NEWPOL PE Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IECIC2015)</th>
<th>Appearance</th>
<th>pH (1 wt % aq soln)</th>
<th>Cloud Point °C (1 wt % aq soln)</th>
<th>Foaming Property**</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEWPOL PE-61</td>
<td>PEG/PPG-5/30 COPOLYMER</td>
<td>Colorless to pale yellow liquid</td>
<td>6.0</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>NEWPOL PE-62</td>
<td>PEG/PPG-10/30 COPOLYMER</td>
<td>Colorless to pale yellow liquid</td>
<td>6.0</td>
<td>30</td>
<td>21</td>
</tr>
<tr>
<td>NEWPOL PE-64</td>
<td>PEG/PPG-25/30 COPOLYMER</td>
<td>White paste</td>
<td>6.5</td>
<td>59</td>
<td>28</td>
</tr>
<tr>
<td>NEWPOL PE-68</td>
<td>PEG/PPG-160/30 COPOLYMER</td>
<td>White paste</td>
<td>7.0</td>
<td>113</td>
<td>48</td>
</tr>
<tr>
<td>NEWPOL PE-71</td>
<td>PEG/PPG-5/35 COPOLYMER</td>
<td>Colorless to pale yellow liquid</td>
<td>6.0</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>NEWPOL PE-74</td>
<td>PEG/PPG-30/35 COPOLYMER</td>
<td>White paste</td>
<td>6.0</td>
<td>56</td>
<td>30</td>
</tr>
<tr>
<td>NEWPOL PE-75</td>
<td>POLOXAMER215</td>
<td>White paste</td>
<td>6.0</td>
<td>69</td>
<td>32</td>
</tr>
<tr>
<td>NEWPOL PE-78</td>
<td>PEG/PPG-150/35 COPOLYMER</td>
<td>White flake</td>
<td>7.0</td>
<td>110</td>
<td>48</td>
</tr>
<tr>
<td>NEWPOL PE-108</td>
<td>PEG/PPG-300/55 COPOLYMER</td>
<td>White flake</td>
<td>7.0</td>
<td>105</td>
<td>48</td>
</tr>
</tbody>
</table>

*1 Foam height in mm at 20°C measured with Ross-Miles method
### 7. Typical Properties of IONET S Products and IONET T Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IEICIC2015)</th>
<th>Composition</th>
<th>Appearance (20 ± 5°C)</th>
<th>pH (1 wt % aq soln)</th>
<th>HLB</th>
</tr>
</thead>
<tbody>
<tr>
<td>IONET S-20</td>
<td>SORBITAN COCOATE 山梨坦椰油酸酯 (有)</td>
<td>Sorbitan monolaurate</td>
<td>Straw-colored liquid</td>
<td>7.0</td>
<td>8.6</td>
</tr>
<tr>
<td>IONET S-60V</td>
<td>SORBITAN STEARATE 山梨坦硬脂酸酯 (有)</td>
<td>Sorbitan monostearate</td>
<td>Pale yellow granule</td>
<td>8.0</td>
<td>4.7</td>
</tr>
<tr>
<td>IONET S-80</td>
<td>SORBITAN OLEATE 山梨坦油酸酯 (有)</td>
<td>Sorbitan monooleate</td>
<td>Straw-colored liquid</td>
<td>7.0</td>
<td>4.3</td>
</tr>
<tr>
<td>IONET S-85</td>
<td>SORBITAN TRIOLEATE 山梨坦三油酸酯 (有)</td>
<td>Sorbitan trioleate</td>
<td>–</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>IONET T-20C</td>
<td>PEG-20 SORBITAN COCOATE PEG-20 失水山梨醇椰油酸酯 (有)</td>
<td>Polyoxyethylene sorbitan monolaurate</td>
<td>Yellow liquid</td>
<td>–</td>
<td>16.7</td>
</tr>
<tr>
<td>IONET T-60V</td>
<td>POLYSORBATE 60 聚山梨醇酯-60 (有)</td>
<td>Polyoxyethylene sorbitan monostearate</td>
<td></td>
<td>–</td>
<td>14.9</td>
</tr>
<tr>
<td>IONET T-80V</td>
<td>POLYSORBATE 80 聚山梨醇酯-80 (有)</td>
<td>Polyoxyethylene sorbitan monooleate</td>
<td></td>
<td>7.0*</td>
<td>15.0</td>
</tr>
</tbody>
</table>

