

Here are your solutions classified by chemical Performance,
especially because Sanyo Chemical provides "Performance"
Through Chemistry.

Product Overview

Product Overview

"Performance" Through Chemistry.

[IMPORTANT]

- The values in this catalogue are representatives.
- Chemical structures and main components are described in common names of representative components of the products.
- Before handling these materials, refer to the current Safety Data Sheet (SDS) for recommended protective equipment, and detailed precautionary and hazards information.
- When you need individual brochure or SDS, please contact to our sales department.
Also SDS is available on our website.

Sanyo Chemical Industries, Ltd.

URL: <https://www.sanyo-chemical.co.jp/eng>



SANYO CHEMICAL INDUSTRIES, LTD.

**Sanyo
Chemical**

Sanyo Chemical provides
"Performance"
Through Chemistry

Our Products Respond to Diverse Needs by Various Performances



Sanyo Chemical Provides Various Performances (functions)

Design and
Produce of
Performance
Chemicals

- Organic synthesis
- Polymerization
- Surface control, etc.

NeeSeeds-
Oriented
Approach

Technology diversification ;
a technique developed to meet a
certain need is combined with another
technique to create another new seed
technology for new products

Concurrent
Engineering

A systematic approach to integrate
accuracy and speed of time-to-market
by simultaneous development through
all processes in cooperation among R&D,
production and engineering divisions

We provides diverse performances (functions) based on these strengths

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Typical Properties of Representative Products

Examples of our Nonionic Surfactants The List of their HLB

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| Application Performance Page | | Toiletries and Health Care | | | | | | Petroleum and Automotives | | | | | | | | | Plastics and Textiles | | | | | Information & Electronics/ Electronics | | Environmental Protection, Construction & Others | | | Polyurethanes* ¹ | | Application Performance | |
|--|----|----------------------------|-----------------------|-----------|--|-----------------------------------|--------------------------------------|---------------------------|------------|-------------------|------------------------|----------------------------|-----------|------------------|----------|--------------|-----------------------|------------------------------|-----------------------------------|---------------------------------|--------|--|--|---|---|---|--|---|--------------------------------|--|
| | | Shampoos, Conditioners | Detergents, Softeners | Cosmetics | Pharmaceuticals/ Quasi-Drugs/ Medical-Supplies | Food Manufacturing/ -Distribution | Agrichemicals/ Horticulture Supplies | Automobiles | Lubricants | Machinery/ Metals | Petroleum & Industries | Synthetic Resins & Rubbers | Adhesives | Paints /Coatings | Textiles | Paper Making | Printing/Ink | Electrics/ Electronics Parts | Housing/ Environmental Protection | Civil Engineering/ Construction | Others | Foam* ² | Resins* ³ | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |  |  |  |  |  | | |
|  Cleaning | 3 | ● | ● | ● | ● | | | | ● | | ● | | | ● | ● | | ● | | | | | |  Cleaning | | | | | | | |
|  Wetting/Penetrating | 5 | ● | ● | ● | ● | | ● | | ● | ● | | | | ● | ● | ● | | | | | | |  Wetting/ Penetrating | | | | | | | |
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|  Lubricating/Leveling | 23 | ● | ● | ● | ● | | | | ● | ● | ● | | | | ● | ● | | | ● | | | |  Lubricating/ Leveling | | | | | | | |
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* The compositions are described in common names of main components. Registered names for official compendia are discribed in other brochure (PRODUCT OUTLINE 2). For more details, please contact us.

*1 Polyurethanes:
Polyurethanes are produced through reactions of polyols with isocyanates.
Polyols (polyhydric alcohols) are such as polyether polyols (sometimes it may also refer to PPG as an acronyms of polypropylene glycol for convenience), polyester polyols and polymer polyols.


*2 Foam:
Polyurethane Foam is a polyurethane matrix containing micro-pores or cells by blowing reaction.
It is used for seat cushioning materials, mattresses and heat insulators.

*3 Resins:
Polyurethanes excepting foam. They are used for sealants, caulking agents, water-proofing coatings, elastomers, synthetic leather, paintings, adhesives and so on.

We developed the first polyether polyols for polyurethane foam in Japan in 1960 under the trade name of SANNIX.
We have a world-class technology and a top-class production capacity in Japan, and therefore our PPG are used among polyurethane manufacturers not only in Japan, but also overseas. We have developed various polyether polyols for polyurethanes including PRIMEPOL; polypropylene polyol with increased primary hydroxyl content by only propylene oxide and they gained popularity.

1 Cleaning

to remove stains or dirt

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|---------------------------------|---|--|------------|-----------------------------|--|---|
| BEAULIGHT ECA, LCA | Carboxylic-based anionic surfactants | Sodium polyoxyethylene alkyl ether carboxylate | p57 | liquid, paste | <ul style="list-style-type: none"> Excellent foaming property even under weak acidity Low irritancy to eyes & skin Base material for hair shampoos, body shampoos & face washes In Japan, BEAULIGHT SHAA is approved for an exclusive use in cosmetics |  |
| BEAULIGHT SHAA | | Sodium [(2-hydroxydodecyl)-oxy] acetate | p57 | liquid | |  |
| BEAULIGHT A-5000, ESS, LSS, SSS | Sulfosuccinate-based anionic surfactants | (Look at the page by composition) | p57 p58 | liquid, paste | |  |
| NSA-400L | Carboxylic-based anionic surfactants | Polycarboxylate | - | liquid | <ul style="list-style-type: none"> Excellent calcium-ion trapping capability, high pH buffering & soil-dispersion abilities Builder for powdered detergent |  |
| SANDET EN, END, ET | Sulfuric acid ester-based anionic surfactants | Sodium polyoxyethylene alkyl ether sulfate SANDET ET is a triethanolamine salt instead of sodium salt | p58 | liquid | <ul style="list-style-type: none"> Excellent solubility to water, hard-water resistance, foaming property & detergency Low irritation to skin Hair shampoo & detergent base/emulsifier for emulsion polymerization |  |
| BEAULIGHT NA-25S | | | p58 | liquid | <ul style="list-style-type: none"> Low irritancy to eyes & skin because of its low content of sodium lauryl sulfate Base material for hair or body shampoos & detergents |  |
| PROFAN | Amide-based nonionic surfactants | Alkylol amide based surfactants | p60 | liquid, solid, flake | <ul style="list-style-type: none"> Foaming agent, foam stabilizer, thickener & detergency enhancer for shampoos, liquid detergents & bactericidal detergents/rust preventive |  |
| EMULMIN LCA-10 | Ether-based (Amine type) nonionic surfactants | Polyoxyalkylene alkyl amine | p60 | liquid | <ul style="list-style-type: none"> Excellent surface tension reducing ability & foam sustainability Kitchen detergent base |  |
| PUREMEEL | | | p60 | liquid | <ul style="list-style-type: none"> Excellent detergency of fats & oils/low-temperature fluidity Liquid detergent base |  |
| NSA-17 | Ether-based nonionic surfactants | Proprietary nonionic surfactant | - | powder | <ul style="list-style-type: none"> Reinforcing detergency of powdered detergents/fluidity improver for powder |  |
| EMULMIN FL, HL | | Polyoxyalkylene lauryl ether derived from natural higher alcohols | p61 | liquid | <ul style="list-style-type: none"> Exhibiting better low-temperature fluidity compared to other nonionic surfactants with the same HLB Detergent/emulsifier/dispersant/wetting agent/solubilizer |    |
| EMULMIN LS, NL, L | | Polyoxyethylene lauryl ether derived from natural higher alcohols | p64 | liquid, solid to paste | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Detergent/emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant EMULMIN NL, L can be emulsifiers for emulsion polymerization |   |
| EMULMIN No. | | Polyoxyethylene alkyl ether derived from natural higher alcohols | p61 | liquid, solid, paste | <ul style="list-style-type: none"> Offering a wide selection from HLB (lipophilicity/hydrophilicity parameter)/biodegradable Detergent/emulsifier/dispersant/solubilizer/emulsifier for emulsion polymerization/gelling, foaming & wetting agent/oiliness improver Sulfation, phosphorylation base/pulp cooking aid/leveling, soaping agent |  |
| CHEMICLEAN FS | | Glycol ether based compound | - | liquid | <ul style="list-style-type: none"> High Detergency/low foaming property/neutral/halogen free Not corresponding to a hazardous material on the Fire Defense Law (Japan) Cleaning agent for electric devices/metal working oils |   |
| NAROACTY CL | | Polyoxyalkylene alkyl ether derived from synthetic higher alcohol | p61 | liquid, solid, flake, paste | <ul style="list-style-type: none"> Alkylene oxide adducts with narrow molecular weight distribution Excellent detergency, emulsifiability Detergent base/detergent/emulsifier/dispersant/wetting agent |    |
| NAROACTY ID | | | p61 | liquid | <ul style="list-style-type: none"> Alkylene oxide adducts with narrow molecular weight distribution Excellent penetrating property Detergent base |  |



For shampoos

















For kitchen detergents



For laundry

List by Performance (Function)












| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|---|-------------------------------------|--|------------|----------------------|--|--|
| SANNONIC TN SEDORAN FF, SF, SNP-112 | Ether-based nonionic surfactants | Polyoxyalkylene alkyl ether derived from synthetic alcohols SANNONIC SS, DE-70 are Polyoxyethylene alkyl ether | p61/ - | liquid, paste | <ul style="list-style-type: none"> Low foaming property Excellent detergency Metal cleaners |  |
| SANNONIC FN, SS | | | p61 p62 | liquid | <ul style="list-style-type: none"> SANNONIC FN: Excellent fluidity at low temperature SANNONIC SS: Excellent penetrating property Detergent/emulsifier/dispersant/wetting agent |   |
| SANNONIC DE-70 | | | p62 | liquid | <ul style="list-style-type: none"> Excellent penetrating property Detergent base |  |
| CHEMICLEAN DLE-20 | | Polyoxyethylene alkyl ether with limonene | p62 | liquid | <ul style="list-style-type: none"> Excellent detergency Household cleaners base Removing stubborn stains of electrical appliances, bathtubs, toilet tools |  |
| NEWPOL PE | | Polyoxyethylene polyoxypropylene glycol | p63 | liquid, flake, paste | <ul style="list-style-type: none"> Low foaming property Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent |   |
| LAUROMACROGOL 100 | Ester-based nonionic surfactants | Polyoxyethylene lauryl ether derived from natural higher alcohol | p64 | petrolatum jelly | <ul style="list-style-type: none"> Ethylene oxide adducts with narrow molecular weight distribution derived from natural alcohols Excellent penetrating property & detergency Corresponding to the Japanese Pharmacopoeias & exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing |   |
| IONET DL-200, DO, DS, MO, MS | | Polyoxyethylene fatty acid diester or monoester | p65 | liquid, solid | <ul style="list-style-type: none"> Offering a wide selection from lipophilic to hydrophilic products Emulsifier/dispersant/solubilizer/detergent base/fiber-leveling agent |   |
| CHEMICLEAN AM | | Proprietary nonionic surfactant | - | liquid | <ul style="list-style-type: none"> Excellent detergency/low foaming property/neutral/halogen free Not corresponding to a hazardous material on the Fire Defense Law (Japan) Cleaning agent for electronic components |  |
| LEBON 101-H, 105, APL, APL-D, CIB | | (Look at the page by composition) | p66 | liquid | <ul style="list-style-type: none"> Excellent foaming property & hard-water resistance LEBON APL-D also excels in low temperature fluidity Base material for hair shampoos & body shampoos |  |
| LEBON 2000, 2000HG, 2000L, HC-30W, MY-30W, LD-36 | | (Look at the page by composition) | p66 p67 | liquid | |  |



For cleaning hard-disks






















2 Wetting/Penetrating

to wet or moisten
to penetrate

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|-----------------------|---|---|------|----------------------|--|---|
| CARABON DA-72 | Sulfosuccinate-based anionic surfactants | Sodium dioctyl sulfosuccinate | p57 | liquid | <ul style="list-style-type: none"> Extremely effective to wet hydrophobic materials Suitable for aqueous (water-soluble, emulsion) coatings Penetrating agent/dispersant/emulsifier for emulsion polymerization |   |
| SANMORIN OT | | | p57 | liquid | <ul style="list-style-type: none"> Particularly excellent penetrating property among surfactants/excellent wettability to hydrophobic materials/wetting- & penetrating agent/dispersant & binder for granules/penetrating agent for agrichemical spreading/dispersant/emulsifier for emulsion polymerization Suitable for aqueous (water-soluble, emulsion) coatings |    |
| CATION G-50 | Benzalkonium-based cationic surfactants | Benzalkonium chloride | p60 | liquid | <ul style="list-style-type: none"> Wide spectrum antibacterial activities Germicide, detergent for food factory/germicide for industrial use Hair conditioner & treatment base |  |
| EMULMIN FL, HL | Ether-based nonionic surfactants | Polyoxyalkylene lauryl ether derived from natural higher alcohols | p61 | liquid | <ul style="list-style-type: none"> Exhibiting better low-temperature fluidity compared to other nonionic surfactants with the same HLB Detergent/emulsifier/dispersant/wetting agent/solubilizer |    |
| EMULMIN No. | | Polyoxyethylene alkyl ether derived from natural higher alcohols | p61 | liquid, solid, paste | <ul style="list-style-type: none"> Offering a wide selection from HLB (lipophilicity/hydrophilicity parameter)/biodegradable Detergent/emulsifier/dispersant/solubilizer/emulsifier for emulsion polymerization/gelling, foaming & wetting agent/oiliness improver Sulfation, phosphorylation base/pulp cooking aid/leveling, soaping agent |   |



For coating agents






| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|---------------------------------------|-------------------------------------|---|-------------------|--------------------------------|--|---|
| NAROACTY CL | Ether-based nonionic surfactants | Polyoxyalkylene alkyl ether derived from synthetic higher alcohols SANNONIC SS, DE-70, SANMORIN 11 are Polyoxyethylene alkyl ether | p61 | liquid, solid, flake, paste | <ul style="list-style-type: none">Alkylene oxide adducts with narrow molecular weight distributionExcellent detergency, emulsifiabilityDetergent base/detergent/emulsifier/dispersant/wetting agent |  |
| NAROACTY ID | | | p61 | liquid | <ul style="list-style-type: none">Alkylene oxide adducts with narrow molecular weight distributionExcellent penetrating propertyDetergent base |  |
| SANNONIC FN, SS | | | p61 p62 | liquid | <ul style="list-style-type: none">SANNONIC FN: Excellent fluidity at low temperatureSANNONIC SS: Excellent penetrating propertyDetergent/emulsifier/dispersant/wetting agent |    |
| SANNONIC DE-70 | | | p62 | liquid | <ul style="list-style-type: none">Excellent penetrating propertyDetergent base |  |
| SANMORIN 11 | | | p62 | liquid | <ul style="list-style-type: none">Particularly excellent penetrating property among surfactantsWetting- & penetrating agent |  |
| NEWDET PE-85 | | Polyoxyethylene polyoxypropylene glycol | p63 | petrolatum jelly | <ul style="list-style-type: none">Corresponding to Japanese Pharmaceutical ExcipientsPharmaceutical excipients (solubilizer for liquid medicine/stabilizer/wetting agent for ointment/suppository base/gelling agent/binder for tablets/coating agent)Cleaning agent for medical equipment |  |
| NEWPOL PE | | | p63 | liquid, flake, paste | <ul style="list-style-type: none">Low foaming propertyDetergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent |  |
| LAUROMACROGOL 100 | | Polyoxyethylene lauryl ether derived from natural higher alcohol | p64 | petrolatum jelly | <ul style="list-style-type: none">Ethylene oxide adducts with narrow molecular weight distribution derived from natural alcoholsExcellent penetrating property & detergencyCorresponding to the Japanese Pharmacopoeias & exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing |  |
| NEWPOL 50HB, 75H-90000, LB, NSQ, V | | (Look at the page by composition) | p62 p63 p64 | liquid | <ul style="list-style-type: none">Offering a wide selection from water-soluble to -insoluble productsWetting agent, moisturizer & viscosity controller for cosmetics/releasing lubricant/lubricant for machinery, metals & fabrics/defoaming agent/raw materials for lubricant, hydraulic oils/quenching oil for machinery & metals/emulsion-breaker/heating-medium |  |
| NEWPOL GEP-2800, TL | | (Look at the page by composition) | p63 | liquid | <ul style="list-style-type: none">Excellent lubricating effect to skin & hairWetting agent, moisturizer & viscosity modifier for cosmetics/defoaming agent |  |
| NEWPOL GP, PP | | Polyoxypropylene triol/ Polyoxypropylene glycol | p61 p64 | liquid | <ul style="list-style-type: none">Non-volatile/low freezing pointWetting agent & moisturizer for cosmetics/raw material for cosmetics, surfactant & synthetic lubricant/releasing lubricant |   |
| NEWPOL SP-750 | | Polyoxypropylene sorbitol ether | - | liquid | <ul style="list-style-type: none">Non-volatile/low freezing pointWetting agent for cosmetics/moisturizer |  |
| TG-C | Ester-based nonionic surfactants | Glyceryl monostearate | p65 | flake | <ul style="list-style-type: none">Softener, emulsifier, solubilizer, moisturizer & oiliness improver for cosmetics, creams, lotions & quasi drugsLubricant & stabilizer of sustained drug releasing agents, tablets, pills & capsules of medicine |  |
| IONET S | | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | <ul style="list-style-type: none">SPAN type lipophilic surfactants derived from plantsEmulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agentViscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil |   |
| IONET T | | Polyoxyethylene sorbitan monofatty acid ester | p65 | liquid | <ul style="list-style-type: none">TWEEN type hydrophilic surfactants derived from plantsEmulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/leveling agent & softener for fibers/lubricant/machining oil/metalworking oilPlasticizer for enteric-soluble coating agents, etc./ointment bases/viscosity modifier for coatings & ink |    |

Continued on the next page →



For skincare lotions

List by Performance (Function)

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|-----------------------|----------------------------------|---|------|-----------------------------------|--|---|
| POLYSORBATE 80 | Ester-based nonionic surfactants | Modified sorbitan | - | liquid | <ul style="list-style-type: none"> Derived from plants/no animal ingredients nor genetically-modified ingredients For pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant) Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) |  |
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Low acute toxicity/low irritancy to eyes & skins Widely used in various applications |  |
| MACROGOL | | | p70 | liquid, flake, powder, paste | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Corresponding to the Japanese Pharmacopoeias & Pharmaceutical Excipients (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) Base material for ointments & suppositories/lubricant & binder for tablets or capsules/plasticizer & solubilizer for manufacturing medicine |  |
| SANFRESH | Methacrylate/Acrylate-based | Cross-linked acrylic acid polymer sodium salt | p72 | powder | <ul style="list-style-type: none"> Crushed particulate superabsorbent polymer Water absorbent & retention agent (soil conditioners/seedbeds/portable toilets/dog toilet sheets/gel-type air fresheners/under pads/disposable body warmers)/additive for cosmetics & medical use/thickener/ice packs |  |
| METHACRYLATE | | Long-chain alkyl methacrylate or dialkylaminoalkyl methacrylate derivatives | p73 | liquid | <ul style="list-style-type: none"> Good copolymerizability with other vinyl monomers Polymer modifier/imparting hydrophilicity, antistatic or adsorptive property/drainage & retention aid in paper making processes/polymer flocculant/electrodialysis or reverse osmosis membrane/ion-exchange resin/paper strengthening agent |  |











For poultices

3 Emulsifying



































to make unmixable liquids to colloidal suspension
(a state that small particles of liquid dispersing to another liquid) like milk

Beside, our subsidiary & affiliate; San Nopco Limited also provides related products (p91)

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------------|---|--|------|----------------------|--|---|
| ELEMINOL MBN-2 | Carboxylic-based anionic surfactants | Sodium polyacrylate | p57 | liquid | <ul style="list-style-type: none"> Emulsifier for emulsion & latex |  |
| ELEMINOL JS-20 | Sulfosuccinate-based anionic surfactants | Sodium alkyl allyl sulfosuccinate | p57 | liquid | <ul style="list-style-type: none"> Reactive emulsifier for emulsion polymerization |  |
| CARABON DA-72 | | Sodium dioctyl sulfosuccinate | p57 | liquid | <ul style="list-style-type: none"> Extremely effective to wet hydrophobic materials Suitable for aqueous (water-soluble, emulsion) coatings Penetrating agent/dispersant/emulsifier for emulsion polymerization |  |
| SANMORIN OT | | | p57 | liquid | <ul style="list-style-type: none"> Particularly excellent penetrating property among surfactants/excellent wettability to hydrophobic materials/wetting- & penetrating agent/dispersant & binder for granules/penetrating agent for agrichemical spreading/dispersant/emulsifier for emulsion polymerization Suitable for aqueous (water-soluble, emulsion) coatings |  |
| ELEMINOL CLS-20, SANDET ONA | Sulfuric acid ester-based anionic surfactants | (Look at the page by composition) | p58 | liquid | <ul style="list-style-type: none"> Emulsifier for emulsion polymerization Suitable for large-particle-size emulsion polymerization |  |
| ELEMINOL NS-5S, RS-3000 | | (Look at the page by composition) NS-5S is nondisclosure | p58 | liquid | <ul style="list-style-type: none"> Emulsifier for emulsion polymerization (RS-3000 is a reactive emulsifier) |  |
| SANDET EN | | Sodium polyoxyethylene lauryl ether sulfate | p58 | liquid | <ul style="list-style-type: none"> Excellent solubility to water, hard-water resistance, foaming property & detergency Low irritation to skin Hair shampoo & detergent base/emulsifier for emulsion polymerization |  |
| EMULMIN No. | Ether-based nonionic surfactants | Polyoxyethylene alkyl ether derived from natural higher alcohols | p61 | liquid, solid, paste | <ul style="list-style-type: none"> Offering a wide selection from HLB (lipophilicity/hydrophilicity parameter)/biodegradable Detergent/emulsifier/dispersant/solubilizer/emulsifier for emulsion polymerization/gelling, foaming & wetting agent/oiliness improver Sulfation, phosphorylation base/pulp cooking aid/leveling, soaping agent |  |