* 5 wt % aq soln

### 8. Typical Properties of IONET M Products and IONET D Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name (IEICIC2015)</th>
<th>Composition</th>
<th>Appearance (20 ± 5°C)</th>
<th>pH (1 wt % aq soln)</th>
<th>HLB</th>
<th>Cloud Point °C (2 wt % aq soln)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IONET MS-400</td>
<td>PEG-9 STEARATE PEG-9 硬脂酸酯 (有)</td>
<td>Polyoxyethylene monostearate</td>
<td>Pale yellow solid</td>
<td>7.0</td>
<td>11.9</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>IONET MS-1000</td>
<td>PEG-23 STEARATE PEG-23 硬脂酸酯 (有)</td>
<td>Polyoxyethylene monostearate</td>
<td>Pale straw-colored liquid</td>
<td>6.5</td>
<td>15.7</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>IONET MO-200</td>
<td>PEG-5 OLEATE PEG-5 油酸酯 (无)</td>
<td>Polyoxyethylene monooleate</td>
<td>Straw-colored liquid</td>
<td>7.0</td>
<td>8.4</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>IONET MO-400</td>
<td>PEG-9 OLEATE PEG-9 油酸酯 (无)</td>
<td>Polyoxyethylene monooleate</td>
<td>Straw-colored liquid</td>
<td>7.0</td>
<td>11.8</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>IONET MO-600</td>
<td>PEG-14 OLEATE PEG-14 油酸酯 (无)</td>
<td>Polyoxyethylene monooleate</td>
<td>Straw-colored liquid</td>
<td>7.0</td>
<td>13.7</td>
<td>53</td>
</tr>
<tr>
<td>IONET DL-200</td>
<td>PEG-4 DILUARATE PEG-4 二月桂酸酯 (有)</td>
<td>Polyoxyethylene dilaurate</td>
<td>Pale yellow liquid</td>
<td>6.5</td>
<td>6.6</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>IONET DS-300</td>
<td>PEG-6 DISTEARATE PEG-6 二硬脂酸酯 (有)</td>
<td>Polyoxyethylene distearate</td>
<td>Pale yellow solid</td>
<td>7.0</td>
<td>7.3</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>IONET DO-400</td>
<td>PEG-8 DIOLEATE PEG-8 二油酸酯 (有)</td>
<td>Polyoxyethylene dioleate</td>
<td>Pale straw-colored liquid</td>
<td>7.0</td>
<td>8.4</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>IONET DO-600</td>
<td>PEG-12 DIOLEATE PEG-12 二油酸酯 (有)</td>
<td>Polyoxyethylene dioleate</td>
<td>Brown liquid</td>
<td>6.0</td>
<td>10.4</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>IONET DO-1000</td>
<td>PEG-20 DIOLEATE PEG-20 二油酸酯 (无)</td>
<td>Polyoxyethylene dioleate</td>
<td>Pale yellow solid</td>
<td>6.5</td>
<td>12.9</td>
<td>35</td>
</tr>
</tbody>
</table>
Typical Properties of IONET S Products and IONET T Products

IONET DO-600
IONET DO-400
IONET DL-200
IONET MS-1000
IONET T-80V
SIONET S-20
PEG-20
PEG-20 SORBITAN COCOATE
SORBITAN STEARATE
SORBITAN COCOATE
dioleate (no)
PEG-12
PEG-12 DIOLEATE
dioleate (yes)
distearate (yes)
PEG-9
PEG-9 STEARATE

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   1. Emulsifiers for Emulsion Polymerization
   2. Pigment Dispersants (Oligomer Type)
   3. Resin Modifiers
   4. Antistatic Agents
   5. Mold Releasing Agents
   6. Printing Ink Binders
   7. Compounding Ingredients for Paints and Printing Inks
   8. Pigment Dispersants (Surfactant Type)
   9. Defoaming Agents
   10. Plasticizers for Polyurethane-Based Sealants