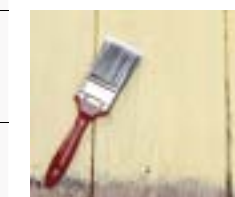


For emulsifiers for emulsion polymerization

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------|----------------------------------|--|------------|-----------------------------------|--|--|
| NAROACTY CL | Ether-based nonionic surfactants | Polyoxyalkylene alkyl ether derived from synthetic higher alcohols | p61 | liquid, solid, flake, paste | <ul style="list-style-type: none"> Alkylene oxide adducts with narrow molecular weight distribution Excellent detergency, emulsifiability Detergent base/detergent/emulsifier/dispersant/wetting agent |   |
| SANNONIC FN, SS | | SANNONIC SS is Polyoxyethylene alkyl ether | p61 p62 | liquid | <ul style="list-style-type: none"> SANNONIC FN: Excellent fluidity at low temperature SANNONIC SS: Excellent penetrating property Detergent/emulsifier/dispersant/wetting agent |   |
| EMULMIN CC | | Polyoxyethylene cetyl ether derived from natural higher alcohols | p62 | solid, wax | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant |    |
| ELEMINOL HB-29 | | Polyoxyethylene tribenzyl phenyl ether | p62 | liquid | <ul style="list-style-type: none"> Emulsion stabilizer for emulsion & latex |  |
| EMULMIN LS, NL, L | | Polyoxyethylene lauryl ether derived from natural higher alcohols | p64 | solid to paste | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Detergent/emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant EMULMIN NL, L can be used as emulsifiers for emulsion polymerization |     |
| EMULMIN FL, HL | | Polyoxyalkylene lauryl ether derived from natural higher alcohols | p61 | liquid | <ul style="list-style-type: none"> Exhibiting better low-temperature fluidity compared to other nonionic surfactants with the same HLB Detergent/emulsifier/dispersant/wetting agent/solubilizer |    |
| ELEMINOL 200L | | Polyoxyethylene alkyl ether | p61 | liquid | <ul style="list-style-type: none"> Emulsifier for emulsion polymerization |  |
| NEWPOL PE | | Polyoxyethylene polyoxypropylene glycol | p63 | liquid, flake, paste | <ul style="list-style-type: none"> Low foaming property Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent |   |
| TG-C | Ester-based nonionic surfactants | Glyceryl monostearate | p65 | flake | <ul style="list-style-type: none"> Softener, emulsifier, solubilizer, moisturizer & oiliness improver for cosmetics, creams, lotions & quasi drugs Lubricant & stabilizer of sustained drug releasing agents, tablets, pills & capsules of medicine |   |
| IONET DL-200, DO, DS, MO, MS | | Polyoxyethylene fatty acid diester or monoester | p65 | liquid, solid | <ul style="list-style-type: none"> Offering a wide selection from lipophilic to hydrophilic products Emulsifier/dispersant/solubilizer/detergent base/fiber-leveling agent |     |
| IONET S | | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | <ul style="list-style-type: none"> SPAN type lipophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agent Viscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil |     |
| IONET T | | Polyoxyethylene sorbitan monofatty acid ester | p65 | liquid | <ul style="list-style-type: none"> TWEEN type hydrophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil Plasticizer for enteric-soluble coating agents, etc./ointment bases/viscosity modifier for coatings & ink |     |
| POLYSORBATE 80 | | Modified sorbitan | - | liquid | <ul style="list-style-type: none"> Derived from plants/no animal ingredients nor genetically-modified ingredients For pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant) Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) |  |
| HITRON #3A | Nonionic surfactants | Specific nonionic surfactant (a mixture with petroleum solvent) | - | liquid (possibly jelly in winter) | <ul style="list-style-type: none"> Dispersing oil to sea water Low toxicity to marine life Dispersant of spillage oil |  |



For milky lotions



For aqueous coating

4 Solubilizing

to uniformly dissolve unmixable substance in another

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------|----------------------------------|---|------|----------------------|--|---|
| EMULMIN FL, HL | Ether-based nonionic surfactants | Polyoxyalkylene lauryl ether derived from natural higher alcohols | p61 | liquid | <ul style="list-style-type: none"> Exhibiting excellent low-temperature fluidity compared to other nonionic surfactants with the same HLB Detergent/emulsifier/dispersant/wetting agent/solubilizer |  |
| EMULMIN No. | | Polyoxyethylene alkyl ether derived from natural higher alcohols | p61 | liquid, solid, paste | <ul style="list-style-type: none"> Offering a wide selection from HLB (lipophilicity/hydrophilicity parameter)/biodegradable Detergent/emulsifier/dispersant/solubilizer/emulsifier for emulsion polymerization/gelling, foaming & wetting agent/oiliness improver Sulfation, phosphorylation base/pulp cooking aid/leveling, soaping agent |  |
| EMULMIN CC | | Polyoxyethylene cetyl ether derived from natural higher alcohols | p62 | solid, wax | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant |  |
| EMULMIN LS, NL, L | | Polyoxyethylene lauryl ether derived from natural higher alcohols | p64 | solid to paste | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Detergent/emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant EMULMIN NL, L can be emulsifiers for emulsion polymerization |  |
| NEWDET PE-85 | | Polyoxyethylene polyoxypropylene glycol | p63 | petrolatum jelly | <ul style="list-style-type: none"> Corresponding to Japanese Pharmaceutical Excipients Pharmaceutical excipients (solubilizer for liquid medicine/stabilizer/wetting agent for ointment/suppository base/gelling agent/binder for tablets/coating agent) Cleaning agent for medical equipment |  |
| NEWPOL PE | | | p63 | liquid, flake, paste | <ul style="list-style-type: none"> Low foaming property Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent |  |
| NEWPOL EFP | | Phenoxyethanol | p61 | liquid | <ul style="list-style-type: none"> Excellent solubility of fats & oils Solvent of cosmetics, detergents/preservative for cosmetics |  |
| NEWPOL B-12 | | Polyoxyalkylene alkyl ether | p61 | liquid | <ul style="list-style-type: none"> Excellent solubility of fats & oils Solvent of detergent |  |
| NEWPOL SBF | | Polyoxyalkylene glycol monoether or borate | p61 | liquid | <ul style="list-style-type: none"> High boiling point, excellent fluidity at low temperature Solvent for brake oils |  |
| TG-C | Ester-based nonionic surfactants | Glyceryl monostearate | p65 | flake | <ul style="list-style-type: none"> Softener, emulsifier, solubilizer, moisturizer & oiliness improver for cosmetics, creams, lotions & quasi drugs Lubricant & stabilizer of sustained drug releasing agents, tablets, pills & capsules of medicine |  |
| IONET DL-200, DO, DS, MO, MS | | Polyoxyethylene fatty acid diester or monoester | p65 | liquid, solid | <ul style="list-style-type: none"> Offering a wide selection from lipophilic to hydrophilic products Emulsifier/dispersant/solubilizer/detergent base/fiber-leveling agent |  |
| IONET S | | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | <ul style="list-style-type: none"> SPAN type lipophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agent Viscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil |  |
| IONET T | | Polyoxyethylene sorbitan monofatty acid ester | p65 | liquid | <ul style="list-style-type: none"> TWEEN type hydrophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil Plasticizer for enteric-soluble coating agents, etc./ointment bases/viscosity modifier for coatings & ink |  |
| POLYSORBATE 80 | | Modified sorbitan | - | liquid | <ul style="list-style-type: none"> Derived from plants/no animal ingredients nor genetically-modified ingredients For pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant) Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) |  |






To dissolve uniformly



As a solvent for detergents




















For brake fluids

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|----------------|----------------------------|--------------------------------|------|-----------------------------------|--|--|---|
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | | <ul style="list-style-type: none">Compatible with skin/water-soluble & -retainable/non-volatile/free from greasinessLow acute toxicity/low irritancy to eyes & skinsWidely used in various applications |  |
| MACROGOL | | | p70 | liquid, flake, powder, paste | | <ul style="list-style-type: none">Compatible with skin/water-soluble & -retainable/non-volatile/free from greasinessCorresponding to the Japanese Pharmacopoeias & Pharmaceutical Excipients (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing)Base material for ointments & suppositories/lubricant & binder for tablets or capsules/plasticizer & solubilizer for manufacturing medicine |  |
| SANFINE DM-200 | Others | Polyoxyethylene dimethyl ether | p73 | liquid | | <ul style="list-style-type: none">Excellent solubility of fats & oilsSolvent for detergent |  |

5 Dispersing

to distribute as particles throughout a medium

Beside, our subsidiary & affiliate; San Nopco Limited also provides related products (p91)

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|-------------------|---|---|------|---------------|--|---|---|
| SANCARRIER No.5L | Carboxylic-based anionic surfactants | Mixture of acrylic polymer & sodium aluminate | - | liquid | | <ul style="list-style-type: none">Preventing degradation & viscosity increase of drilling mudDispersant for bentonite muds (drilling mud) |  |
| SS-B | | Polycarboxylate | - | liquid | | <ul style="list-style-type: none">Preventing viscosity increase of drilling mud & the collapse of unstable strataDispersant for drilling mud (stabilization fluid)/wall-building aid |  |
| CARRYBON L-400 | | | p57 | liquid | | <ul style="list-style-type: none">Providing low-viscosity pigment slurry with high dispersion stabilityDispersant for pigment slurry of water-soluble or emulsion coatings |   |
| SANSPARL PS-2 | | | - | liquid | | <ul style="list-style-type: none">Suitable for aqueous (water-soluble, emulsion) coatingsPigment dispersant |   |
| TOXANON | | | - | liquid | | <ul style="list-style-type: none">Imparting excellent spreading property to agrichemical granulesExcellent binding property/enhancing hardness of granulesDispersant & binder for agrichemical granules |  |
| CARABON DA-72 | Sulfosuccinate-based anionic surfactants | Sodium dioctyl sulfosuccinate | p57 | liquid | | <ul style="list-style-type: none">Extremely effective to wet hydrophobic materialsSuitable for aqueous (water-soluble, emulsion) coatingsPenetrating agent/dispersant/emulsifier for emulsion polymerization |  |
| SANSEPARER 100 | | | p57 | wax | | <ul style="list-style-type: none">Suitable for oil-based, organic-solvent based coatingsWithout water nor organic solventInternal releasing agent for PMMA/pigment dispersant |    |
| SANMORIN OT | | | p57 | liquid | | <ul style="list-style-type: none">Particularly excellent penetrating property among surfactants/excellent wettability to hydrophobic materials/wetting- & penetrating agent/dispersant & binder for granules/penetrating agent for agrichemical spreading/dispersant/emulsifier for emulsion polymerizationSuitable for aqueous (water-soluble, emulsion) coatings |   |
| IONET D-2 | Sulfonate-based anionic surfactants | Sodium naphthalenesulfonate formalin condensate | - | powder | | <ul style="list-style-type: none">Low foaming propertyPigment dispersant |   |
| SANYO LEVELON PHL | | | p58 | liquid | | |  |
| SANDET ONA | Sulfuric acid ester-based anionic surfactants | Sodium 2-ethylhexyl sulfate | p58 | liquid | | <ul style="list-style-type: none">Emulsifier for emulsion polymerizationSuitable for large-particle-size emulsion polymerization |  |



For stabilization for drilling mud










To disperse of pigment slurry

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------|-----------------------------------|--|------------|-----------------------------|--|--------------------|
| NSA-17 | Ether-based nonionic surfactants | Proprietary nonionic surfactant | - | powder | <ul style="list-style-type: none"> Reinforcing detergency of powdered detergents/fluidity improver for powder | |
| EMULMIN No. | | Polyoxyethylene alkyl ether derived from natural higher alcohols | p61 | liquid, solid, paste | <ul style="list-style-type: none"> Offering a wide selection from HLB (lipophilicity/hydrophilicity parameter)/biodegradable Detergent/emulsifier/dispersant/solubilizer/emulsifier for emulsion polymerization/gelling, foaming & wetting agent/oiliness improver Sulfation, phosphorylation base/pulp cooking aid/leveling, soaping agent | |
| EMULMIN CC | | Polyoxyethylene cetyl ether derived from natural higher alcohols | p62 | solid, wax | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant | |
| EMULMIN FL, HL | | Polyoxyalkylene lauryl ether derived from natural higher alcohols | p61 | liquid | <ul style="list-style-type: none"> Exhibiting better low-temperature fluidity compared to other nonionic surfactants with the same HLB Detergent/emulsifier/dispersant/wetting agent/solubilizer | |
| EMULMIN LS, NL, L | | Polyoxyethylene lauryl ether derived from natural higher alcohols | p64 | liquid, solid to paste | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Detergent/emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant EMULMIN NL, L can be emulsifiers for emulsion polymerization | |
| NEWPOL PE | | Polyoxyethylene polyoxypropylene glycol | p63 | liquid, flake, paste | <ul style="list-style-type: none"> Low foaming property Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent | |
| NAROACTY CL | | Polyoxyalkylene alkyl ether derived from synthetic higher alcohols | p61 | liquid, solid, flake, paste | <ul style="list-style-type: none"> Alkylene oxide adducts with narrow molecular weight distribution Excellent detergency, emulsifiability Detergent base/detergent/emulsifier/dispersant/wetting agent | |
| SANNONIC FN, SS | | SANNONIC SS is Polyoxyethylene alkyl ether | p61 p62 | liquid | <ul style="list-style-type: none"> SANNONIC FN: Excellent fluidity at low temperature SANNONIC SS: Excellent penetrating property Detergent/emulsifier/dispersant/wetting agent | |
| IONET DL-200, DO, DS, MO, MS | Ester-based nonionic surfactants | Polyoxyethylene fatty acid diester or monoester | p65 | liquid, solid | <ul style="list-style-type: none"> Offering a wide selection from lipophilic to hydrophilic products Emulsifier/dispersant/solubilizer/detergent base/fiber-leveling agent | |
| IONET S | | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | <ul style="list-style-type: none"> SPAN type lipophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agent Viscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil | |
| IONET T | | Polyoxyethylene sorbitan monofatty acid ester | p65 | liquid | <ul style="list-style-type: none"> TWEEN type hydrophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil Plasticizer for enteric-soluble coating agents, etc./ointment bases/viscosity modifier for coatings & ink | |
| POLYSORBATE 80 | | Modified sorbitan | - | liquid | <ul style="list-style-type: none"> Derived from plants/no animal ingredients nor genetically-modified ingredients For pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant) Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) | |
| SANWAX | Olefin or Styrene-based compounds | Low-molecular-weight polyethylene | p68 | powder, pellet, etc. | <ul style="list-style-type: none"> Moderate hardness, low melt viscosity equivalent to polyethylene/incompatible with polymers excepting polyolefins/for cosmetics/abrasives/anti-sagging agents/binder for ink/pigments, filler dispersants/improver for flowability, softening point, abrasion-resistance & releasability/flattening agent/lubricant/fixing agent for agrichemicals | |
| VISCOL | | Low-molecular-weight polypropylene | p68 | powder | <ul style="list-style-type: none"> Moderate hardness, low melt viscosity equivalent to polypropylene/incompatible with polymers excepting polyolefins/for abrasives/anti-sagging agents/binder for ink/pigment, filler dispersant/releasing agent for toner/improver for flowability, releasability, softening point & abrasion-resistance/flattening agent/lubricant | |
| UMEX | | Acid modified low-molecular-weight polypropylene | p68 | granule, powder, etc. | <ul style="list-style-type: none"> Dispersant for pigments, fillers & wood-flour/hot-melt adhesives Resin modifier for polyolefins (such as improving adhesion) | |

Continued on the next page →



For uniform coloring of plastics










| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|--------------------|-----------------------------------|---|------|-----------------------------------|---|---|
| HIMER SB, ST | Olefin or Styrene-based compounds | Low-molecular-weight polystyrene | p68 | granule | <ul style="list-style-type: none"> Resulting toner has excellent fusing properties & charging characteristics HIMER SB: toner resin HIMER ST: dispersant for pigments & fillers |   |
| REGIT S-94 | | | p68 | granule | <ul style="list-style-type: none"> Registered to the positive list of Japan Hygienic Olefin & Styrene Plastics Association ([B]NJ-0912) Dispersant for pigments & fillers |   |
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Low acute toxicity/low irritancy to eyes & skins Widely used in various applications |  |
| SANRETAN TIM-2011A | Urethane Series | Polyurethane solution (caprolactone type) | - | liquid | <ul style="list-style-type: none"> Forming tough film/excellent dispersibility of magnetic powders & hydrolysis resistance Caprolactone type Binder for magnetic tapes |  |
| SANPEX PA-55 | Methacrylate/Acrylate-based | Glycidyl group-containing acrylic resin | - | granule | <ul style="list-style-type: none"> Used in combination with dibasic acid Resulting coating film has excellent pigment dispersibility, weather resistance/glossiness & smoothness Resin for powder coating |  |



For dispersion of abrasive polishing agents

6 Flocculating

to adhere each particles and form larger-size cluster

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------|-----------------------------|---|------|----------------|--|---|
| SERABON DH-505 | Anionic surfactants | Proprietary anionic surfactant | - | liquid | <ul style="list-style-type: none"> Dehydration promoting agent for metal sulfide concentration |  |
| ACRYLATE SMC-80H | Methacrylate/Acrylate-based | Dimethylaminoethyl acrylate quaternary salt | p72 | liquid | <ul style="list-style-type: none"> Monomer for water-soluble cationic polymer/flocculant/papermaking chemicals |   |
| CATIOMER 300 | | Water soluble cationic polymer | - | liquid | <ul style="list-style-type: none"> Organic coagulant for industrial wastewater treatment |  |
| SACRIS | | Water soluble acrylic polymer (ultrahigh molecular weight) | - | powder | <ul style="list-style-type: none"> Offering anionic, cationic & amphoteric polymer Thickener/gelling agent/flocculant/wastewater treatment/sizing-agent in paper making/sealant/excipient for dehumidifiers/sludge solidifying agent/seed binder for slope greening/soil modifier |  |
| SANQUICK | | | - | liquid | <ul style="list-style-type: none"> Offering cationic or amphoteric polymer Waste water treatment/flocculant |  |
| SANFLOC | | | - | liquid, powder | <ul style="list-style-type: none"> Offering a wide selection depending on ionic type of polymers (anionic, cationic, nonionic & amphoteric) Wastewater treatment/filtering speed improver of organic flocculant/coagulant |  |
| METHACRYLATE | | Long-chain alkyl methacrylate or dialkylaminoalkyl methacrylate derivatives | p73 | liquid | <ul style="list-style-type: none"> Good copolymerizability with other vinyl monomers Polymer modifier/imparting hydrophilicity, antistatic or adsorptive property/drainage & retention aid in paper making processes/polymer flocculant/electrodialysis or reverse osmosis membrane/ion-exchange resin/paper strengthening agent |   |



For flocculation/settling



















For paper making



For wastewater treatment

7 Foaming/Foam stabilizing to make/keep foam

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|---|---|--|------------|------------------------|--|--|
| BEAULIGHT ECA, LCA | Carboxylic-based anionic surfactants | Sodium polyoxyethylene alkyl ether carboxylate | p57 | liquid, paste | <ul style="list-style-type: none"> Excellent foaming property even under weak acidity Low irritancy to eyes & skin Base material for hair shampoos, body shampoos & face washes In Japan, BEAULIGHT SHAA is approved for an exclusive use in cosmetics |  |
| BEAULIGHT SHAA | | Sodium [(2-hydroxydodecyl)-oxy] acetate | p57 | liquid | |  |
| BEAULIGHT A-5000, ESS, LSS, SSS | Sulfosuccinate-based anionic surfactants | (Look at the page by composition) | p57 p58 | liquid, paste | |  |
| SANDET EN, END, ET | Sulfuric acid ester-based anionic surfactants | Sodium polyoxyethylene alkyl ether sulfate SANDET ET is a triethanolamine salt instead of sodium salt | p58 | liquid | <ul style="list-style-type: none"> Excellent solubility to water, hard-water resistance, foaming property & detergency Low irritation to skin Hair shampoo & detergent base/emulsifier for emulsion polymerization |  |
| BEAULIGHT NA-25S | | | p58 | liquid | <ul style="list-style-type: none"> Low irritancy to eyes & skin because of its low content of sodium lauryl sulfate Base material for hair or body shampoos & detergents |  |
| SANSPARL RA-33 | Anionic surfactants | Proprietary anionic surfactants | - | paste | <ul style="list-style-type: none"> Foam stabilizer for polymer emulsion |  |
| PROFAN | Amide-based nonionic surfactants | Alkylol amide based surfactants | p60 | liquid, solid, flake | <ul style="list-style-type: none"> Foaming agent, foam stabilizer, thickener & detergency enhancer for shampoos, liquid detergents & bactericidal detergents/rust preventive |  |
| EMULMIN LCA-10 | Ether-based (amine type) nonionic surfactants | Polyoxyalkylene alkyl amine | p60 | liquid | <ul style="list-style-type: none"> Excellent surface tension reducing ability & foam sustainability Kitchen detergent base |  |
| EMULMIN No. | Ether-based nonionic surfactants | Polyoxyethylene alkyl ether derived from natural higher alcohols | p61 | liquid, solid, paste | <ul style="list-style-type: none"> Offering a wide selection from HLB (lipophilicity/hydrophilicity parameter)/biodegradable Detergent/emulsifier/dispersant/solubilizer/emulsifier for emulsion polymerization/gelling, foaming & wetting agent/oiliness improver Sulfation, phosphorylation base/pulp cooking aid/leveling, soaping agent |  |
| EMULMIN CC | | Polyoxyethylene cetyl ether derived from natural higher alcohols | p62 | solid, wax | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant |   |
| EMULMIN LS, NL, L | | Polyoxyethylene lauryl ether derived from natural higher alcohols | p64 | liquid, solid to paste | <ul style="list-style-type: none"> Hardly hydrolyzed even in the presence of acidity or alkalinity Detergent/emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant EMULMIN NL, L can be emulsifiers for emulsion polymerization |   |
| LEBON 101-H, 105, APL, APL-D, CIB | Amino acid-type amphoteric surfactants | (Look at the page by composition) | p66 | liquid | <ul style="list-style-type: none"> Excellent foaming property & hard-water resistance LEBON APL-D also excels in low temperature fluidity Base material for hair shampoos & body shampoos |  |
| LEBON 2000, 2000HG, 2000L, HC-30W, MY-30W, LD-36 | Betaine-type amphoteric surfactants | (Look at the page by composition) | p66 p67 | liquid | |  |
| LEVEFLOW SR-21 | Surfactant | Proprietary surfactant | - | liquid | <ul style="list-style-type: none"> Creates fine bubbles in concrete & allows it to become lightweight Foaming agent for foamed concrete |  |



For fine foaming



For shampoo







For foamed concrete

8 Defoaming

to eliminate foam
to avoid generating foam

Beside, our subsidiary & affiliate; San Nopco Limited also provides related products (p91)

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------------|----------------------------------|--|-------------------|-----------------|---|---|
| COLORIN | Ether-based nonionic surfactants | Polyoxyalkylene glycol or polyoxypropylene monobutyl ether | p61 | liquid | <ul style="list-style-type: none"> Defoaming agent for the fermentation industries Defoaming agent for other industrial use such as latex manufacturing process |  |
| NEWPOL 50HB, 75H-90000, LB, NSQ, V | | (Look at the page by composition) | p62 p63 p64 | liquid | <ul style="list-style-type: none"> Offering a wide selection from water-soluble to -insoluble products Wetting agent, moisturizer & viscosity controller for cosmetics/releasing lubricant/lubricant for machinery, metals & fabrics/defoaming agent/raw materials for lubricant, hydraulic oils/quenching oil for machinery & metals/emulsion-breaker/heating-medium |  |
| NEWPOL GEP-2800, TL | | (Look at the page by composition) | p63 | liquid | <ul style="list-style-type: none"> Excellent lubricating effect to skin & hair Wetting agent, moisturizer & viscosity modifier for cosmetics/defoaming agent |  |
| IONET S | Ester-based nonionic surfactants | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | <ul style="list-style-type: none"> SPAN type lipophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agent Viscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil |  |



To defoam during process




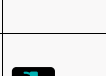




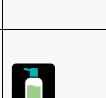



To prevent foaming in coating

9 Lubricating/Leveling

to slick/to eliminate friction
to give mold releasability
to flatten the surface

Beside, our subsidiary & affiliate; San Nopco Limited also provides related products (p91)

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|-------------------|---|--|------|-----------------------------------|---|---|
| SANSEPARER 100 | Sulfosuccinate-based anionic surfactants | Sodium dioctyl sulfosuccinate | p57 | wax | <ul style="list-style-type: none"> Suitable for oil-based, organic-solvent based coatings Without water nor organic solvent Internal releasing agent for PMMA/pigment dispersant |  |
| HIGHCLEAN | Anionic surfactants | Compound of lubricant & proprietary antibacterial surfactant | - | liquid (possibly jelly in winter) | <ul style="list-style-type: none"> Chlorine free Imparting excellent cutting processability/anti-septicity Water-soluble cutting oil |  |
| ECONOL | Ammonium salt-based cationic surfactants | Alkyltrimethylammonium chloride | p59 | liquid, solid | <ul style="list-style-type: none"> Imparting smoothness, pliability & tenseness-stiffness finished feeling to hair Hair conditioner & treatment base |  |
| CATION DSV | | Distearyldimethylammonium chloride | p59 | flake | <ul style="list-style-type: none"> Imparting excellent flexibility & antistaticity to hair and fibers Hair conditioner & treatment base/softener for fabrics |  |
| LEBON TM-18, 18PA | | Stearyltrimethylammonium chloride | p59 | solid | <ul style="list-style-type: none"> Imparting smoothness, pliability & tenseness-stiffness finished feeling to hair/long-lasting softness & smoothness Hair conditioner & treatment base |  |
| CATION LQ | | Ethyl sulfuric acid lanolin fatty acid aminopropylethyl dimethylammonium | p59 | paste | <ul style="list-style-type: none"> Imparting excellent moisturizing, antistaticity & tactile property to hair/long-lasting softness & smoothness Hair conditioner & treatment base/shampoo with built-in conditioner In Japan, CATION LQ is approved for an exclusive use in cosmetics |  |
| CATION SF | Imidazolinium salt-based cationic surfactants | Imidazoline compound | p59 | liquid to paste | <ul style="list-style-type: none"> Imparting excellent flexibility, antistaticity & water-absorbing effect Softener for fabrics |  |
| CATION S | Benzalkonium-based cationic surfactants | Stearyldimethylbenzyl-ammonium chloride | p60 | solid | <ul style="list-style-type: none"> Imparting smoothness, pliability & tenseness-stiffness finished feeling to hair Hair conditioner & treatment base |  |
| BLEMBER | Ether-based nonionic surfactants | Polyoxyalkylene alkyl ether | p61 | liquid | <ul style="list-style-type: none"> Excellent lubricity, oil separation performance/low foaming property Water-soluble cutting oil base |  |
| NEWDET PE-85 | | Polyoxyethylene polyoxypropylene glycol | p63 | petrolatum jelly | <ul style="list-style-type: none"> Corresponding to Japanese Pharmaceutical Excipients Pharmaceutical excipients (solubilizer for liquid medicine/stabilizer/wetting agent for ointment/suppository base/gelling agent/binder for tablets/coating agent) Cleaning agent for medical equipment |  |





For cutting oils

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------------|--|---|-------------------|-----------------------------------|---|--------------------|
| NEWPOL PE | Ether-based nonionic surfactants | Polyoxyethylene polyoxypropylene glycol | p63 | liquid, flake, paste | <ul style="list-style-type: none"> Low foaming property Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent | |
| NEWPOL 50HB, 75H-90000, LB, NSQ, V | | (Look at the page by composition) | p62 p63 p64 | liquid | <ul style="list-style-type: none"> Offering a wide selection from -soluble to -insoluble products Wetting agent, moisturizer & viscosity controller for cosmetics/releasing lubricant/lubricant for machinery, metals & fabrics/defoaming agent/raw materials for lubricant, hydraulic oils/quenching oil for machinery & metals/emulsion-breaker/heating-medium | |
| NEWPOL GEP-2800, TL | | (Look at the page by composition) | p63 | liquid | <ul style="list-style-type: none"> Excellent lubricating effect to skin & hair Wetting agent, moisturizer & viscosity modifier for cosmetics/defoaming agent | |
| NEWPOL GP, PP | | Polyoxypropylene triol, polyoxypropylene glycol | p61 p64 | liquid | <ul style="list-style-type: none"> Non-volatile/low freezing point Wetting agent & moisturizer for cosmetics/raw material for cosmetics, surfactant & synthetic lubricant/releasing lubricant | |
| TG-C | Ester-based nonionic surfactants | Glyceryl monostearate | p65 | flake | <ul style="list-style-type: none"> Softener, emulsifier, solubilizer, moisturizer & oiliness improver for cosmetics, creams, lotions & quasi drugs Lubricant & stabilizer of sustained drug releasing agents, tablets, pills & capsules of medicine | |
| IONET DL-200, DO, DS, MO, MS | | Polyoxyethylene fatty acid diester or monoester | p65 | liquid, solid | <ul style="list-style-type: none"> Offering a wide selection from lipophilic to hydrophilic products Emulsifier/dispersant/solubilizer/detergent base/fiber-leveling agent | |
| IONET S | | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | <ul style="list-style-type: none"> SPAN type lipophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agent Viscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil | |
| IONET T | | Polyoxyethylene sorbitan monofatty acid ester | p65 | liquid | <ul style="list-style-type: none"> TWEEN type hydrophilic surfactants derived from plants Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil Plasticizer for enteric-soluble coating agents, etc./ointment bases/viscosity modifier for coatings & ink | |
| POLYSORBATE 80 | | Modified sorbitan | - | liquid | <ul style="list-style-type: none"> Derived from plants/no animal ingredients nor genetically-modified ingredients For pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant) Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) | |
| SANWAX | Olefin-based compounds | Low-molecular-weight polyethylene | p68 | powder, pellet, etc. | <ul style="list-style-type: none"> Moderate hardness, low melt viscosity equivalent to polyethylene/incompatible with polymers excepting polyolefins/for cosmetics/abrasives/anti-sagging agents/binder for ink/pigments, filler dispersants/improver for flowability, softening point, abrasion-resistance & releasability/flatting agent/lubricant/fixing agent for agrichemicals | |
| VISCOL | | Low-molecular-weight polypropylene | p68 | powder | <ul style="list-style-type: none"> Moderate hardness, low melt viscosity equivalent to polypropylene/incompatible with polymers excepting polyolefins/for abrasives/anti-sagging agents/binder for ink/pigment, filler dispersant/releasing agent for toner/improver for flowability, releasability, softening point & abrasion-resistance/flatting agent/lubricant | |
| SANFRIC | Metalic compounds/ Acids/Acid Anhydrides | Organomolybdenum compound/ fatty acid compound | p69 | liquid | <ul style="list-style-type: none"> Friction reducer or friction modifier/anti-wear agent or wear inhibitor/ lubricity improver for fuel oils | |
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Low acute toxicity/low irritancy to eyes & skins Widely used in various applications | |
| MACROGOL | | | p70 | liquid, flake, powder, paste | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Corresponding to the Japanese Pharmacopoeias & Pharmaceutical Excipients (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) Base material for ointments & suppositories/lubricant & binder for tablets or capsules/ plasticizer & solubilizer for manufacturing medicine | |



















For lubricant for fibers

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|--------------|-----------------------------|--|------|---------------|--|--|---|
| ACLUBE | Methacrylate/Acrylate-based | Methacrylate copolymer & refined mineral oil | p72 | liquid | | <ul style="list-style-type: none">Contributing to a reduction of fuel consumption to reduce the viscosity of lubricant depending on temperatureViscosity Index Improver/Viscosity Modifier (VII/VM) or pour point depressant for lubricants, hydraulic & engine oils/dewaxing aid during the production of lubricants |  |
| PERMARIN | Urethane series | Polyurethane emulsion | p74 | liquid | | <ul style="list-style-type: none">Resulting coating film has excellent flexibility, water-, adhesion- & chemical resistanceRaw material for coatings, ink & adhesives/binder for pigment printingTexture modifier/shrink-resistant finishing agent/imparting elastic repulsion/pilling preventing agent |  |



















For lubricants

10 Adhesive to stick to adherend
to bind together
to be sticky

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|---------------------|--------------------------------------|--|------|-----------------------|--|--|---|
| TOXANON | Carboxylic-based anionic surfactants | Polycarboxylate | - | liquid | | <ul style="list-style-type: none">Imparting excellent spreading property to agrichemical granulesExcellent binding property/enhancing hardness of granulesDispersant & binder for agrichemical granules |  |
| NEWDET PE-85 | Ether-based nonionic surfactants | Polyoxyethylene polyoxypropylene glycol | p63 | petrolatum jelly | | <ul style="list-style-type: none">Corresponding to Japanese Pharmaceutical ExcipientsPharmaceutical excipients (solubilizer for liquid medicine/stabilizer/wetting agent for ointment/suppository base/gelling agent/binder for tablets/coating agent)Cleaning agent for medical equipment |  |
| NEWPOL PE | | | p63 | liquid, flake, paste | | <ul style="list-style-type: none">Low foaming propertyDetergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent |  |
| NEWPOL T-240U | | Modified polyether | - | block | | <ul style="list-style-type: none">Freezing point (55-60°C)/slow dissolution to waterBinder for aromatic deodorant toilet cleaner |  |
| POLYSORBATE 80 | Ester-based nonionic surfactants | Modified sorbitan | - | liquid | | <ul style="list-style-type: none">Derived from plants/no animal ingredients nor genetically-modified ingredientsFor pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant)Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) |  |
| CHEMITYLEN PEB-13ST | Esters | Bisphenol-A type unsaturated polyester | p67 | powder | | <ul style="list-style-type: none">Binder for glass chopped strand mats for FRP |  |
| ACROBINDER BG-7 | Olefin-based compounds | Butadiene & maleic acid copolymer | - | liquid | | <ul style="list-style-type: none">Binder for fiberglassesEspecially suitable for FRTR (Fiber-Rainforced Thermo Plastic) |   |
| UMEX | | Acid modified low-molecular-weight polypropylene | p68 | granule, powder, etc. | | <ul style="list-style-type: none">Dispersant for pigments, fillers & wood-flour/hot-melt adhesivesResin modifier for polyolefins (such as improving adhesion) |   |
| DSA, PDSA-DA | Acids/Acid Anhydrides | Alkenyl succinic anhydride | p69 | liquid | | <ul style="list-style-type: none">Imparting long pot life, excellent electrical insulating property, flexibility & bending strength to resinsEpoxy curing agent/rust preventive/corrosion inhibitor |  |
| POLYMIDE L | Nitrogen-Containing Compounds | Polyamideamine | p69 | liquid | | <ul style="list-style-type: none">Cured epoxy resin has rust prevention, excellent adhesion, toughness & flexibilityCuring agent for epoxy resin used to coatings, adhesives, civil engineering & construction, laminating & casting materials, etc. |    |
| POLYMIDE S | | | p69 | powder | | <ul style="list-style-type: none">Resulting coating film has excellent water-, chemical-, abrasion-, weather-, oil-, blocking-resistanceExcellent glossiness & adhesion to polyolefin filmsResin for special gravure printing ink |  |
| MELPOL F-220 | Polyols | Isocyanate modified polyether | - | pellet | | <ul style="list-style-type: none">Aqueous solution has surface activating ability/forming flexible & elastic filmDecomposing thermally at relatively low temperature & hardly-leaving ash after incinerationSizing agent for glass-fibers (warp-yarn)/water-soluble polymer |  |



For excipients for tablets

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|--------------------|---|--|------------|-----------------------------------|--|---|
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Low acute toxicity/low irritancy to eyes & skins Widely used in various applications |  |
| MACROGOL | | | p70 | liquid, flake, powder, paste | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Corresponding to the Japanese Pharmacopoeias & Pharmaceutical Excipients (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) Base material for ointments & suppositories/lubricant & binder for tablets or capsules/plasticizer & solubilizer for manufacturing medicine |  |
| SANNIX PL-2100, PP | | Polyoxyethylene polyoxypropylene glycol/ Polyoxypropylene glycol | p70 p71 | liquid | <ul style="list-style-type: none"> Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SANNIX GP, GH | | Polyoxypropylene triol | p71 | liquid | <ul style="list-style-type: none"> Offering a wide selection of molecular weight The resulting foam has ideal balance of properties Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SANNIX TP-400 | | Trimethylolpropane-based polyether polyol | p71 | liquid | <ul style="list-style-type: none"> Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SANNIX SP-750 | | Polyoxypropylene sorbitol ether | p71 | liquid | |  |
| PRIMEPOL | | Polyoxypropylene glycol or triol | p71 | liquid | <ul style="list-style-type: none"> Excellent reactivity because of its high ratio of primary hydroxyl group with approx. 70mol %/ compatible water resistant which is a conflicting performance Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| CB-1 | Methacrylate/ Acrylates-based | Acrylic resin | - | powder | <ul style="list-style-type: none"> High molecular weight-acrylic resin of less thermal decomposition Excellent molded shape retention property/imparting hardness to resulting ceramics Ceramics binder for injection molding |  |
| SOFIC W-802 | | Acrylic resin solution | - | liquid | <ul style="list-style-type: none"> Excellent adhesion, glossiness, abrasion-resistance, blocking-resistance property & pasting suitability Mixed solvent of water & alcohol Gloss coating agent for printing paper |  |
| POLYQUID | | Methacrylic acid - ethyl acrylate copolymer | p72 | liquid | <ul style="list-style-type: none"> Aqueous dispersion Enteric-soluble coating agent/masking pungency/binder for matrices Corresponding to Pharmacopoeias in the USA, Japan & some product are compatible to the ones in Europe |  |
| POLYTHICK | Methacrylate/ Acrylates-based | Acrylic resin or acrylic resin solution | p74 | liquid | <ul style="list-style-type: none"> Excellent transparency/weather-, heat resistance Tackifier (pressure-sensitive adhesive) For various tapes (surgical, surface protection, electrical insulating, double-sided)/ paper making/automobile interiors/sealant for polypropylene bags |  |
| HAIRROL UC-4 | Poly quarternary ammonium salt of isophoron diisocyanate, butylene glycol & dihydroxy ethyl dimonium methyl sulfate | | - | liquid | <ul style="list-style-type: none"> Providing ductile coating film to keep hair setting even at high temperature & humidity Raw material for hair-styling agents In Japan, approved for an exclusive use in cosmetics |  |
| PERMARIN | Urethane series | Polyurethane emulsion | p74 | liquid | <ul style="list-style-type: none"> Resulting coating film has excellent flexibility, water-, adhesion- & chemical resistance Raw material for coatings, ink & adhesives/binder for pigment printing Texture modifier/shrink-resistant finishing agent/imparting elastic repulsion/ pilling preventing agent |  |
| CHEMITYLEN GA-500 | | | p74 | liquid | <ul style="list-style-type: none"> Sizing agent for glass fiber spinning & warping during weaving of glass cloths |  |
| UCOAT | | | p74 | liquid | <ul style="list-style-type: none"> Forming coating film has excellent yellowing-, water- & chemical-resistance, flexibility & adhesion Resin for aqueous coating materials |  |
| UPRENE UXA-307 | | | p74 | liquid | <ul style="list-style-type: none"> Forming film has excellent adhesion & water-resistance Adhesive for plastics, fabrics & woods/excels in adhesion with PVC sheet & plywood Unavailable for use directly brought into contact with the skins because of containing N-methyl pyrrolidone |  |

Continued on the next page →



For adhesive tapes

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|-------------------------------|----------------------------|--|------|---------------|--|---|--------------------|
| COATRON | Urethane series | Polyurethane solution | p74 | liquid | | • Resin for coatings | |
| SANPRENE H | | | p74 | liquid | | • Resulting adhesion layer has excellent moisture permeability • Top layer for moisture-permeable & waterproofing fabrics (resulting film has the excellent moisture-permeability) | |
| SANPRENE IB | | | p74 | liquid | | • Resulting coating film has excellent weather-, water-, chemical-, abrasion-, blocking-resistance & adhesion • For resin of special gravure ink | |
| SANRETAN TIM-2011A | | Polyurethane solution (caprolactone type) | - | liquid | | • Forming tough film/excellent dispersibility of magnetic powders & hydrolysis resistance • Caprolactone type • Binder for magnetic tapes | |
| POLYBOND UNOFLEX | | Two-component or moisture curing type polyurethane | p74 | liquid | | • POLYBOND: two-component curing type • UNOFLEX: one-component moisture curing type • Adhesive for dry laminate for food packaging films | |
| POLYMEDICA | | Two-component type polyurethane | - | liquid | | • Potting material for dialyzer & water purifiers | |
| CHEMIOX | Epoxides | Two-component blocked polyurethane resin | - | liquid | | • Unblocking & starting curing at 140°C • Resins for anti-corrosion paints for automobiles (for improving adhesion of paints to electrodeposition steel) | |
| SANMODUR (two-component type) | | Two-component curing type epoxy resin | - | liquid, paste | | • Resin for models or molds made by cutting or casting from reverse molds in various processes for developing products/mounting & molding resin/adhesive/mounting repairment • Excellent fine structure, dimensional stability, homogeneity, processability, workability/ giving appropriate property according to the application | |



For adhesive laminate for food packaging

11 Plasticizing/Softening

to increase moldability
to impart flexibility
to make soft















| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|-----------------------------|---|--|------|----------------------|--|---|--------------------|
| ECONOL LEBON TM-18, 18PA | Ammonium salt-based cationic surfactants | Alkyltrimethylammonium chloride | p59 | liquid, solid | | • Imparting smoothness, pliability & tenseness-stiffness finished feeling to hair • Hair conditioner & treatment base | |
| CATION LQ | | Ethyl sulfuric acid lanolin fatty acid aminopropylethyl dimethylammonium | p59 | paste | | • Imparting excellent moisturizing, antistaticity & tactile property to hair/long-lasting softness & smoothness • Hair conditioner & treatment base/shampoo with built-in conditioner • In Japan, CATION LQ is approved for an exclusive use in cosmetics | |
| CATION DSV | | Distearyldimethylammonium chloride | p59 | flake | | • Imparting excellent flexibility & antistaticity to hair and fibers • Hair conditioner & treatment base/softener for fabrics | |
| CATION SF | Imidazolinium salt-based cationic surfactants | Imidazoline compound | p59 | liquid to paste | | • Imparting excellent flexibility, antistaticity & water-absorbing effect • Softener for fabrics | |
| CATION G-50 | Benzalkonium-based cationic surfactants | Benzalkonium chloride | p60 | liquid | | • Wide spectrum antibacterial activities • Germicide, detergent for food factory/germicide for industrial use • Hair conditioner & treatment base | |
| CATION S | | Stearyldimethylbenzyl-ammonium chloride | p60 | solid | | • Imparting smoothness, pliability & tenseness-stiffness finished feeling to hair • Hair conditioner & treatment base | |
| NEWPOL PE | Ether-based nonionic surfactants | Polyoxyethylene polyoxypropylene glycol | p63 | liquid, flake, paste | | • Low foaming property • Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/ gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent | |



For hair conditioners



For softeners











| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|---|----------------------------------|---|------|-----------------------------------|--|---|
| TG-C | Ester-based nonionic surfactants | Glyceryl monostearate | p65 | flake | <ul style="list-style-type: none">• Softener, emulsifier, solubilizer, moisturizer & oiliness improver for cosmetics, creams, lotions & quasi drugs• Lubricant & stabilizer of sustained drug releasing agents, tablets, pills & capsules of medicine |  |
| IONET S | | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | <ul style="list-style-type: none">• SPAN type lipophilic surfactants derived from plants• Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agent• Viscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil |  |
| IONET T | | Polyoxyethylene sorbitan monofatty acid ester | p65 | liquid | <ul style="list-style-type: none">• TWEEN type hydrophilic surfactants derived from plants• Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil• Plasticizer for enteric-soluble coating agents, etc./ointment bases/viscosity modifier for coatings & ink |  |
| POLYSORBATE 80 | | Modified sorbitan | - | liquid | <ul style="list-style-type: none">• Derived from plants/no animal ingredients nor genetically-modified ingredients• For pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant)• Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) |  |
| SANFLEX EB EB-200 | Esters | Polyethyleneglycol dibenzoate | p67 | liquid | <ul style="list-style-type: none">• Hardly bleeding out• Plasticizer |  |
| SANFLEX SK-500, GPA-3000, SPX-80N, LBU-25 | | (Look at the page by composition) | p67 | liquid | <ul style="list-style-type: none">• Inactive to isocyanate• SANFLEX GPA-3000 and SPX-80N hardly bleed out because of their blanch structures• Plasticizer |  |
| GLYCIALE PP | Epoxides | Polyoxypropylene glycol diglycidyl ether | p67 | liquid | <ul style="list-style-type: none">• Imparting flexibility & plasticity to resins• Providing rust preventive coating film• Raw material for epoxy resins & electrodeposition coatings/resin modifier |  |
| SANWAX | Olefin-based compounds | Low-molecular-weight polyethylene | p68 | powder, pellet, etc. | <ul style="list-style-type: none">• Moderate hardness, low melt viscosity equivalent to polyethylene/incompatible with polymers excepting polyolefins/for cosmetics/abrasives/anti-sagging agents/binder for ink/pigments, filler dispersants/improver for flowability, softening point, abrasion-resistance & releasability/flatting agent/lubricant/fixing agent for agrichemicals |  |
| VISCOL | | Low-molecular-weight polypropylene | p68 | powder | <ul style="list-style-type: none">• Moderate hardness, low melt viscosity equivalent to polypropylene/incompatible with polymers excepting polyolefins/for abrasives/anti-sagging agents/binder for ink/pigment, filler dispersant/releasing agent for toner/improver for flowability, releasability, softening point & abrasion-resistance/flatting agent/lubricant |  |
| DSA, PDSA-DA | Acids/Acid Anhydrides | Alkenyl succinic anhydride | p69 | liquid | <ul style="list-style-type: none">• Imparting long pot life, excellent electrical insulating property, flexibility & bending strength to resins• Epoxy curing agent/rust preventive/corrosion inhibitor |  |
| SANAMEEL TAP | Nitrogen-Containing Compounds | Polyetheramine | - | liquid | <ul style="list-style-type: none">• Low viscosity/high reactivity• Offering flexible & hydrophilic cured resin• Epoxy resin curing agent/raw material for epoxy resin emulsion |  |
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | <ul style="list-style-type: none">• Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness• Low acute toxicity/low irritancy to eyes & skins• Widely used in various applications |  |
| MACROGOL | | | p70 | liquid, flake, powder, paste | <ul style="list-style-type: none">• Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness• Corresponding to the Japanese Pharmacopoeias & Pharmaceutical Excipients (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing)• Base material for ointments & suppositories/lubricant & binder for tablets or capsules/plasticizer & solubilizer for manufacturing medicine |  |
| SANNIX GP, GH | | Polyoxypropylene triol | p71 | liquid | <ul style="list-style-type: none">• Offering a wide selection of molecular weight• The resulting foam has ideal balance of properties• Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |



For plastics or rubbers








For ointment

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|-------------------|-----------------------------|---|------|---------------------|--|--|---|
| SANNIX PL-2100 | Polyols | Polyoxyethylene polyoxypropylene glycol | p70 | liquid | | • Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SANNIX PP, TP-400 | | Polyoxypropylene glycol/ Trimethylolpropane-based polyether polyol | p71 | liquid | | |  |
| NEWPOL BP | | Bisphenol A-propylene oxide adduct | p70 | liquid | | • Resulting resin has excellent corrosion resistance & flexibility • Raw material for resins, organic-intermediate/modifier for resin |  |
| NEWPOL BPE | | Bisphenol A-ethylene oxide adduct | p70 | liquid, block, etc. | | |  |
| PRIMEPOL | | Polyoxypropylene glycol or triol | p71 | liquid | | • Excellent reactivity because of its high ratio of primary hydroxyl group with approx. 70mol %/ compatible water resistant which is a conflicting performance • Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| MELPOL F-220 | | Isocyanate modified polyether | - | pellet | | • Aqueous solution has surface activating ability/forming flexible & elastic film • Decomposing thermally at relatively low temperature & hardly-leaving ash after incineration • Sizing agent for glass-fibers (warp-yarn)/water-soluble polymer |  |
| METHACRYLATE | Methacrylate/Acrylate-based | Long-chain alkyl methacrylate or dialkylaminoalkyl methacrylate derivatives | p73 | liquid | | • Good copolymerizability with other vinyl monomers • Polymer modifier/imparting hydrophilicity, antistatic or adsorptive property/drainage & retention aid in paper making processes/polymer flocculant/electrodialysis or reverse osmosis membrane/ion-exchange resin/paper strengthening agent |  |
| PERMARIN | Urethane series | Polyurethane emulsion | p74 | liquid | | • Resulting coating film has excellent flexibility, water-, adhesion- & chemical resistance • Raw material for coatings, ink & adhesives/binder for pigment printing • Texture modifier/shrink-resistant finishing agent/imparting elastic repulsion/ pilling preventing agent |  |
| UCOAT | | | p74 | liquid | | • Forming coating films has excellent yellowing-, water- & chemical-resistance, flexibility & adhesion • Resin for aqueous coating materials |  |
| SST-1 | | Urethane modified polyether | - | liquid | | • Softener to finish leather in the production of artificial or synthetic leather |  |

12 Viscosity Controlling


























to thicken/to prevent sagging/to increase liquidity
to reduce the variation of viscosity with temperature







| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|------------------|--------------------------------------|--|------|----------------------|--|--|---|
| SS-B | Carboxylic-based anionic surfactants | Polycarboxylate | - | liquid | | • Preventing viscosity increase of drilling mud & the collapse of unstable strata • Dispersant for drilling mud (stabilization fluid)/wall-building aid |  |
| CARRYBON L-400 | | | p57 | liquid | | • Providing low-viscosity pigment slurry with high dispersion stability • Dispersant for pigment slurry of water-soluble or emulsion coatings |  |
| SANCARRIER No.5L | | Mixture of acrylic polymer & sodium aluminate | - | liquid | | • Preventing degradation & viscosity increase of drilling mud • Dispersant for bentonite muds (drilling mud) |  |
| PROFAN | Amide-based nonionic surfactants | Alkylol amide based surfactants | p60 | liquid, solid, flake | | • Foaming agent, foam stabilizer, thickener & detergency enhancer for shampoos, liquid detergents & bactericidal detergents/rust preventive |  |
| EMULMIN CC | Ether-based nonionic surfactants | Polyoxyethylene cetyl ether derived from natural higher alcohols | p62 | solid, wax | | • Hardly hydrolyzed even in the presence of acidity or alkalinity • Emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant |  |

Continued on the next page →



To control viscosity of liquids

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|------------------------------------|----------------------------------|---|-------------------|------------------------|--|--|--|
| NEWDET PE-85 | Ether-based nonionic surfactants | Polyoxyethylene polyoxypropylene glycol | p63 | petrolatum jelly | | <ul style="list-style-type: none">• Corresponding to Japanese Pharmaceutical Excipients• Pharmaceutical excipients (solubilizer for liquid medicine/stabilizer/wetting agent for ointment/suppository base/gelling agent/binder for tablets/coating agent)• Cleaning agent for medical equipment |  |
| NEWPOL PE | Ether-based nonionic surfactants | Polyoxyethylene polyoxypropylene glycol | p63 | liquid, flake, paste | | <ul style="list-style-type: none">• Low foaming property• Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent |  |
| EMULMIN LS, NL, L | | Polyoxyethylene lauryl ether derived from natural higher alcohols | p64 | liquid, solid to paste | | <ul style="list-style-type: none">• Hardly hydrolyzed even in the presence of acidity or alkalinity• Detergent/emulsifier for creams & lotions/solubilizer/gelling & foaming agent/dispersant• EMULMIN NL, L can be emulsifiers for emulsion polymerization |   |
| NEWPOL DDE-10 | | Polyoxyethylene lauryl glycol | p61 | paste | | <ul style="list-style-type: none">• Alkanediol derivative of dodecanediol in which about 1 mol ethylene oxide is adducted in average• Low irritancy to eyes & skins• Antibacterial-, antifungal-, thickening agent for hair shampoos, conditioners, cosmetics & detergents |  |
| NEWPOL 50HB, 75H-90000, LB, NSQ, V | | (Look at the page by composition) | p62 p63 p64 | liquid | | <ul style="list-style-type: none">• Offering a wide selection from water-soluble to -insoluble products• Wetting agent, moisturizer & viscosity controller for cosmetics/releasing lubricant/lubricant for machinery, metals & fabrics/defoaming agent/raw materials for lubricant, hydraulic oils/quenching oil for machinery & metals/emulsion-breaker/heating-medium |  |
| NEWPOL GEP-2800, TL | | (Look at the page by composition) | p63 | liquid | | <ul style="list-style-type: none">• Excellent lubricating effect to skin & hair• Wetting agent, moisturizer & viscosity modifier for cosmetics/defoaming agent |  |
| VISRIZER AP-2 | | Modified polyether type resin | - | liquid | | <ul style="list-style-type: none">• Excellent thickening property in small amount/aqueous solution type• Giving almost no thixotropic property• Thickening agent |   |
| EMULMIN 862 | | Polyoxyethylene distearate | p64 | powder | | <ul style="list-style-type: none">• Thickener, gelling agent for cosmetics, shampoos & hair conditioners |  |
| IONET S | Ester-based nonionic surfactants | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | | <ul style="list-style-type: none">• SPAN type lipophilic surfactants derived from plants• Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agent• Viscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil |  |
| IONET T | | Polyoxyethylene sorbitan monofatty acid ester | p65 | liquid | | <ul style="list-style-type: none">• TWEEN type hydrophilic surfactants derived from plants• Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil• Plasticizer for enteric-soluble coating agents, etc./ointment bases/viscosity modifier for coatings & ink |    |
| POLYSORBATE 80 | | Modified sorbitan | - | liquid | | <ul style="list-style-type: none">• Derived from plants/no animal ingredients nor genetically-modified ingredients• For pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant)• Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) |  |
| SANWAX | Olefin-based compounds | Low-molecular-weight polyethylene | p68 | powder, pellet, etc. | | <ul style="list-style-type: none">• Moderate hardness, low melt viscosity equivalent to polyethylene/incompatible with polymers excepting polyolefins/for cosmetics/abrasives/anti-sagging agents/binder for ink/pigments, filler dispersants/improver for flowability, softening point, abrasion-resistance & releasability/flatting agent/lubricant/fixing agent for agrichemicals |     |
| VISCOL | | Low-molecular-weight polypropylene | p68 | powder | | <ul style="list-style-type: none">• Moderate hardness, low melt viscosity equivalent to polypropylene/incompatible with polymers excepting polyolefins/for abrasives/anti-sagging agents/binder for ink/pigment, filler dispersant/releasing agent for toner/improver for flowability, releasability, softening point & abrasion-resistance/flatting agent/lubricant |    |
| DSA, PDSA-DA | Acids/Acid Anhydrides | Alkenyl succinic anhydride | p69 | liquid | | <ul style="list-style-type: none">• Imparting long pot life, excellent electrical insulating property, flexibility & bending strength to resins• Epoxy curing agent/rust preventive/corrosion inhibitor |   |
| SANTHIXO 5001 | Nitrogen-Containing Compounds | Higher fatty acid bisamide | p69 | paste | | <ul style="list-style-type: none">• Anti-sagging agent for coatings |  |









| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|--------------|-----------------------------|--|------|-----------------------------------|--|---|
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | <ul style="list-style-type: none">Compatible with skin/water-soluble & -retainable/non-volatile/free from greasinessLow acute toxicity/low irritancy to eyes & skinsWidely used in various applications <ul style="list-style-type: none">Compatible with skin/water-soluble & -retainable/non-volatile/free from greasinessCorresponding to the Japanese Pharmacopoeias & Pharmaceutical Excipients (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing)Base material for ointments & suppositories/lubricant & binder for tablets or capsules/plasticizer & solubilizer for manufacturing medicine <ul style="list-style-type: none">Contributing to a reduction of fuel consumption to reduce the viscosity of lubricant depending on temperatureViscosity Index Improver/Viscosity Modifier (VII/VM) or pour point depressant for lubricants, hydraulic & engine oils/dewaxing aid during the production of lubricants <ul style="list-style-type: none">Offering anionic, cationic & amphoteric polymerThickener/gelling agent/flocculant/wastewater treatment/sizing-agent in paper making/sealant/excipient for dehumidifiers/sludge solidifying agent/seed binder for slope greening/soil modifier <ul style="list-style-type: none">Improving filtering speedDewaxing aid in producing lubricants <ul style="list-style-type: none">Crushed particulate superabsorbent polymerWater absorbent & retention agent (soil conditioners/seedbeds/portable toilets/dog toilet sheets/gel-type air fresheners/under pads/disposable body warmers)/additive for cosmetics & medical use/thickener/ice packs |  |
| MACROGOL | | | p70 | liquid, flake, powder, paste | |  |
| ACLUBE | Methacrylate/Acrylate-based | Methacrylate copolymer & refined mineral oil | p72 | liquid | |  |
| SACRIS | | Water soluble acrylic polymer (ultrahigh molecular weight) | - | powder | |  |
| SANDEWAX | | Higher alkyl acrylate polymer | - | solid | |  |
| SANFRESH | | Cross-linked acrylic acid polymer sodium salt | p72 | powder | |  |



For fuel-saving engine oils

13 Antistatic

to avoid accumulating static electricity and dust
to prevent malfunction or trouble due to static electricity

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|-----------------------------|---|--|------|----------------------|---|---|
| PELESTAT PELECTRON | Olefin or Nylon-based compounds | Proprietary block copolymer | - | pellet | <ul style="list-style-type: none">Imparting long-lasting excellent antistatic property independent of humidityPermanent antistatic agent for resins (preventing dust adhesion & troubles by static electricity, destruction of electronic circuit, electric shock & appliance malfunctions, etc.)Causing almost no resin deterioration/especially PELECTRON shows lower resistivity <ul style="list-style-type: none">Antistatic agent for synthetic resinsOffering coating, kneading or reactive type <ul style="list-style-type: none">Coating type antistatic agent for synthetic resins <ul style="list-style-type: none">Imparting smoothness, pliability & tenseness-stiffness finished feeling to hairHair conditioner & treatment base <ul style="list-style-type: none">Imparting excellent flexibility & antistaticity to hair and fibersHair conditioner & treatment base/softener for fabrics <ul style="list-style-type: none">Imparting excellent moisturizing, antistaticity & tactile property to hair/long-lasting softness & smoothnessHair conditioner & treatment base/shampoo with built-in conditionerIn Japan, CATION LQ is approved for an exclusive use in cosmetics <ul style="list-style-type: none">Imparting excellent flexibility, antistaticity & water-absorbing effectSoftener for fabrics <ul style="list-style-type: none">Imparting smoothness, pliability & tenseness-stiffness finished feeling to hairHair conditioner & treatment base |  |
| CHEMISTAT | Anionic or nonionic surfactants | Proprietary nonionic surfactant | - | liquid, powder, etc. | |  |
| SANSTAT 2012A | Cationic surfactants | Proprietary cationic surfactant | - | liquid | |  |
| ECONOL LEBON TM-18, 18PA | Ammonium salt-based cationic surfactants | Alkyltrimethylammonium chloride | p59 | liquid, solid | |  |
| CATION DSV | | Distearyldimethylammonium chloride | p59 | flake | |  |
| CATION LQ | | Ethyl sulfuric acid lanolin fatty acid aminopropylethyl dimethylammonium | p59 | paste | |  |
| CATION SF | Imidazolinium salt-based cationic surfactants | Imidazoline compound | p59 | liquid to paste | |  |
| CATION S | Benzalkonium-based cationic surfactants | Stearyldimethylbenzyl-ammonium chloride | p60 | solid | |  |






For protective films




To prevent dust



To avoid static electricity by brushing

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|----------------------|---|---|-------|-----------------------------------|--|--|---|
| NEWPOL PE | Ether-based nonionic surfactants | Polyoxyethylene polyoxypropylene glycol | p63 | liquid, flake, paste | | <ul style="list-style-type: none">• Low foaming property• Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent |  |
| SIPA, SIPE-40L, SIPM | Sodium-5-sulphoisophthalic acid/Ethylene glycol solution of 1,3-Benzendicarboxylic acid, 5-sulfo-, 1-3-bis (2-hydroxyethyl) esters, monosodium salts/5-Sodium sulfo dimethyl isophthalate | | p68/- | granule, liquid, powder | | <ul style="list-style-type: none">• Imparting cationic dyability, hydrophilicity & antistatic property to polymers such as polyester, polyurethane & polyamide |  |
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | | <ul style="list-style-type: none">• Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness• Low acute toxicity/low irritancy to eyes & skins• Widely used in various applications |  |

14 Electrical Conductive to conduct electricity







| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|--------------|-------------------------------|---------------------------|------|---------------|--|--|---|
| SANELEK | Nitrogen-Containing Compounds | Amidine based electrolyte | - | liquid | | <ul style="list-style-type: none">• Significant high degree of ionic dissociation/high electric conductivity• High durability (less temperature-dependency of electric conductivity)• Electrolyte for aluminum electrolytic capacitors |  |



For aluminum electrolytic capacitors

15 Water Absorbent/Water Retentive to absorb and keep or hold liquid (water)

Beside, our subsidiary & affiliate; SDP Global Co., Ltd. also provides related products (p91)

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|-----------------|-----------------------------|--|-------------------|---------------|--|--|---|
| SANNIX PRIMEPOL | Polyols | Proprietary polyether polyol or polymer polyol | p69 p70 p71 | liquid | | <ul style="list-style-type: none">• PRIMEPOL has excellent reactivity because of its high ratio of primary hydroxyl group with approx. 70mol %/compatible water resistant which is a conflicting performance• Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SACRIS | Methacrylate/Acrylate-based | Water soluble acrylic polymer (ultrahigh molecular weight) | - | powder | | <ul style="list-style-type: none">• Offering anionic, cationic & amphoteric polymer• Thickener/gelling agent/flocculant/wastewater treatment/sizing-agent in paper making/sealant/excipient for dehumidifiers/sludge solidifying agent/seed binder for slope greening/soil modifier |  |
| AQUAPEARL | | Cross-linked acrylic acid polymer sodium salt | p72 | powder | | <ul style="list-style-type: none">• Aggregated spherical particles of superabsorbent polymers• Water absorbing agent/hygroscopic agent/anti-dew material/water-retention agent/gelling agent/thickener |  |
| SANWET IM | | (SANWET IM: Starch/acrylic acid graft copolymer sodium salt) | p72 | powder | | <ul style="list-style-type: none">• Crushed particulate superabsorbent polymer/high water-absorbency, retentivity• Corresponding to Japanese Pharmaceutical Excipients• Thickener, gelling, absorbing agent for wound dressing, under pads, poultices or other supplies for medical use |  |
| SANFRESH | | | p72 | powder | | <ul style="list-style-type: none">• Crushed particulate superabsorbent polymer• Water absorbent & retention agent (soil conditioners/seedbeds/portable toilets/dog toilet sheets/gel-type air fresheners/under pads/disposable body warmers)/additive for cosmetics & medical use/thickener/ice packs |  |
| SANYO SEEDBED | Methacrylate/Acrylate-based | Cross-linked acrylic acid polymer sodium salt | - | sheet | | <ul style="list-style-type: none">• Seeding sheet for reducing soil of nursery beds |  |









Absorbs several hundred times its own weight of water



For cat litters

16 Sealing/Waterproofing to prevent the passage or entry of water

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|-----------------|-----------------------------|--|-------------------|------------------|--|---|
| SANNIX PRIMEPOL | Polyols | Proprietary polyether polyol or polymer polyol | p69 p70 p71 | liquid | <ul style="list-style-type: none">PRIMEPOL has excellent reactivity because of its high ratio of primary hydroxyl group with approx. 70mol %/compatible water resistant which is a conflicting performanceRaw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |   |
| SACRIS | Methacrylate/Acrylate-based | Water soluble acrylic polymer (ultrahigh molecular weight) | - | powder | <ul style="list-style-type: none">Offering anionic, cationic & amphoteric polymerThickener/gelling agent/flocculant/wastewater treatment/sizing-agent in paper making/sealant/excipient for dehumidifiers/sludge solidifying agent/seed binder for slope greening/soil modifier |  |
| SANFRESH | | Cross-linked acrylic acid polymer sodium salt | p72 | powder | <ul style="list-style-type: none">Crushed particulate superabsorbent polymerWater absorbent & retention agent (soil conditioners/seedbeds/portable toilets/dog toilet sheets/gel-type air fresheners/under pads/disposable body warmers)/additive for cosmetics & medical use/thickener/ice packs |  |
| CHEMIGUARD | Urethane series | Urethane prepolymer, solution | - | liquid, paste | <ul style="list-style-type: none">Water-swellable sealantCHEMIGUARD THINNER is also lined up as a diluent |  |
| DOUBLE COAT S | Epoxides | Two-component type (main and curing agent) of reactive polymer | - | emulsion, powder | <ul style="list-style-type: none">Forming a water-proof layer with excellent durability & chemical resistanceExcellent adhesion & workabilityPermeable coating agent for water-proofing concrete |  |








For waterproofing for roofs



For sealants

17 Cold or Heat Insulating to keep cold/to prevent heat transmission to store heat

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------------|----------------------------------|--|-------------------|-----------------------------------|--|---|
| NEWPOL 50HB, 75H-90000, LB, NSQ, V | Ether-based nonionic surfactants | (Look at the page by composition) | p62 p63 p64 | liquid | <ul style="list-style-type: none">Offering a wide selection from water-soluble to -insoluble productsWetting agent, moisturizer & viscosity controller for cosmetics/releasing lubricant/lubricant for machinery, metals & fabrics/defoaming agent/raw materials for lubricant, hydraulic oils/quenching oil for machinery & metals/emulsion-breaker/heating-medium |  |
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | <ul style="list-style-type: none">Compatible with skin/water-soluble & -retainable/non-volatile/free from greasinessLow acute toxicity/low irritancy to eyes & skinsWidely used in various applications |  |
| SANNIX PRIMEPOL | | Proprietary polyether polyol or polymer polyol | p69 p70 p71 | liquid | <ul style="list-style-type: none">PRIMEPOL has excellent reactivity because of its high ratio of primary hydroxyl group with approx. 70mol %/compatible water resistant which is a conflicting performanceRaw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |   |
| SANFRESH | Methacrylate/Acrylate-based | Cross-linked acrylic acid polymer sodium salt | p72 | powder | <ul style="list-style-type: none">Crushed particulate superabsorbent polymerWater absorbent & retention agent (soil conditioners/seedbeds/portable toilets/dog toilet sheets/gel-type air fresheners/under pads/disposable body warmers)/additive for cosmetics & medical use/thickener/ice packs |  |



For heat insulators of refrigerators








For heat insulators for houses



For ice packs

18 Antibacterial to destroy bacteria or suppress of their growth

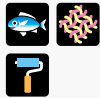




As for the antibacterial agents for drugs or quasi-drugs use, please contact to our Sales & Marketing Dept.