2 PERFORMANCE CHEMICALS FOR COSMETICS, PHARMACEUTICALS, AGRICHEMICALS AND DETERGENTS
   Performance Chemicals for Cosmetics
   1. Base Materials for Shampoos (Anionic Type)
   2. Base Materials for Shampoos (Amphoteric Type)
   3. Foam Stabilizers and Thickners for Shampoos
   4. Base Materials for Body Washes
   5. Base Materials for Hair Conditioners
   6. Compounding Ingredients for Cosmetics
   7. Emulsifiers for Cosmetics
   8. Gelling Agents for Cosmetics
   Performance Chemicals for Pharmaceauticals
   1. Tablet Binders
   2. Base Materials for Ointments
   3. Coating Agents for Tablets
   4. Germicides (Pharmaceutical Use)
   5. Other Products for Pharmacaceuticals
   Performance Chemicals for Agrichemicals
   1. Dispersants for Agrichemical Granule Preparations
   2. Sonicator/Dispersion Agents
   3. Additives for Detergents
   4. Base Materials for Household Fabric Softeners
   5. Industrial Defoaming Agents

3 PERFORMANCE CHEMICALS FOR POLYURETHANE AND POLYURETHANE-RELATED INDUSTRIES
   1. Polyether Polyols for Flexible Slabstock Polyurethane Foams
   2. Polyether Polyols for Automobile Hot Molded Seat Cushions
   3. Polyether Polyols for Automobile High-Resilient Molded Seat Cushions
   4. Polyether Polyols for Cushpad Foams
   5. Polyether Polyols for Rigid Polyurethane Foams
   6. Multi Functional Polyols
   7. Example of Polyurethane Foam System
   8. Polyether Polyols for CASE
   9. Prepolymers and Raw Materials for Polyurethane Elastomers
   10. Base Materials for Synthetic Leathers
   11. Water-Borne Polyurethanes for Textile Processing
   12. Polyurethane Emulsions for Coatings

4 PERFORMANCE CHEMICALS FOR LUBRICANT INDUSTRIES AND MACHINERY & METAL PROCESSING INDUSTRIES
   1. Lubricant Additives
   2. Base Materials for Polyalkylene Glycol-Type Lubricants
   3. Base Materials for Water-Soluble Quenchants
   4. Base Materials for Hydraulic Fluids
   5. Materials for Brake Fluids
   6. Rust Inhibitors
   7. Water-Soluble Cutting Fluids
   8. Emulsifiers for Metal Working Oils
   9. Base Materials for Metal Cleaners

5 PERFORMANCE CHEMICALS FOR RESOURCE EXTRACTION AND MINING INDUSTRIES
   1. Polymer Flocculants
   2. Dewatering Flocculants
   3. Cold Flow Improvers
   4. Lubricity Improver
   5. Dewaxing Aids

6 PERFORMANCE CHEMICALS FOR WASTEWATER TREATMENT
   1. Polymer Flocculants
   2. Aminoalkyl Methacrylate Monomers

7 PERFORMANCE CHEMICALS FOR COSMETICS, SUCH AS HAIR-CARE, SKIN-CARE AND MAKE-UP
   1. Foaming Agents/Detergents/Foam Improvers
   2. Emulsiifying Agent/Solubilizing Agent/Dispersing Agent
   3. Conditioning Agents/Styling Agents
   4. Moisturizing Agents/Moistening Agents
   5. Antibacterial/Antiinfective

8 PERFORMANCE CHEMICALS FOR CONSTRUCTION AND PUBLIC WORKS
   1. Flooring Materials
   2. Polyurethane for Architectural Paints
   3. Water Sealants
   4. Waterproofing Agents
   5. Concrete Admixtures
   6. Dispersant for Manufacturing Cement Boards by Extrusion Molding
   7. Foaming Agent for Foam Concrete
   8. Agents for Drilling Mud
   9. Waste Mud Solidification
   10. Polymer Flocculants for Gravel Washing Wastewater Treatment
   11. Binder for Ceramics

9 ADHESIVES AND ADHESIVE-RELATED PRODUCTS
   1. Pressure-Sensitive Adhesives (Cohesive Agents)
   2. Potting Resins for Artificial Kidneys (Hollow-Fiber Type)
   3. Resins for Anti-Corrosion Paints for Automobiles
   (for Improving Adhesion of Paints to Electrodeposition Steel)
   4. Binders for Fiber-Finishing Agents
   5. Binders for Fiberglass
   6. Curing Agents for Epoxy Resins

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