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|---------------|--|---------------------------------|------|---------------|--|---|
| OSMORIN DA-50 | Ammonium salt-based cationic surfactants | Didecyldimethylammonium adipate | p59 | liquid | <ul style="list-style-type: none">Halogen-freeGermicide for industrial use (food factory, fiber processing), detergent for food factory/wood & metal-cleaning-bath preservative |    |
| CATION DDC | | Didecyldimethyammonium chloride | p59 | liquid | <ul style="list-style-type: none">Wide spectrum antibacterial activitiesGermicide, detergent for food factory/slime- & algae-controlling agent/wood preservation/antifungal for coating |   |



For disinfectants

Continued on the next page →

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|----------------------|--|---|------|---------------|--|--|---|
| LEBON TM-16, TM-16MS | Ammonium salt-based cationic surfactants | Cetyltrimethylammonium -chloride, -methyl sulfate | p59 | liquid | | <ul style="list-style-type: none">• Having antibacterial & antifungal effect even at low concentration• For industrial use such as germicides for food factory, public facilities/slime control of coolant/antibacterial treatment for fibers/fungicide for coatings/wood preservation |  |
| CATION G-50 | Benzalkonium-based cationic surfactants | Benzalkonium chloride | p60 | liquid | | <ul style="list-style-type: none">• Wide spectrum antibacterial activities• Germicide, detergent for food factory/germicide for industrial use• Hair conditioner & treatment base |  |
| LEBON S, T-2 | Amino acid-type amphoteric surfactants | Dodecylaminoethylaminoethyl-glycine/Alkyldiaminoethyl-glycine hydrochloride | p66 | liquid, solid | | <ul style="list-style-type: none">• Wide spectrum antibacterial activities/little deterioration of germicidal activity even in the presence of proteins• Lower oval toxicity & skin irritancy compared to cationic antibacterial agents• Germicides & detergents for food factory (industrial use) |  |
| NEWPOL DDE-10 | Ether-based nonionic surfactants | Polyoxyethylene lauryl glycol | p61 | paste | | <ul style="list-style-type: none">• Alkanediol derivative of dodecanediol in which about 1 mol ethylene oxide is adducted in average• Low irritancy to eyes & skins• Antibacterial-, antifungal-, thickening agent for hair shampoos, conditioners, cosmetics & detergents |  |
| NEWPOL EFP | | Phenoxyethanol | p61 | liquid | | <ul style="list-style-type: none">• Excellent solubility of fats & oils• Solvent of cosmetics, detergents/preservative for cosmetics |  |










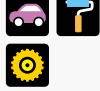

Without treatment



With treatment

19 Rust Preventive

to avoid rusting

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|--------------|----------------------------------|--|------|-----------------------------------|--|--|---|
| HIGHCLEAN | Anionic surfactants | Compound of lubricant & proprietary antibacterial surfactant | - | liquid (possibly jelly in winter) | | <ul style="list-style-type: none">• Chlorine free• Imparting excellent cutting processability/anti-septicity• Water-soluble cutting oil |  |
| SANHIBITOR | Anionic or nonionic surfactants | Proprietary anionic or nonionic surfactant | - | liquid, paste | | <ul style="list-style-type: none">• Rust inhibitor for machinery & metals |  |
| | Acids/Acid Anhydrides | Alkenylsuccinic acid ester or Alkenylsuccinic anhydride | p68 | | | |  |
| PROFAN | Amide-based nonionic surfactants | Alkylol amide based surfactants | p60 | liquid, solid, flake | | <ul style="list-style-type: none">• Foaming agent, foam stabilizer, thickener & detergency enhancer for shampoos, liquid detergents & bactericidal detergent/rust preventive |  |
| IONET S | Ester-based nonionic surfactants | Sorbitan mono- or di-fatty acid ester | p65 | liquid, granule | | <ul style="list-style-type: none">• SPAN type lipophilic surfactants derived from plants• Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/defoaming agent• Viscosity modifier for coatings & ink/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil |  |
| IONET T | | Polyoxyethylene sorbitan monofatty acid ester | p65 | liquid | | <ul style="list-style-type: none">• TWEEN type hydrophilic surfactants derived from plants• Emulsifier/dispersant/wettability modifier/rust inhibitor/solubilizer/leveling agent & softener for fibers/lubricant/machining oil/metalworking oil• Plasticizer for enteric-soluble coating agents, etc./ointment bases/viscosity modifier for coatings & ink |  |
| DSA, PDSA-DA | Acids/Acid Anhydrides | Alkenyl succinic anhydride | p69 | liquid | | <ul style="list-style-type: none">• Imparting long pot life, excellent electrical insulating property, flexibility & bending strength to resins• Epoxy curing agent/rust preventive/corrosion inhibitor |  |
| POLYIMIDE L | Nitrogen-Containing Compounds | Polyamideamine | p69 | liquid | | <ul style="list-style-type: none">• Cured epoxy resin has rust prevention, excellent adhesion, toughness & flexibility• Curing agent for epoxy resin used to coatings, adhesives, civil engineering & construction, laminating & casting materials, etc. |  |
| BFA-3 | Non-disclosure | Proprietary compound | - | liquid | | <ul style="list-style-type: none">• Imparting antioxidative & rust inhibiting properties• Additive for brake fluids |  |





Without rust preventive



With rust preventive

20 Deterioration Preventive


to suppress undesirable reactions
such as oxidation, combustion reactions &
decomposition

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|---------------|----------------------------|------------------------------|------|---------------|--|---|---|
| BFA-3 | Non-disclosure | Proprietary compound | - | liquid | | <ul style="list-style-type: none">Imparting antioxidative & rust inhibiting propertiesAdditive for brake fluids |  |
| TENKAZAI Y-24 | Polyols | Phosphorus-containing polyol | - | liquid | | <ul style="list-style-type: none">Less deterioration of flame-retardant with time (low bleed-out property) because of the active hydrogen group to react isocyanateFlame-retardant for rigid polyurethane foam |  |












21 Reaction Accelerating

to accelerate intend reactions

Beside, our subsidiary & affiliate; San-Apro Ltd. also provides related products (p91)

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|----------------|----------------------------|--------------------------------|------|---------------|--|---|---|
| SERABON DH-505 | Anionic surfactants | Proprietary anionic surfactant | - | liquid | | <ul style="list-style-type: none">Dehydration promoting agent for metal sulfide concentration |  |

22 Other Functions


















| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | | Uses & Features (of all functions) | Major Applications |
|----------------------|--|--|-----------|-----------------------------------|--|---|---|
| EMULMIN No. | Ether-based nonionic surfactants | Polyoxyethylene alkyl ether derived from natural higher alcohols | p61 | liquid, solid, paste | | <ul style="list-style-type: none">Offering a wide selection from HLB (lipophilicity/hydrophilicity parameter)/biodegradableDetergent/emulsifier/dispersant/solubilizer/emulsifier for emulsion polymerization/ gelling, foaming & wetting agent/oiliness improverSulfation, phosphorylation base/pulp cooking aid/leveling, soaping agent |  |
| SANTOPEARL GE-70 | Ester-based nonionic surfactants | Ethylene glycol distearate | p64 | flake | | <ul style="list-style-type: none">Pearling agent for shampoos |  |
| SANWAX | Olefin-based compounds | Low-molecular-weight polyethylene | p68 | powder, pellet, etc. | | <ul style="list-style-type: none">Moderate hardness, low melt viscosity equivalent to polyethylene/incompatible with polymers excepting polyolefins/for cosmetics/abrasives/anti-sagging agents/binder for ink/pigments, filler dispersants/improver for flowability, softening point, abrasion-resistance & releasability/ flattening agent/lubricant/fixing agent for agrichemicals |   |
| VISCOL | | Low-molecular-weight polypropylene | p68 | powder | | <ul style="list-style-type: none">Moderate hardness, low melt viscosity equivalent to polypropylene/incompatible with polymers excepting polyolefins/for abrasives/anti-sagging agents/binder for ink/pigment, filler dispersant/releasing agent for toner/improver for flowability, releasability, softening point & abrasion-resistance/flattening agent/lubricant |   |
| SIPA, SIPE-40L, SIPM | Sodium-5-sulphoisophthalic acid/ Ethylene glycol solution of 1,3-Benzendicarboxylic acid, 5-sulfo-, 1-3-bis (2-hydroxyethyl) esters, monosodium salts/ 5-Sodium sulfo dimethyl isophthalate | | p68/ - | granule, liquid, powder | | <ul style="list-style-type: none">Imparting cationic dyability, hydrophilicity & antistatic property to polymers such as polyester, polyurethane & polyamide |  |
| PEG | Polyols | Polyethylene glycol | p70 | liquid, wax, paste, flake, powder | | <ul style="list-style-type: none">Compatible with skin/water-soluble & -retainable/non-volatile/free from greasinessLow acute toxicity/low irritancy to eyes & skinsWidely used in various applications |    |
| POLYQUID | Methacrylate/Acrylate-based | Methacrylic acid - ethyl acrylate copolymer | p72 | liquid | | <ul style="list-style-type: none">Aqueous dispersionEnteric-soluble coating agent/masking pungency/binder for matricesCorresponding to Pharmacopoeias in the USA, Japan & some product are compatible to the ones in Europe |  |

23 For Reacting/Forming

Raw materials for synthesis, polymerization reactions,
excipients, forming or shaping


















Beside, our subsidiary & affiliate; San-Petrochemicals Co., Ltd. also provides related products (p91)

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------------|---|--------------------------------------|-------------------|-----------------------------------|--|---|
| TOXANON | Polycarboxylate | Excipient | - | liquid | <ul style="list-style-type: none"> Imparting excellent spreading property to agrichemical granules Excellent binding property/enhancing hardness of granules Dispersant & binder for agrichemical granules |  |
| SANMORIN OT | Sodium dioctyl sulfosuccinate | Excipient | p57 | liquid | <ul style="list-style-type: none"> Particularly excellent penetrating property among surfactants/excellent wettability to hydrophobic materials/wetting- & penetrating agent/dispersant & binder for granules/penetrating agent for agrichemical spreading/dispersant/emulsifier for emulsion polymerization Suitable for aqueous (water-soluble, emulsion) coatings |  |
| NEWDET PE-85 | Polyoxyethylene polyoxypropylene glycol | Excipient | p63 | petrolatum jelly | <ul style="list-style-type: none"> Corresponding to Japanese Pharmaceutical Excipients Pharmaceutical excipients (solubilizer for liquid medicine/stabilizer/wetting agent for ointment/suppository base/gelling agent/binder for tablets/coating agent) Cleaning agent for medical equipment |  |
| NEWPOL PE | | Synthesis, Excipient | p63 | liquid, flake, paste | <ul style="list-style-type: none"> Low foaming property Detergent base/detergent/raw-material for quasi-drugs (wetting agent/solubilizer/gelling agent/binder/coating agent, etc.)/fiber treating agent (lubricant/desizing agent)/emulsifier/dispersant/solubilizer/antistatic agent |  |
| NEWPOL 50HB, 75H-90000, LB, NSQ, V | Polyols (Look at the page by composition) | Synthesis, Polymerization | p62 p63 p64 | liquid | <ul style="list-style-type: none"> Offering a wide selection from water-soluble to -insoluble products Wetting agent, moisturizer & viscosity controller for cosmetics/releasing lubricant/lubricant for machinery, metals & fabrics/defoaming agent/raw materials for lubricant, hydraulic oils/quenching oil for machinery & metals/emulsion-breaker/heating-medium |  |
| NEWPOL PP | Polyoxypropylene glycol | Synthesis, Polymerization | p61 | liquid | <ul style="list-style-type: none"> Non-volatile/low freezing point Wetting agent & moisturizer for cosmetics/raw material for cosmetics, surfactant & synthetic lubricant/releasing lubricant |  |
| NEWPOL GP | Polyoxypropylene triol | Synthesis, Polymerization | p64 | liquid | | |
| POLYSORBATE 80 | Modified solbitan | Excipient | - | liquid | <ul style="list-style-type: none"> Derived from plants/no animal ingredients nor genetically-modified ingredients For pharmaceutical preparations (plasticizer/lubricant/solubilizer/wetting agent/emulsifier/thickener/dispersant/binder/base material/auxiliary disintegrant) Corresponding to the pharmacopoeias (JP, USP/NF, EP) (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) |  |
| PEG | Polyethylene glycol | Synthesis, Polymerization, Excipient | p70 | liquid, wax, paste, flake, powder | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Low acute toxicity/low irritancy to eyes & skins Widely used in various applications |  |
| MACROGOL | | Excipient | p70 | liquid, flake, powder, paste | <ul style="list-style-type: none"> Compatible with skin/water-soluble & -retainable/non-volatile/free from greasiness Corresponding to the Japanese Pharmacopoeias & Pharmaceutical Excipients (Exclusively used in medical drug manufacturing/medical drug for exclusive use in manufacturing) Base material for ointments & suppositories/lubricant & binder for tablets or capsules/plasticizer & solubilizer for manufacturing medicine |  |
| NEOMER | Acrylate/Methacrylate-monomer (Look at the page by composition) | Polymerization, Film formation | p72 p73 | liquid | <ul style="list-style-type: none"> Low odor & low irritancy to skin Providing hard coating film with excellent solvent resistance Monomer for UV, EB curing resin |  |
| ACRYLATE SMC-80H | Dimethylaminoethyl acrylate quaternary salt | Polymerization | p72 | liquid | <ul style="list-style-type: none"> Monomer for water-soluble cationic polymer/flocculant/papermaking chemicals |  |
| METHACRYLATE | Long-chain alkyl methacrylate or dialkylaminoalkyl methacrylate derivatives | Polymerization | p73 | liquid | <ul style="list-style-type: none"> Good copolymerizability with other vinyl monomers Polymer modifier/imparting hydrophilicity, antistatic or adsorptive property/drainage & retention aid in paper making processes/polymer flocculant/electrodialysis or reverse osmosis membrane/ion-exchange resin/paper strengthening agent |  |
| NEWPOL MP-5 | Polypropylene glycol monomethacrylate | Polymerization | p73 | liquid | <ul style="list-style-type: none"> Containing a hydroxyl- & a methacrylic group in a molecule Resin modifier |  |

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------------------------|---|---|-----------|------------------------------|--|---|
| SOFIC W-802 | Acrylic resin solution | Polymerization, Film formation | - | liquid | <ul style="list-style-type: none"> Excellent adhesion, glossiness, abrasion-resistance, blocking-resistance property & pasting suitability Mixed solvent of water & alcohol Gloss coating agent for printing paper |  |
| POLYQUID | Methacrylic acid - ethyl acrylate copolymer | Polymerization, Excipient | p72 | liquid | <ul style="list-style-type: none"> Aqueous dispersion Enteric-soluble coating agent/masking pungency/binder for matrices Corresponding to Pharmacopoeias in the USA, Japan & some product are compatible to the ones in Europe |  |
| GLYCIALE PP | Polyoxypropylene glycol diglycidyl ether | Polymerization, Film formation | p67 | liquid | <ul style="list-style-type: none"> Imparting flexibility & plasticity to resins Providing rust preventive coating film Raw material for epoxy resins & electrodeposition coatings/resin modifier |  |
| VCH | 4-Vinyl-1-cyclohexene | Synthesis, Polymerization | p68 | liquid | <ul style="list-style-type: none"> Monomer for resins/polymerization Mw 108.2, CAS No. 100-40-3, San-Petrochemicals Co., Ltd.'s products |  |
| REGIT SM | Styrene-maleic acid ester copolymer | Forming | - | granule | <ul style="list-style-type: none"> Containing carboxyl groups in a molecule Dispersant for pigments & fillers/imparting hardness, abrasion-resistance & leveling property for floor polish coatings |  |
| SANWAX | Low-molecular-weight polyethylene | Forming, Excipient | p68 | powder, pellet, etc. | <ul style="list-style-type: none"> Moderate hardness, low melt viscosity equivalent to polyethylene/incompatible with polymers excepting polyolefins/for cosmetics/abrasives/anti-sagging agents/binder for ink/pigments, filler dispersants/improver for flowability, softening point, abrasion-resistance & releasability/flatting agent/lubricant/fixing agent for agrichemicals |  |
| VISCOL | Low-molecular-weight polypropylene | Forming, Excipient | p68 | powder | <ul style="list-style-type: none"> Moderate hardness, low melt viscosity equivalent to polypropylene/incompatible with polymers excepting polyolefins/for abrasives/anti-sagging agents/binder for ink/pigment, filler dispersant/releasing agent for toner/improver for flowability, releasability, softening point & abrasion-resistance/flatting agent/lubricant |  |
| SANNIX AP-470, NE-240, NL | Aliphatic amine-based polyol | Polymerization, Forming, Molding | p69 | liquid | <ul style="list-style-type: none"> Low viscosity/high reactivity Raw material for polyurethane foam |  |
| SANNIX NP-300 NEWPOL NP-300 | | Polymerization, Forming | p69/ - | liquid | <ul style="list-style-type: none"> Little shrinkage of foaming Raw material for polyurethane foam Cross-linking agent |  |
| SANNIX HM | Aromatic amine-based polyol | Polymerization, Forming | p70 | liquid | <ul style="list-style-type: none"> Good compatibility with aromatic polyisocyanates Resulting foam has excellent compressive strength & dimensional stability with fine-cells Raw material for polyurethane foam (rigid foam for injection panels or boards) |  |
| MELPOL F-220 | Isocyanate modified polyether | Polymerization, Film formation | - | pellet | <ul style="list-style-type: none"> Aqueous solution has surface activating ability/forming flexible & elastic film Decomposing thermally at relatively low temperature & hardly-leaving ash after incineration Sizing agent for glass-fibers (warp-yarn)/water-soluble polymer |  |
| SANESTER | Alkylene adipates | Polymerization, Film formation, Forming | p69 | liquid to paste, solid, etc. | <ul style="list-style-type: none"> Raw material for polyurethane resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| NEWPOL BP | Bisphenol A-propylene oxide adduct | Polymerization, Forming | p70 | liquid | <ul style="list-style-type: none"> Resulting resin has excellent corrosion resistance & flexibility Raw material for resins, organic-intermediate/modifier for resin |  |
| NEWPOL BPE | Bisphenol A-ethylene oxide adduct | Polymerization, Forming | p70 | liquid, block, etc. | |  |
| SANNIX HS | Sucrose-based polyether polyol | Polymerization, Forming | p70 | liquid | <ul style="list-style-type: none"> Low viscosity Resulting foam has excellent dimensional stability, mechanical properties & heat resistance Raw material for polyurethane foam (high-density rigid foam) |  |
| SANNIX FA | Proprietary polyether polyol | Polymerization, Forming | - | liquid | <ul style="list-style-type: none"> Offering a wide selection of molecular weight Raw material for polyurethane foam For polyurethane foam from flexible to semi-rigid |  |
| SANNIX HD-402 | Pentaerythritol-based polyetherpolyol | Polymerization, Forming | p71 | liquid | <ul style="list-style-type: none"> Excellent mechanical property & heat resistance Raw material for polyurethane foam (high density rigid foam) |  |



For sofas

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|------------------|---|---|-----------|---------------|--|---|
| SANNIX PL-2100 | Polyoxyethylene polyoxypropylene glycol | Polymerization, Forming | p70 | liquid | • Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SANNIX PF-615 | Polyether polyol | Polymerization, Forming | - | liquid | • Excellent flowability • Raw material for polyurethane foam (casting rigid foam) |  |
| ECONIX PF-610 | Polyetherpolyol compound | Polymerization, Forming | - | liquid | • Raw material for casting polyurethane foam |  |
| SANNIX GL-3000 | Polyoxyetylenepolyoxypropylene triol | Polymerization, Forming | p71 | liquid | • High reactivity • Raw material for polyurethane foam (such as flexible mold foam) |  |
| SANNIX GP, GH | Polyoxypropylene triol | Polymerization, Forming | p71/ - | liquid | • Offering a wide selection of molecular weight • The resulting foam has ideal balance of properties • Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SANNIX PP | Polyoxypropylene glycol | Polymerization, Forming | p71 | liquid | • Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SANNIX SP-750 | Polyoxypropylene sorbitol ether | Polymerization, Forming | p71 | liquid | |  |
| SANNIX TP-400 | Trimethylolpropane-based polyether polyol | Polymerization, Forming | p71 | liquid | |  |
| PRIMEPOL | Polyoxypropylene glycol or triol | Polymerization, Forming | p71 | liquid | • Excellent reactivity because of its high ratio of primary hydroxyl group with approx. 70mol %/ compatible water resistant which is a conflicting performance • Raw material for polyurethane foam & resins (e.g. adhesives, coatings, elastomers & sealants) |  |
| SANNIX KC | Polyether polyol or polymer polyol | Polymerization, Forming | - | liquid | • Excellent curability and durability (moist heat resistance) • Raw material for polyurethane foam (high-resilient foam) |  |
| SHARFLOW FS-7301 | Polymer polyol | Polymerization, Forming | - | liquid | • Resulting foams have high hardness and good physical properties with good breathability • Raw material for flexible slabstock foam |  |
| DSA, PDSA-DA | Alkenyl succinic anhydride | Synthesis, Polymerization | p69 | liquid | • Imparting long pot life, excellent electrical insulating property, flexibility & bending strength to resins • Epoxy curing agent/rust preventive/corrosion inhibitor |  |
| SANAMEEL TAP | Polyetheramine | Polymerization | - | liquid | • Low viscosity/high reactivity • Offering flexible & hydrophilic cured resin • Epoxy resin curing agent/raw material for epoxy resin emulsion |  |
| POLYMIDE L | Polyamideamine | Polymerization, Film formation, Forming | p69 | liquid | • Cured epoxy resin has rust prevention, excellent adhesion, toughness & flexibility • Curing agent for epoxy resin used to coatings, adhesives, civil engineering & construction, laminating & casting materials, etc. |  |
| POLYMIDE S | | Polymerization, Firm formation | p69 | powder | • Resulting coating film has excellent water-, chemical-, abrasion-, weather-, oil-, blocking-resistance • Excellent glossiness & adhesion to polyolefin films • Resin for special gravure printing ink |  |
| REACT CA-101 | Modified aliphatic polyamine | Polymerization, Firm formation | - | liquid | • Excellent low-temperature curability/hardly susceptible to carbon dioxide & moisture on curing • Epoxy resin curing agent |  |
| GREENMODUR | Polyurethanated product derived from biological materials | Shaping, Forming | - | board | • Tooling material (chemical board) for models or molds in various processes (designing, trial, & production) by cutting & milling • Excellent fine structure, dimensional stability, homogeneity & processability • Using biomass as raw materials |  |

| Product Name | Composition Classification | Principal Component | Page | Form (20±5°C) | Uses & Features (of all functions) | Major Applications |
|--|---|-------------------------------------|------|---------------|---|--------------------|
| SANMODUR | Synthetic/artificial wood (Polyurethanated product) | Shaping, Forming | - | board | <ul style="list-style-type: none"> Tooling material (chemical board) for models & molds in various processes (designing, trial & production) by cutting & milling Excellent fine structure, dimensional stability, homogeneity & processability/ giving appropriate property according to the application | |
| PERMARIN | Polyurethane emulsion | Film formation | p74 | liquid | <ul style="list-style-type: none"> Resulting coating film has excellent flexibility, water-, adhesion- & chemical resistance Raw material for coatings, ink & adhesives/binder for pigment printing Texture modifier/shrink-resistant finishing agent/imparting elastic repulsion/ pilling preventing agent | |
| UCOAT | | Film formation | p74 | liquid | <ul style="list-style-type: none"> Forming coating films has excellent yellowing-, water- & chemical-resistance, flexibility & adhesion Resin for aqueous coating materials | |
| UPRENE UXA-307 | | Film formation | p74 | liquid | <ul style="list-style-type: none"> Forming film has excellent adhesion & water-resistance Adhesive for plastics, fabrics & woods/excels in adhesion with PVC sheet & plywood Unavailable for use directly brought into contact with the skins because of containing N-methyl pyrrolidone | |
| SANFOAM (RC-1026, IC-559) | Two-component type (main and curing agent) of polyurethane | Polymerization, Forming | p74 | liquid | <ul style="list-style-type: none"> Raw material for polyurethane foam (cushion for automobiles, etc./cold molding flexible foam) | |
| POLYMEDICA | Two-component type polyurethane | Polymerization, Forming | - | liquid | <ul style="list-style-type: none"> Potting material for dialyzer & water purifiers | |
| COATRON | Polyurethane solution | Film formation | p74 | liquid | <ul style="list-style-type: none"> Resin for coatings | |
| SANPRENE H | | Film formation | p74 | liquid | <ul style="list-style-type: none"> Resulting adhesion layer has excellent moisture permeability Top layer for moisture-permeable & waterproofing fabrics (resulting film has the excellent moisture-permeability) | |
| SANPRENE HMP-17A | | Film formation | p74 | liquid | <ul style="list-style-type: none"> Top layer for moisture-permeable & waterproofing fabrics (resulting film has the excellent moisture-permeability) For resin of artificial leather or synthetic leather | |
| SANPRENE IB | | Film formation | p74 | liquid | <ul style="list-style-type: none"> Resulting coating film has excellent weather-, water-, chemical-, abrasion-, blocking-resistance & adhesion For resin of special gravure ink | |
| SANPRENE LQ | | Film formation | p74 | liquid | <ul style="list-style-type: none"> For resin of artificial leather & synthetic leather Top layer for moisture-permeable & waterproofing fabrics (resulting film has the excellent moisture permeability) | |
| THERPUS | Polyurethane beads | Film formation | - | powder | <ul style="list-style-type: none"> Skin material for automobile interiors (polyurethane beads for slush molding) Excellent in flowability, handling performance, moldability, heat-& light resistance | |
| SANPRENE FLR-603 | Urethane prepolymer | Polymerization, Film formation | p73 | liquid | <ul style="list-style-type: none"> Cold curing/resulting coating film has excellent abrasion-resistance For floor coating (especially concrete floor) | |
| SANPRENE P | | Polymerization, Forming | p73 | liquid | <ul style="list-style-type: none"> Resulting elastomer has excellent abrasion resistance, mechanical properties & low permanent compression set For polyurethane elastomer | |
| SANPRENE C | | Film formation | p73 | liquid | <ul style="list-style-type: none"> Resulting coating film has excellent abrasion-, shock-& chemical-resistance, gloss-retention & adhesion One-component moisture curing system Urethane clear lacquer | |
| SANPEX PA-55 | Glycidyl group-containing acrylic resin | Polymerization, Film formation | - | granule | <ul style="list-style-type: none"> Used in combination with dibasic acid Resulting coating film has excellent pigment dispersibility, weather resistance/glossiness & smoothness Resin for powder coating | |
| SANMODUR (two-component type) | Two-component curing type epoxy resin | Polymerization, Forming, Shaping | - | liquid, paste | <ul style="list-style-type: none"> Resin for models or molds made by cutting or casting from reverse molds in various processes for developing products/mounting & molding resin/adhesive/mounting repairment Excellent fine structure, dimensional stability, homogeneity, processability, workability/ giving appropriate property according to the application | |



For tooling material (chemical board) for modeling



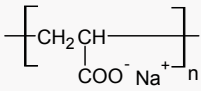
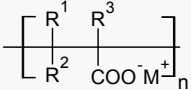
For automobile interiors



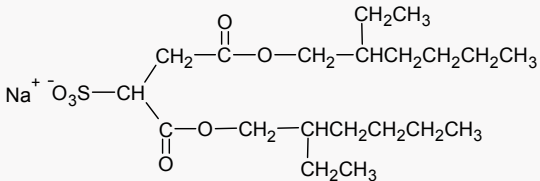
For synthetic leathers

Anionic Surfactants

Carboxylic-based

| Composition and Structure | Product Name | Function |
|--|-----------------|---|
| Sodium polyacrylate  | ELEMINOL MBN-2 | p9 Emulsifying |
| Sodium polyoxyethylene tridecyl ether carboxylate $C_{13}H_{27}O-(CH_2CH_2O)_n-CH_2COO^-Na^+$ | BEAULIGHT ECA | p3 Cleaning p21 Foaming/-stabilizing |
| Polyoxyethylene lauryl ether carboxylic acid $C_{12}H_{25}O-(CH_2CH_2O)_n-CH_2COOH$ | BEAULIGHT LCA-H | p3 Cleaning p21 Foaming/-stabilizing |
| Sodium polyoxyethylene lauryl ether carboxylate $C_{12}H_{25}O-(CH_2CH_2O)_n-CH_2COO^-Na^+$ | BEAULIGHT LCA | p3 Cleaning p21 Foaming/-stabilizing |
| Polycarboxylate  | CARRYBON L-400 | p15 Dispersing p35 Viscosity Controlling |
| Sodium [(2-hydroxydodecyl)-oxy] acetate $C_{10}H_{21}-CH(OH)CH_2O-CH_2COO^-Na^+$ | BEAULIGHT SHAA | p3 Cleaning p21 Foaming/-stabilizing |

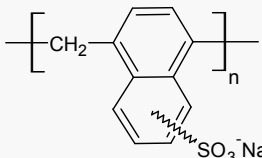
Sulfosuccinate-based

| Composition and Structure | Product Name | Function |
|--|----------------|--|
| Disodium laureth sulfosuccinate $C_{12}H_{25}O-C(=O)-CH(SO_3^-Na^+)-CH_2COO^-Na^+$ | BEAULIGHT SSS | p3 Cleaning p21 Foaming/-stabilizing |
| Sodium dioctyl sulfosuccinate  | CARABON DA-72 | p5 Wetting/Penetrating p9 Emulsifying p15 Dispersing |
| | SANSEPARER 100 | p15 Dispersing p23 Lubricating/Leveling |
| | SANMORIN OT | p5 Wetting/Penetrating p9 Emulsifying p15 Dispersing p49 For Reacting/Forming |
| Disodium polyoxyethylene lauryl sulfosuccinate $C_{12}H_{25}O-(CH_2CH_2O)_n-C(=O)-CH(SO_3^-Na^+)-CH_2COO^-Na^+$ | BEAULIGHT LSS | p3 Cleaning p21 Foaming/-stabilizing |
| Sodium alkyl allyl sulfosuccinate $H_2C=CH-CH_2O-C(=O)-CH(SO_3^-Na^+)-CH_2OCOR$ | ELEMINOL JS-20 | p9 Emulsifying |

Continued on the next page →

| Composition and Structure | Product Name | Function |
|---|------------------|---|
| Disodium mono-(lauroylethanolamide polyoxyethylene) sulfosuccinate $C_{11}H_{23}C(=O)-NH-CH_2CH_2O-(CH_2CH_2O)_n-C(=O)-CH(SO_3^-Na^+)-CH_2COO^-Na^+$ | BEAULIGHT A-5000 | p3 Cleaning p21 Foaming/-stabilizing |
| Disodium polyoxyethylene alkyl sulfosuccinate $R-O-(CH_2CH_2O)_n-C(=O)-CH(SO_3^-Na^+)-CH_2COO^-Na^+$ | BEAULIGHT ESS | p3 Cleaning p21 Foaming/-stabilizing |

Sulfonate-based

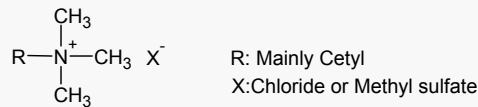
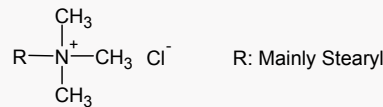
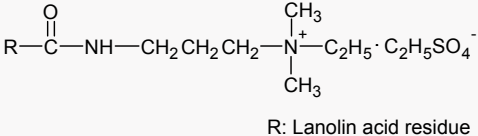
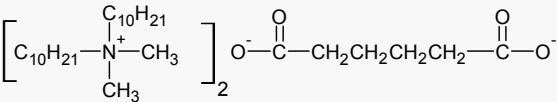
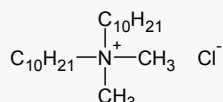
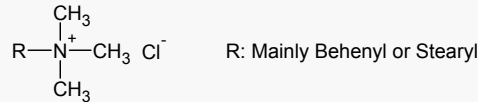
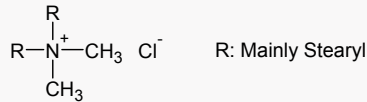
| Composition and Structure | Product Name | Function |
|--|-------------------|----------------|
| Sodium naphthalenesulfonate formalin condensate  | SANYO LEVELON PHL | p15 Dispersing |

Sulfuric acid ester-based

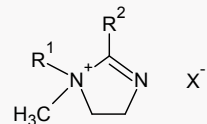
| Composition and Structure | Product Name | Function |
|--|------------------|---|
| Sodium 2-ethylhexyl sulfate $CH_3CH_2CH_2CH_2-CH(CH_2CH_3)-CH_2O-SO_3^-Na^+$ | SANDET ONA | p9 Emulsifying p15 Dispersing |
| Polyoxyalkylene alkyl ether ammonium sulfate $R-O-(AO)_n-SO_3^-NH_4^+$ AO: Alkylene oxide | ELEMINOL CLS-20 | p9 Emulsifying |
| Sodium polyoxyethylene alkyl ether sulfate $R-O-(CH_2CH_2O)_n-SO_3^-Na^+$ | SANDET END | p3 Cleaning p21 Foaming/-stabilizing |
| Sodium polyoxyethylene lauryl ether sulfate $C_{12}H_{25}O-(CH_2CH_2O)_n-SO_3^-Na^+$ | SANDET EN | p3 Cleaning p9 Emulsifying p21 Foaming/-stabilizing |
| | BEAULIGHT NA-25S | p3 Cleaning p21 Foaming/-stabilizing |
| Polyoxyethylene lauryl ether sulfate triethanolamine $C_{12}H_{25}O-(CH_2CH_2O)_n-SO_3H \cdot N-(CH_2CH_2OH)_3$ | SANDET ET | p3 Cleaning p21 Foaming/-stabilizing |
| Methacryloyloxy polyoxypropylene sodium sulfate $H_2C=C(CH_3)-C(=O)O-(CH_2CH(CH_3)O)_n-SO_3^-Na^+$ | ELEMINOL RS-3000 | p9 Emulsifying |

Cationic Surfactants

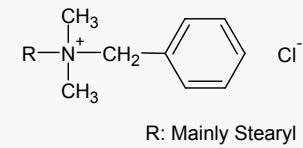
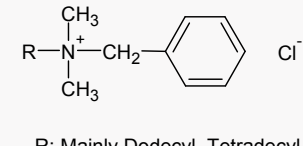
Ammonium salt-based

| Composition and Structure | Product Name | Function |
|--|--------------------------|---|
| Cetyltrimethylammonium chloride, Cetyltrimethylammonium methyl sulfate  | LEBON TM-16, 16MS | p45 Lubricating/Leveling |
| Stearyltrimethylammonium chloride  | LEBON TM-18, 18PA | p23 Lubricating/Leveling p31 Plasticizing/Softening p39 Antistatic |
| Ethyl sulfuric acid lanolin fatty acid aminopropylethyl dimethylammonium  | CATION LQ | p23 Lubricating/Leveling p31 Plasticizing/Softening p39 Antistatic |
| Didecyltrimethylammonium adipate  | OSMORIN DA-50 | p43 Antibacterial |
| Didecyltrimethylammonium chloride  | CATION DDC | p43 Antibacterial |
| Behenyltrimethylammonium chloride or Stearyltrimethylammonium chloride  | ECONOL | p23 Lubricating/Leveling p31 Plasticizing/Softening p39 Antistatic |
| Distearyltrimethylammonium chloride  | CATION DSV | p23 Lubricating/Leveling p31 Plasticizing/Softening p39 Antistatic |

Imidazolium salt-based

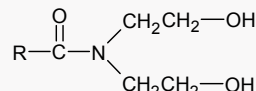
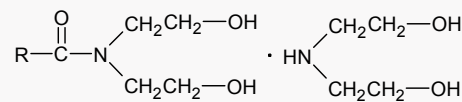
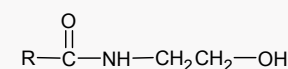
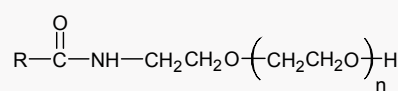
| Composition and Structure | Product Name | Function |
|--|------------------|---|
| Imidazoline compound  | CATION SF | p23 Lubricating/Leveling p31 Plasticizing/Softening p39 Antistatic |

Benzalkonium-based

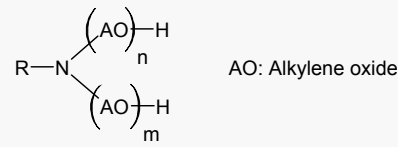
| Composition and Structure | Product Name | Function |
|---|--------------------|--|
| Stearyltrimethylbenzylammonium chloride  | CATION S | p23 Lubricating/Leveling p31 Plasticizing/Softening p39 Antistatic |
| Benzalkonium chloride  | CATION G-50 | p5 Wetting/Penetrating p31 Plasticizing/Softening p45 Antibacterial |

Nonionic Surfactants

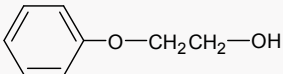
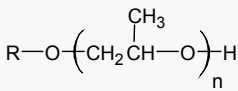
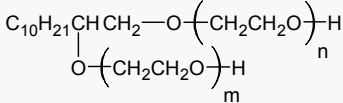
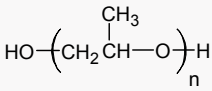
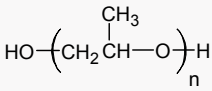
Amide-based

| Composition and Structure | Product Name | Function |
|--|--|---|
| Alkylol amide based surfactant  | PROFAN 128 EXTRA, AA-62EX, EXTRA 24 | p3 Cleaning p21 Foaming/-stabilizing p35 Viscosity Controlling p45 Rust Preventive |
| Alkylol amide based surfactant  | PROFAN 2012E | p3 Cleaning p21 Foaming/-stabilizing p35 Viscosity Controlling p45 Rust Preventive |
| Alkylol amide based surfactant  | PROFAN AB-20, SME | p3 Cleaning p21 Foaming/-stabilizing p35 Viscosity Controlling p45 Rust Preventive |
| Alkylol amide based surfactant  | PROFAN ME-20 | p3 Cleaning p21 Foaming/-stabilizing p35 Viscosity Controlling p45 Rust Preventive |

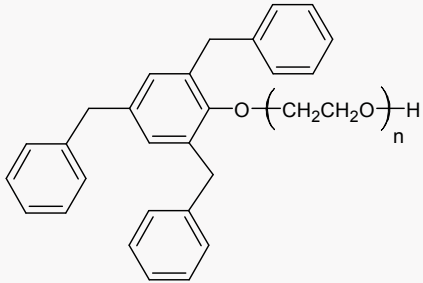
Ether-based (Amine type)

| Composition and Structure | Product Name | Function |
|---|-----------------------|---|
| Polyoxyalkylene alkyl amine  | PUREMEEL | p3 Cleaning |
| | EMULMIN LCA-10 | p3 Cleaning p21 Foaming/-stabilizing |

■ Ether-based

| Composition and Structure | Product Name | Function |
|--|----------------------------|---------------------------|
| Phenoxyethanol  | NEWPOL EFP | p13 Solubilizing |
| | | p45 Antibacterial |
| Polyoxypropylene monobutyl ether  | COLORIN 104 | p23 Defoaming |
| Polyoxyalkylene alkyl ether derived from synthetic alcohols $R-O-(AO)_n-H$ AO: Alkylene oxide | SANNONIC TN | p5 Cleaning |
| | SEDORAN FF | p5 Cleaning |
| | NAROACTY CL SANNONIC FN | p3, 5 Cleaning |
| | | p7 Wetting/Penetrating |
| | | p11 Emulsifying |
| | | p17 Dispersing |
| | NAROACTY ID | p3 Cleaning |
| | NEWPOL B-12 BLEMBER | p7 Wetting/Penetrating |
| | | p13 Solubilizing |
| Polyoxyethylene alkyl ether $R-O-(CH_2CH_2O)_n-H$ | ELEMINOL 200L | p23 Lubricating/Leveling |
| Polyoxyethylene lauryl glycol derived from synthetic alcohols  | NEWPOL DDE-10 | p11 Emulsifying |
| | | p37 Viscosity Controlling |
| Polyoxyethylene alkyl ether $R-O-(CH_2CH_2O)_n-H$ | NEWPOL DDE-10 | p45 Antibacterial |
| | | |
| Polyoxypropylene glycol  | NEWPOL PP | p7 Wetting/Penetrating |
| Polyoxypropylene glycol  | NEWPOL PP | p25 Lubricating/Leveling |
| | | p49 For Reacting/Forming |
| Polyoxyalkylene glycol monoether or borate $R-O-(AO)_n-H$ or $[R-O-(AO)]_{n-3-m}B(OH)_m$ AO: Alkylene oxide | NEWPOL SBF | p13 Solubilizing |
| | | |
| Polyoxyalkylene lauryl ether derived from natural higher alcohols $C_{12}H_{25}O-(AO)_n-H$ AO: Alkylene oxide | EMULMIN FL, HL | p3 Cleaning |
| | | p5 Wetting/Penetrating |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| Polyoxyethylene alkyl ether derived from natural higher alcohols $R-O-(CH_2CH_2O)_n-H$ | EMULMIN No. | p3 Cleaning |
| | | p5 Wetting/Penetrating |
| | | p9 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p21 Foaming/-stabilizing |
| | | p47 Other Functions |

Continued on the next page →

| Composition and Structure | Product Name | Function |
|--|-------------------|-----------------------------|
| Polyoxyalkylene alkyl ether derived from synthetic alcohols $R-O-(CH_2CH_2O)_n-H$ | SANMORIN 11 | p7 Wetting/Penetrating |
| | SANNONIC DE-70 | p5 Cleaning |
| | | p7 Wetting/Penetrating |
| | SANNONIC SS | p5 Cleaning |
| | | p7 Wetting/Penetrating |
| | | p11 Emulsifying |
| Polyoxyethylene alkyl ether with limonene $R-O-(CH_2CH_2O)_n-H + H_3C-C_6H_9-CH=CH_2$ | CHEMICLEAN DLE-20 | p17 Dispersing |
| | | p5 Cleaning |
| Polyoxyethylene cetyl ether derived from natural higher alcohols $C_{16}H_{33}O-(CH_2CH_2O)_n-H$ | EMULMIN CC | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p21 Foaming/-stabilizing |
| | | p35 Viscosity Controlling |
| Polyoxyethylene tribenzyl phenyl ether  | ELEMINOL HB-29 | p11 Emulsifying |
| | | |
| Polyoxyethylene polyoxypropylene polyol $R-[OCH_2CH_2]_n-[O-CH_2-CH(CH_3)]_m-OH$ | NEWPOL NSQ | p7 Wetting/Penetrating |
| | | p23 Defoaming |
| | | p25 Lubricating/Leveling |
| | | p37 Viscosity Controlling |
| | | p43 Cold or Heat Insulating |
| | NEWPOL V | p49 For Reacting/Forming |
| | | p7 Wetting/Penetrating |
| | | p23 Defoaming |
| | | p25 Lubricating/Leveling |
| | | p37 Viscosity Controlling |
| | | p43 Cold or Heat Insulating |
| | | p49 For Reacting/Forming |

Continued on the next page →

| Composition and Structure | Product Name | Function |
|--|------------------|--|
| Polyoxyethylene polyoxypropylene glycol $\text{H}-\left(\text{OCH}_2\text{CH}_2\right)_x\left(\text{O}-\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\right)_y\left(\text{OCH}_2\text{CH}_2\right)_z\text{OH}$ | NEWDET PE-85 | p7 Wetting/Penetrating |
| | | p13 Solubilizing |
| | | p23 Lubricating/Leveling |
| | | p27 Adhesive |
| | | p37 Viscosity Controlling |
| | | p49 For Reacting/Forming |
| | NEWPOL PE | p5 Cleaning |
| | | p7 Wetting/Penetrating |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p23 Lubricating/Leveling |
| | | p27 Adhesive |
| | | p31 Plasticizing/Softening |
| Polyoxyethylene polyoxypropylene triol $\begin{array}{c} \text{H}-\left(\text{O}-\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\right)_n-\left(\text{OCH}_2\text{CH}_2\right)_m-\text{CH}_2-\underset{\text{CH}_3}{\text{CH}}-\text{O}-\left(\text{CH}_2\text{CH}_2\text{O}\right)_p-\left(\underset{\text{CH}_3}{\text{CH}}\text{CH}_2-\text{O}\right)_q\text{H} \\ \text{H}-\left(\text{O}-\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\right)_x-\left(\text{OCH}_2\text{CH}_2\right)_y-\text{O}-\text{CH}_2-\underset{\text{CH}_3}{\text{CH}}-\text{O}-\left(\text{CH}_2\text{CH}_2\text{O}\right)_p-\left(\underset{\text{CH}_3}{\text{CH}}\text{CH}_2-\text{O}\right)_q\text{H} \end{array}$ | NEWPOL GEP-2800 | p7 Wetting/Penetrating |
| | | p23 Defoaming |
| | | p25 Lubricating/Leveling |
| | | p37 Viscosity Controlling |
| Polyoxyethylene polyoxypropylene trimethylolpropane $\begin{array}{c} \text{H}_2\text{C}-\text{O}-\left(\text{CH}_2\underset{\text{CH}_3}{\text{CH}}-\text{O}\right)_n-\left(\text{CH}_2\text{CH}_2\text{O}\right)_m\text{H} \\ \text{CH}_3\text{CH}_2-\text{C}-\text{CH}_2-\text{O}-\left(\text{CH}_2\underset{\text{CH}_3}{\text{CH}}-\text{O}\right)_p-\left(\text{CH}_2\text{CH}_2\text{O}\right)_q\text{H} \\ \text{H}_2\text{C}-\text{O}-\left(\text{CH}_2\underset{\text{CH}_3}{\text{CH}}-\text{O}\right)_x-\left(\text{CH}_2\text{CH}_2\text{O}\right)_y\text{H} \end{array}$ | NEWPOL TL | p7 Wetting/Penetrating |
| | | p23 Defoaming |
| | | p25 Lubricating/Leveling |
| | | p37 Viscosity Controlling |
| Polyoxyethylene polyoxypropylene butyl ether $\text{C}_4\text{H}_9\text{O}-\left(\text{CH}_2\text{CH}_2\text{O}\right)_n-\left(\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\text{O}\right)_m-\text{H}$ | NEWPOL 50HB | p7 Wetting/Penetrating |
| | | p23 Defoaming |
| | | p25 Lubricating/Leveling |
| | | p37 Viscosity Controlling |
| | | p43 Cold or Heat Insulating |
| Polyoxyethylene polyoxypropylene hexylene glycol ether $\text{H}-\left(\text{O}-\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\right)_p-\left(\text{OCH}_2\text{CH}_2\right)_q-\text{O}-\text{C}_6\text{H}_{12}-\text{O}-\left(\text{CH}_2\text{CH}_2\text{O}\right)_n-\left(\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\text{O}\right)_m\text{H}$ | NEWPOL 75H-90000 | p7 Wetting/Penetrating |
| | | p23 Defoaming |
| | | p25 Lubricating/Leveling |
| | | p37 Viscosity Controlling |
| | | p43 Cold or Heat Insulating |
| | | p49 For Reacting/Forming |

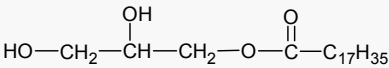
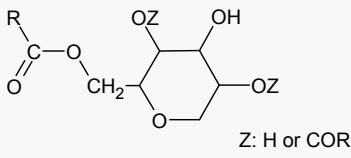
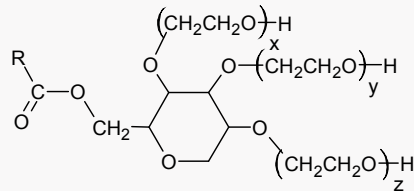
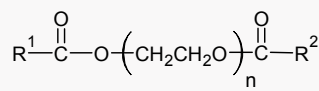
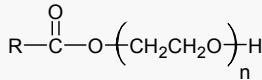
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| Composition and Structure | Product Name | Function |
|---|-------------------|--|
| Polyoxyethylene lauryl ether derived from natural higher alcohols $\text{C}_{12}\text{H}_{25}\text{O}-\left(\text{CH}_2\text{CH}_2\text{O}\right)_n\text{H}$ | EMULMIN L | p3 Cleaning |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p21 Foaming/-stabilizing |
| | | p37 Viscosity Controlling |
| | EMULMIN LS | p3 Cleaning |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p21 Foaming/-stabilizing |
| | | p37 Viscosity Controlling |
| | EMULMIN NL | p3 Cleaning |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p21 Foaming/-stabilizing |
| | | p37 Viscosity Controlling |
| | LAUROMACROGOL 100 | p5 Cleaning |
| | | p7 Wetting/Penetrating |
| Polyoxypropylene triol $\begin{array}{c} \text{H}-\left(\text{O}-\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\right)_l-\text{O}-\text{CH}_2-\underset{\text{CH}_3}{\text{CH}}-\text{O}-\left(\text{CH}_2\underset{\text{CH}_3}{\text{CH}}-\text{O}\right)_m\text{H} \\ \text{H}-\left(\text{O}-\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\right)_n-\text{O}-\text{CH}_2-\underset{\text{CH}_3}{\text{CH}}-\text{O}-\left(\text{CH}_2\underset{\text{CH}_3}{\text{CH}}-\text{O}\right)_m\text{H} \end{array}$ | NEWPOL GP | p7 Wetting/Penetrating |
| | | p25 Lubricating/Leveling |
| | | p49 For Reacting/Forming |
| Polyoxypropylene butyl ether $\text{C}_4\text{H}_9\text{O}-\left(\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\text{O}\right)_n\text{H}$ | NEWPOL LB | p7 Wetting/Penetrating |
| | | p23 Defoaming |
| | | p25 Lubricating/Leveling |
| | | p37 Viscosity Controlling |
| | | p43 Cold or Heat Insulating |
| | | p49 For Reacting/Forming |

■ Ester-based

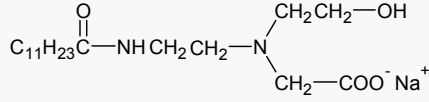
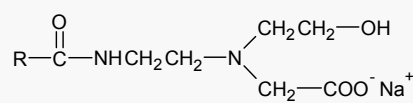
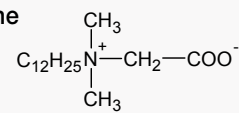
| Composition and Structure | Product Name | Function |
|---|------------------|--|
| Ethylene glycol distearate $\text{C}_{17}\text{H}_{35}\overset{\text{O}}{\parallel}\text{C}-\text{O}-\text{CH}_2\text{CH}_2-\text{O}-\overset{\text{O}}{\parallel}\text{C}-\text{C}_{17}\text{H}_{35}$ | SANTOPEARL GE-70 | p47 Other Functions |
| Polyoxyethylene distearate $\text{C}_{17}\text{H}_{35}\overset{\text{O}}{\parallel}\text{C}-\text{O}-\left(\text{CH}_2\text{CH}_2\text{O}\right)_n-\overset{\text{O}}{\parallel}\text{C}-\text{C}_{17}\text{H}_{35}$ | EMULMIN 862 | p37 Viscosity Controlling |

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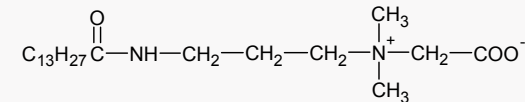
| Composition and Structure | Product Name | Function |
|---|--------------|---|
| Glyceryl monostearate  | TG-C | p7 Wetting/Penetrating |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p25 Lubricating/Leveling |
| | | p33 Plasticizing/Softening |
| Sorbitan mono- or di-fatty acid ester  | IONET S | p7 Wetting/Penetrating |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p23 Defoaming |
| | | p25 Lubricating/Leveling |
| | | p33 Plasticizing/Softening |
| | | p37 Viscosity Controlling |
| Polyoxyethylene sorbitan monofatty acid ester  | IONET T | p7 Wetting/Penetrating |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p25 Lubricating/Leveling |
| | | p33 Plasticizing/Softening |
| | | p37 Viscosity Controlling |
| | | p45 Rust Preventive |
| Polyoxyethylene fatty acid diester  | IONET DL-200 | p5 Cleaning |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p25 Lubricating/Leveling |
| | IONET DO, DS | p5 Cleaning |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p25 Lubricating/Leveling |
| Polyoxyethylene fatty acid monoester  | IONET MO, MS | p5 Cleaning |
| | | p11 Emulsifying |
| | | p13 Solubilizing |
| | | p17 Dispersing |
| | | p25 Lubricating/Leveling |

Amphoteric Surfactants

Amino Acid-type

| Composition and Structure | Product Name | Function |
|---|--------------|---------------------------------------|
| N- lauroyl-N'- carboxymethyl -N'- hydroxyethyl ethylenediamine sodium solution  | LEBON 101-H | p5 Cleaning |
| | | p21 Foaming/-stabilizing |
| Sodium laurylaminodipropionate $C_{12}H_{25}NHCH_2CH_2COO^-Na^+$ | LEBON APL | p5 Cleaning |
| | | p21 Foaming/-stabilizing |
| Sodium cocaminopropionate $R-NHCH_2CH_2COO^-Na^+$ R: Coconut fatty acid residue | LEBON APL-D | p5 Cleaning |
| | | p21 Foaming/-stabilizing |
| Alkyl carboxymethyl hydroxyethyl imidazolium betaine  | LEBON 105 | p5 Cleaning |
| | | p21 Foaming/-stabilizing |
| | LEBON CIB | p5 Cleaning |
| | | p21 Foaming/-stabilizing |
| Dodecylaminoethylaminoethylglycine $C_{12}H_{25}NHCH_2CH_2NHCH_2CH_2NHCH_2COOH$ | LEBON S | p45 Antibacterial |
| Lauryldimethylaminoacetic acid betaine  | LEBON LD-36 | p5 Cleaning |
| | | p21 Foaming/-stabilizing |
| Alkyldiaminoethylglycine hydrochloride $R-NHCH_2CH_2NHCH_2CH_2NHCH_2COOH \cdot HCl$ R: Mainly Dodecyl, Tetradecyl | LEBON T-2 | p45 Antibacterial |

Betaine-type

| Composition and Structure | Product Name | Function |
|---|--------------|---------------------------------------|
| Myristic acid amide propyl betaine  | LEBON MY-30W | p5 Cleaning |
| | | p21 Foaming/-stabilizing |

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| Composition and Structure | Product Name | Function |
|---|-----------------------------------|---------------------------------------|
| Coconut oil fatty acid amide propyl betaine R: Coconut fatty acid residue | LEBON HC-30W, 2000, 2000HG | p5 Cleaning |
| | | p21 Foaming/-stabilizing |
| Lauric acid amidopropyl betaine | LEBON 2000L | p5 Cleaning |
| | | p21 Foaming/-stabilizing |

Functional bases, intermediates, additives

Esters

| Composition and Structure | Product Name | Function |
|---|--|---|
| Bisphenol-A type unsaturated polyester | CHEMITYLEN PEB-13ST | p27 Adhesive |
| Polyethyleneglycol dibenzoate | SANFLEX EB EB-200 | p33 Plasticizing/Softening |
| Esterified multi-functional polyetherpolyol | SANFLEX GPA-3000, LBU-25, SPX-80N | p33 Plasticizing/Softening |
| Polyoxyalkylene monoalkylether acetate AO: Alkylene oxide | SANFLEX SK-500 | p33 Plasticizing/Softening |

Epoxides

| Composition and Structure | Product Name | Function |
|---|--------------------|---|
| Polyoxypropylene glycol diglycidyl ether | GLYCIALE PP | p33 Plasticizing/Softening |
| | | p51 For Reacting/Forming |

Olefin or Styrene-based

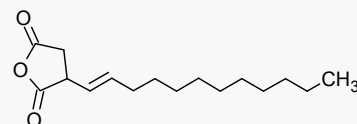
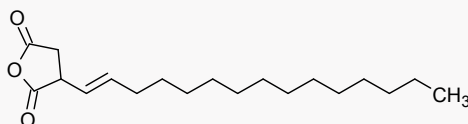
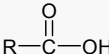
| Composition and Structure | Product Name | Function |
|---|-------------------|---|
| 4-Vinyl-1-cyclohexene | VCH | p51 For Reacting/Forming |
| Low-molecular-weight polyethylene | SANWAX | p17 Dispersing |
| | | p25 Lubricating/Leveling |
| | | p33 Plasticizing/Softening |
| | | p37 Viscosity Controlling |
| | | p47 Other Functions |
| Low-molecular-weight polypropylene | VISCOL | p51 For Reacting/Forming |
| | | p17 Dispersing |
| | | p25 Lubricating/Leveling |
| | | p33 Plasticizing/Softening |
| | | p37 Viscosity Controlling |
| Acid modified low-molecular-weight polypropylene | UMEX | p47 Other Functions |
| | | p51 For Reacting/Forming |
| | | p17 Dispersing |
| | | p27 Adhesive |
| | | |
| Low-molecular-weight polystyrene | HIMER SB | p19 Dispersing |
| | HIMER ST | p19 Dispersing |
| | REGIT S-94 | p19 Dispersing |

Acids/Acid Anhydrides

Z: Proprietary functional group

| Composition and Structure | Product Name | Function |
|--|-------------------|----------------------------------|
| Alkenylsuccinic acid ester | SANHIBITOR | p45 Rust Preventive |
| Alkenylsuccinic anhydride | | p45 Rust Preventive |
| Sodium-5-sulphoisophthalic acid | SIPA | p41 Antistatic |
| | | p47 Other Functions |

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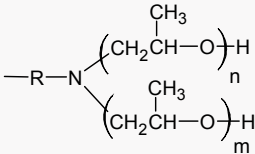
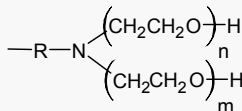
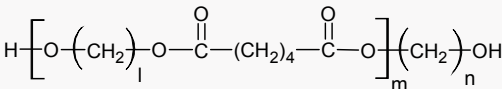
| Composition and Structure | Product Name | Function | |
|--|--------------|---------------------------------------|--|
| Dodecenyl succinic anhydride  | DSA | p27 <div>Adhesive</div> | |
| Pentadecenyl succinic anhydride  | | p33 <div>Plasticizing/Softening</div> | |
| | | p37 <div>Viscosity Controlling</div> | |
| | | p45 <div>Rust Preventive</div> | |
| | | p53 <div>For Reacting/Forming</div> | |
| Fatty acid compound  | SANFRIC | p25 <div>Lubricating/Leveling</div> | |

Nitrogen-Containing Compounds

Z: Proprietary functional group

| Composition and Structure | Product Name | Function | |
|--|---------------|--------------------------------------|--|
| Liquid polyamideamine $H_2N-Z^1-NH-Z^2-NH\left(C(=O)-Z^3-C(=O)-NH-Z^4-NH-Z^5-NH\right)_n-H$ | POLYMIDE L | p27 <div>Adhesive</div> | |
| Powdery polyamideamine $H_2N-Z^1-NH-Z^2-NH\left(C(=O)-Z^3-C(=O)-NH-Z^4-NH-Z^5-NH\right)_n-H$ | | p45 <div>Rust Preventive</div> | |
| | | p53 <div>For Reacting/Forming</div> | |
| Higher fatty acid bisamide $\begin{array}{c} O & & O \\ & & \\ -C-NH-Z-NH-C- \end{array}$ | SANTHIXO 5001 | p27 <div>Adhesive</div> | |
| | | p53 <div>For Reacting/Forming</div> | |
| | | p37 <div>Viscosity Controlling</div> | |

Polyols

| Composition and Structure | Product Name | Function |
|--|--|--|
| Aliphatic amine-based polyol <div></div> | SANNIX AP | p41 <div>Water Absorbent</div> |
| | | p43 <div>Cold or Heat Insulating</div> |
| | | p51 <div>For Reacting/Forming</div> |
| | SANNIX NP | p41 <div>Water Absorbent</div> |
| | | p43 <div>Sealing/Waterproofing</div> |
| | | p43 <div>Cold or Heat Insulating</div> |
| p51 <div>For Reacting/Forming</div> | | |
| Aliphatic amine-based polyol <div></div> | SANNIX NE | p41 <div>Water Absorbent</div> |
| | | p43 <div>Cold or Heat Insulating</div> |
| | | p51 <div>For Reacting/Forming</div> |
| | Polyethylene adipate (there are some other polyester polyols, too) <div></div> | SANESTER |

Continued on the next page →

| Composition and Structure | Product Name | Function |
|--|-------------------------------------|--|
| <div>Polyethylene glycol</div> <div>$HO\left(CH_2CH_2O\right)_nH$</div> | PEG | p9 <div>Wetting/Penetrating</div> |
| | | p15 <div>Solubilizing</div> |
| | | p19 <div>Dispersing</div> |
| | | p25 <div>Lubricating/Leveling</div> |
| | | p29 <div>Adhesive</div> |
| | | p33 <div>Plasticizing/Softening</div> |
| | | p39 <div>Viscosity Controlling</div> |
| | | p41 <div>Antistatic</div> |
| | | p43 <div>Cold or Heat Insulating</div> |
| | | p47 <div>Other Functions</div> |
| | p49 <div>For Reacting/Forming</div> | p9 <div>Wetting/Penetrating</div> |
| | MACROGOL | p15 <div>Solubilizing</div> |
| | | p25 <div>Lubricating/Leveling</div> |
| | | p29 <div>Adhesive</div> |
| | | p33 <div>Plasticizing/Softening</div> |
| | | p39 <div>Viscosity Controlling</div> |
| | | p49 <div>For Reacting/Forming</div> |
| <div>Aromatic amine-based polyol</div> <div></div> | SANNIX HM | p41 <div>Water Absorbent</div> |
| | | p43 <div>Cold or Heat Insulating</div> |
| | | p51 <div>For Reacting/Forming</div> |
| <div>Bisphenol A-propylene oxide adduct</div> <div></div> | NEWPOL BP | p35 <div>Plasticizing/Softening</div> |
| | | p51 <div>For Reacting/Forming</div> |
| <div>Bisphenol A-ethylene oxide adduct</div> <div></div> | NEWPOL BPE | p35 <div>Plasticizing/Softening</div> |
| | | p51 <div>For Reacting/Forming</div> |
| <div>Sucrose-based polyether polyol</div> <div></div> <div>PO: Propylene oxide</div> | SANNIX HS | p41 <div>Water Absorbent</div> |
| | | p43 <div>Cold or Heat Insulating</div> |
| | | p51 <div>For Reacting/Forming</div> |
| <div>Polyoxyethylene polyoxypropylene glycol</div> <div>$H\left(OCH_2CH_2\right)_x\left(O-CH_2\overset{\overset{CH_3}{ }}{CH}\right)_y\left(OCH_2CH_2\right)_zOH$</div> | SANNIX PL-2100 | p29 <div>Adhesive</div> |
| | | p35 <div>Plasticizing/Softening</div> |
| | | p43 <div>Sealing/Waterproofing</div> |
| | | p53 <div>For Reacting/Forming</div> |

Continued on the next page →

■ Methacrylates/Acrylates-based

| Composition and Structure | Product Name | Function |
|--|-------------------------|--|
| Cross-linked acrylic acid polymer sodium salt $\left(\begin{array}{c} \text{CH}-\text{CH}_2 \\ \\ \text{C}=\text{O} \\ \\ \text{OH} \end{array} \right)_x \left(\begin{array}{c} \text{CH}-\text{CH}_2 \\ \\ \text{C}=\text{O} \\ \\ \text{O}^-\text{Na}^+ \end{array} \right)_y$ SANWET IM is a graft copolymer with a starch | AQUAPEARL | p41 Water Absorbent |
| | SANWET IM | p41 Water Absorbent |
| | SANFRESH | p9 Wetting/Penetrating |
| | | p39 Viscosity Controlling |
| | | p41 Water Absorbent |
| | | p43 Sealing/Waterproofing |
| | | p43 Cold or Heat Insulating |
| Methacrylic acid - ethyl acrylate copolymer $\left(\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_2-\text{C} \\ \\ \text{COOH} \end{array} \right)_n \left(\begin{array}{c} \text{CH}_2-\text{CH} \\ \\ \text{COOC}_2\text{H}_5 \end{array} \right)_m$ | POLYQUID | p29 Adhesive |
| | | p47 Other Functions |
| | | p51 For Reacting/Forming |
| Methacrylate copolymer and refined mineral oil $\left(\begin{array}{c} \text{R}^1 \\ \\ \text{C}-\text{CH}_2 \\ \\ \text{C}=\text{O} \\ \\ \text{O} \\ \\ \text{R}^2 \end{array} \right)_n \left(\begin{array}{c} \text{CH}_3 \\ \\ \text{C}-\text{CH}_2 \\ \\ \text{C}=\text{O} \\ \\ \text{O} \\ \\ \text{R}^3 \end{array} \right)_m$ $\text{R}^1: \text{H or CH}_3$ $\text{R}^2: \text{Alkyl}$ $\text{R}^3: \text{Alkyl}$ | ACLUBE | p27 Lubricating/Leveling |
| | | p39 Viscosity Controlling |
| Dipentaerythritol hexaacrylate $\begin{array}{c} \text{H}_2\text{C}=\text{CH}-\text{C}(=\text{O})-\text{O}-\text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{H}_2\text{C}=\text{CH}-\text{C}(=\text{O})-\text{O}-\text{CH}_2-\text{C}-\text{CH}_2-\text{O}-\text{CH}_2-\text{C}-\text{CH}_2-\text{O}-\text{C}(=\text{O})-\text{CH}=\text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{H}_2\text{C}=\text{CH}-\text{C}(=\text{O})-\text{O} \\ \\ \text{O} \end{array}$ | NEOMER DA-600 | p49 For Reacting/Forming |
| Dimethylaminoethyl acrylate quaternary salt $\text{H}_2\text{C}=\text{CH}-\text{C}(=\text{O})-\text{O}-\text{CH}_2\text{CH}_2-\text{N}^+(\text{CH}_3)_2\text{CH}_3 \text{X}^-$ | ACRYLATE SMC-80H | p19 Flocculating |
| | | p49 For Reacting/Forming |
| Triethylene glycol dimethacrylate $\text{H}_2\text{C}=\text{C}(\text{CH}_3)-\text{C}(=\text{O})-\text{O}-\left(\text{CH}_2\text{CH}_2\text{O}\right)_3-\text{C}(=\text{O})-\text{C}(\text{CH}_3)=\text{CH}_2$ | NEOMER PM-201 | p49 For Reacting/Forming |
| Ethoxylated trimethylolpropane triacrylate $\text{H}_2\text{C}=\text{CH}-\text{C}(=\text{O})-\left(\text{OCH}_2\text{CH}_2\right)_z-\text{O}-\text{CH}_2-\text{C}(\text{CH}_2)_2-\text{CH}_2-\text{O}-\left(\text{CH}_2\text{CH}_2\text{O}\right)_x-\text{C}(=\text{O})-\text{CH}=\text{CH}_2$ | NEOMER TA-401 | p49 For Reacting/Forming |
| Propoxylated neopentylglycol diacrylate $\text{H}_2\text{C}=\text{CH}-\text{C}(=\text{O})-\left(\text{O}-\text{CH}(\text{CH}_3)-\text{CH}_2\right)_n-\text{O}-\text{CH}_2-\text{C}(\text{CH}_3)_2-\text{CH}_2-\text{O}-\left(\text{CH}_2-\text{CH}(\text{CH}_3)-\text{O}\right)_m-\text{C}(=\text{O})-\text{CH}=\text{CH}_2$ | NEOMER NA-305 | p49 For Reacting/Forming |

Continued on the next page →

| Composition and Structure | Product Name | Function |
|--|----------------------|---|
| Propoxylated trimethylolpropane triacrylate | NEOMER TA-505 | p49 For Reacting/Forming |
| Ethoxylated bisphenol A diacrylate | NEOMER BA-641 | p49 For Reacting/Forming |
| Polypropyleneglycol diacrylate | NEOMER PA-305 | p49 For Reacting/Forming |
| Polypropylene glycol monomethacrylate | NEWPOL MP-5 | p49 For Reacting/Forming |
| Dialkylaminoalkyl methacrylate derivatives | METHACRYLATE | p9 Wetting/Penetrating |
| Long-chain alkyl methacrylate | | p19 Flocculating |
| | | p35 Plasticizing/Softening |
| | | p49 For Reacting/Forming |

Others

| Composition and Structure | Product Name | Function |
|---|-----------------------|-------------------------------|
| Polyoxyethylene dimethyl ether | SANFINE DM-200 | p15 Solubilizing |

Functional compounds, polymers

Urethane Series

| Composition and Structure | Product Name | Function |
|--------------------------------|-------------------------|---------------------------------------|
| Urethane prepolymer | SANPRENE C | p55 For Reacting/Forming |
| | SANPRENE FLR-603 | p55 For Reacting/Forming |
| | SANPRENE P | p55 For Reacting/Forming |

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Z: Proprietary functional group

| Composition and Structure | Product Name | Function |
|--|--------------------------|--|
| Polyurethane emulsion | CHEMITYLEN GA-500 | p29 Adhesive |
| | PERMARIN | p27 Lubricating/Leveling p29 Adhesive p35 Plasticizing/Softening p55 For Reacting/Forming |
| | UCOAT | p29 Adhesive p35 Plasticizing/Softening p55 For Reacting/Forming |
| | UPRENE UXA-307 | p29 Adhesive p55 For Reacting/Forming |
| Polyurethane solution | COATRON | p31 Adhesive p55 For Reacting/Forming |
| | SANPRENE H | p31 Adhesive p55 For Reacting/Forming |
| | SANPRENE HMP-17A | p55 For Reacting/Forming |
| | SANPRENE IB | p31 Adhesive p55 For Reacting/Forming |
| | SANPRENE LQ | p55 For Reacting/Forming |
| Polyurethane resin system (Polyetherpolyol) | SANFOAM RC-1026 | p55 For Reacting/Forming |
| Polyurethane resin system (Polyisocyanate) | SANFOAM IC-559 | p55 For Reacting/Forming |
| Two-component type polyurethane | POLYBOND | p31 Adhesive |
| One-component moisture curing type polyurethane | UNOFLEX | p31 Adhesive |

Methacrylate/Acrylate-based

| Composition and Structure | Product Name | Function |
|--|------------------|---------------------------|
| Acrylic resin or acrylic resin solution | POLYTHICK | p29 Adhesive |

IONET Products

<IONET M, D>

- IONET M are Polyoxyethylene monofatty acid esters
IONET D are Polyoxyethylene difatty acid esters
- Widely used in various industries such as agrichemical, metal, cosmetic, paper, pulp or textile as emulsifiers, dispersants and leveling agents
- L: Lauric acid
S: Stearic acid
O: Oleic acid

<IONET S, T>

- Nonionic and lipophilic surfactant of sorbitan derivatives
- IONET S are Sorbitan mono- or di-fatty acid esters known as SPAN type surfactants
IONET T are ethylene oxide adducts of IONET S and more hydrophilic, known as TWEEN type surfactants
- Used as emulsifiers, solubilizer, dispersants and rust preventives
- IONET S can be used as a defoaming agent

| Product Name | Appearance (20±5°C) | HLB | pH ^{*1} | Cloud Point ^{*2} °C |
|---------------|---------------------------|------|-------------------|---------------------------------|
| IONET DL-200 | Yellow liquid | 6.6 | 6.5 | <20 |
| IONET DO-400 | Pale straw-colored liquid | 8.4 | 7.0 | <20 |
| IONET DO-600 | Brown liquid | 10.4 | 6.5 | <20 |
| IONET DO-1000 | Pale yellow solid | 12.9 | 6.5 | 35 |
| IONET DS-300 | Pale yellow-white solid | 7.3 | 7.0 | <20 |
| IONET DS-400 | Pale yellow-white solid | 8.5 | 7.0 | <20 |
| IONET DS-4000 | Pale straw-colored solid | 17.0 | 6.5 | - |
| IONET MO-200 | Pale brown liquid | 8.4 | 7.0 | <20 |
| IONET MO-400 | Pale straw-colored liquid | 11.8 | 7.0 | <20 |
| IONET MO-600 | Pale straw-colored liquid | 13.7 | 7.0 | 53 |
| IONET MS-400 | Pale yellow solid | 11.9 | 7.0 | <20 |
| IONET MS-1000 | Pale yellow-white solid | 15.7 | 6.5 | >100 |
| IONET S-20 | Straw-colored liquid | 8.6 | 7.0 | <20 |
| IONET S-60V | Pale yellow-white granule | 4.7 | 8.0 | - |
| IONET S-80 | Straw-colored liquid | 4.3 | 7.0 | - |
| IONET S-80S | Straw-colored liquid | 4.2 | 7.0 | - |
| IONET S-85 | Straw-colored liquid | 1.8 | - | - |
| IONET T-20C | Yellow liquid | 16.7 | - | >100 |
| IONET T-60V | Yellow liquid | 14.9 | - | >100 |
| IONET T-80V | Yellow liquid | 15.0 | 7.0 ^{*3} | >100 |

*1 1 wt % aq solution *2 2 wt % aq solution *3 5 wt % aq solution

EMULMIN Products

- Used as emulsifiers for creams, lotions, emulsion polymerization of resins or pigment dispersant for coatings because of their excellent emulsifying property
- Having lubricating property and protecting the surfaces of metals.
Effective as emulsifiers for reducing the coefficient of friction of machine oils; especially mineral oils

<EMULMIN No.>

- Besides, used for foaming agent, thickener for cosmetic, oiliness improver, moisturizer, solubilizer, raw material for chemical reaction, pulp cooking aid and leveling dyeing agent

<EMULMIN L, LS, NL>

- Besides, applicable for foaming agents, thickener or solubirizer for cosmetics

<EMULMIN FL, HL>

- Excellent low-temperature fluidity and detergency compared to the other nonionic surfactants with similar HLB

<EMULMIN LCA>

- Used as detergent base. Excellent lowering property of surface tension and foam stabilizing property

| Product Name | Composition | Appearance (20±5°C) | HLB | pH ^{*1} |
|----------------|---|-----------------------------------|------|-------------------|
| EMULMIN 40 | Polyoxyethylene oleyl ether or cetyl ether | Pale yellow liquid | 8.0 | 7.0 |
| EMULMIN 50 | | Straw-colored liquid | 9.0 | 6.5 |
| EMULMIN 70 | | Pale straw-colored liquid | 10.8 | 5.0 |
| EMULMIN 110 | | Pale yellow paste | 13.2 | 7.0 |
| EMULMIN 140 | | Pale yellow paste to solid | 14.2 | 7.0 |
| EMULMIN 180 | | White to pale yellow paste | 15.1 | 7.0 |
| EMULMIN 200 | | Pale yellow solid | 15.5 | 7.0 |
| EMULMIN 240 | | White to pale yellow solid | 16.1 | 7.0 |
| EMULMIN CC-100 | Polyoxyethylene cetyl ether | White to pale yellow wax | 13.3 | 6.5 ^{*2} |
| EMULMIN CC-130 | | White to pale yellow solid | 14.1 | 6.0 |
| EMULMIN CC-150 | | White to pale yellow wax | 15.1 | 6.5 ^{*2} |
| EMULMIN CC-200 | | White to pale yellow wax | 15.7 | 6.0 ^{*2} |
| EMULMIN FL-80 | Polyoxyalkylene lauryl ether | Colorless to pale yellow liquid | - | 6.5 |
| EMULMIN FL-100 | | Colorless to pale yellow liquid | - | 7.0 |
| EMULMIN HL-80 | | Colorless to pale yellow liquid | - | 7.0 |
| EMULMIN HL-100 | | Colorless to pale yellow liquid | - | 7.0 |
| EMULMIN L-380 | Polyoxyethylene lauryl ether | White solid | 17.7 | 7.0 |
| EMULMIN L-90-S | | White solid to pale yellow liquid | 13.2 | 7.0 |
| EMULMIN LS-80 | | Colorless to pale yellow paste | 13.1 | 7.0 |
| EMULMIN LS-90 | | Colorless to pale yellow paste | 13.6 | 6.5 |
| EMULMIN NL-70 | | Colorless to pale yellow liquid | 12.4 | 6.5 |
| EMULMIN NL-80 | | Pale yellow liquid | 13.1 | 6.5 |
| EMULMIN NL-90 | | Pale yellow liquid | 13.6 | 6.5 |
| EMULMIN NL-100 | | Pale yellow liquid | 14.0 | 6.5 |
| EMULMIN NL-110 | | White solid | 14.4 | 6.5 |
| EMULMIN LCA-10 | Polyoxyalkylene alkylamine | Straw-colored to brown liquid | - | 8.0 |

*1 1 wt % aq solution *2 5 wt % aq solution

SANWAX, VISCOL Products

SANWAX (polyethylene-type wax) and VISCOL (polypropylene-type wax) have moderate hardness & high softening point equivalent to those of polyethylene or polypropylene and excellent dispersibility of pigments. Generally incompatible with resins except polyolefins. Having low melt viscosities approximately equal to those of paraffin wax. Widely used as dispersant for pigments or fillers, binders for ink, anti-sagging agent for coatings, abrasive and flowability improver, releasing agent, softening point enhancer, abrasion resistance improver, flattini agent and lubricants, etc.

| Product Name | Appearance (20±5°C) | Color ^{*1} | Viscosity mPa · s (140°C) | Softening Point ^{*2} °C | Penetration Hardness ^{*3} | Acid Value | Specific Gravity ^{*4} (20°C) | Mn ^{*5} |
|---------------------|------------------------|---------------------|---------------------------------|--|---------------------------------------|---------------|---|----------------------|
| SANWAX 171-P | White powder | 30 | 180 | 107 | 4.5 | - | 0.92 | 1,500 |
| SANWAX 151-P | White powder | 30 | 290 | 107 | 4 | - | 0.92 | 2,000 |
| SANWAX 131-P | White powder | 30 | 1,000 | 108 | 3.5 | - | 0.92 | 3,500 |
| SANWAX 161-P | White powder | 30 | 4,200 | 111 | 2 | - | 0.92 | 5,000 |
| SANWAX LEL-250 | Pale yellow pellet | 50 | 600 | 124 | <1 | - | 0.95 | 3,000 |
| SANWAX LEL-400P(EX) | White powder | 50 | 650 | 128 | 1 | 1 | 0.96 | 4,000 |
| SANWAX E-310 | Pale yellow pellet | 100 | 300 | 100 | 5 | 15 | 0.93 | 2,000 |
| SANWAX E-330 | Pale yellow pellet | 100 | 850 | 104 | 4 | 17 | 0.94 | 2,000 |
| SANWAX E-250P | Pale yellow powder | 1 ^{*6} | 320 | 106 | 5 | 16 | 0.95 | 2,000 ^{*8} |
| VISCOL 330-P | White powder | 200 | 4,000 ^{*7} | 153 | <1 | - | 0.89 | 15,000 ^{*8} |
| VISCOL 440-P | White powder | 200 | 1,800 ^{*7} | 153 | <1 | - | 0.89 | 9,000 ^{*8} |
| VISCOL 550-P | White powder | 200 | 200 ^{*7} | 152 | <1 | - | 0.89 | 4,000 |
| VISCOL 660-P | White powder | 1 ^{*6} | 70 ^{*7} | 145 | 1.5 | - | 0.89 | 3,000 |

^{*1} Molten, APHA ^{*2} Measured according to ASTM E28 (ring and ball method) ^{*3} Measured according to ASTM D 1321 (100g, 5s, 25°C)
^{*4} Measured according to ASTM D 792 ^{*5} Number average molecular weight/vapor pressure osmometry ^{*6} Molten, gardner
^{*7} Measured at 160°C ^{*8} GPC method

UMEX Products

UMEX products are a series of acid modified low-molecular-weight polyolefin containing carboxylic anhydride groups as the functional groups. These products have higher degrees of modification and lower melt viscosity compared with conventional acid modified polyolefin. Polyolefins blended with UMEX excel in dispersibility of both pigments and fillers in resins, readily adhere to other materials, and make paints readily adherable to resulting resins. Moreover, the products are very effective as modifiers for hot melt adhesives.

| Product Name | Main Chain Composition ^{*1} | Appearance (20±5°C) | Viscosity mPa · s (160°C) | Softening Point ^{*2} °C | Acid Value ^{*3} | Specific Gravity ^{*4} (20°C) |
|--------------|---|------------------------|---------------------------------|--|--------------------------|---|
| UMEX 100TS | PP | Pale yellow powder | 120 | 148 | 3.5 | 0.89 |
| UMEX 110TS | PP | Pale yellow powder | 135 | 145 | 7 | 0.89 |
| UMEX 1001 | PP | Yellow granule | 15,000 | 153 | 26 | 0.95 |
| UMEX 1010 | PP | Yellow granule | 6,000 | 145 | 52 | 0.95 |

^{*1} PP: Polypropylene ^{*2} Measured according to ASTM E28 (ring and ball method) ^{*3} Measured according to ASTM D1386 ^{*4} ASTM D 792

PELESTAT Products

Proprietary block copolymer composed of hydrophilic and lipophilic segments. Permanent antistatic agent. Imparting a permanent antistatic property independent on humidity right after molding (e.g. injection molding and extrusion molding). We offer wide selections of PELESTAT for polystyrenes such as ABS, polyolefins or others.

| Product Name | Appearance (20±5°C) | mp ^{*1} °C (°F) | MFR ^{*2} g (10min) | Surface Resistivity ^{*3} Ω | Td ^{*4} °C (°F) | Typical Applied Resins |
|-----------------|------------------------|-----------------------------|--------------------------------|--|-----------------------------|--|
| PELESTAT NC6321 | Pale yellow pellet | 203 (397) | 20 (215°C) | 1×10 ⁹ | 285 (545) | ABS, HIPS, PBT, Nylon, PC/ABS-alloy |
| PELESTAT NC7530 | Pale yellow pellet | 176 (349) | 10 (190°C) | 2×10 ⁹ | 280 (536) | Polystyrenes such as MS |
| PELESTAT 300 | Pale yellow pellet | 135 (275) | 30 (190°C) | 1×10 ⁸ | 240 (464) | Polyolefins |
| PELESTAT 230 | Pale yellow pellet | 163 (325) | 12 (190°C) | 5×10 ⁷ | 250 (482) | Polyolefins |
| PELESTAT VH230 | Pale yellow pellet | 163 (325) | 9 (190°C) | 5×10 ⁷ | 250 (482) | For films or sheets of polyolefins, etc. |

^{*1} Melting point ^{*2} ASTM D 1238 (under 21.18N) ^{*3} ASTM D 257 ^{*4} Starting thermal degradation temperature measured by TG-DTA, in the air

PELECTRON Products

Permanent antistatic agent with lower-resistivity type of PELESTAT. Imparting excellent antistatic properties to electrostatic diffusion region (surface resistivity 10⁸-10⁹Ω) and preventing problems caused by static electricity including destruction of electronic circuits, electric shock, appliance malfunctions and dust adhesion.

| Product Name | Appearance (20±5°C) | mp ^{*1} °C (°F) | MFR ^{*2} g (10min) | Surface Resistivity ^{*3} Ω | Td ^{*4} °C (°F) | Typical Applied Resins |
|---------------|------------------------|-----------------------------|--------------------------------|--|-----------------------------|--|
| PELECTRON AS | Pale yellow pellet | 195 (383) | 30 (215°C) | 4×10 ⁶ | 285 (545) | ABS, HIPS, PBT, Nylon, PC/ABS-alloy |
| PELECTRON PVL | Pale yellow pellet | 135 (275) | 15 (190°C) | 3×10 ⁶ | 250 (482) | For films or sheets of polyolefins, etc. |

^{*1} Melting point ^{*2} ASTM D 1238 (under 21.18N) ^{*3} ASTM D 257 ^{*4} Starting thermal degradation temperature, measured by TG-DTA, in the air

■ SANNIX Products

"SANNIX" is the trade name of the first polyether polyols for polyurethane foam in Japan that we developed in 1960.
We offer a wide variety of SANNIX for various applications such as super flexible, flexible, semi-rigid and rigid polyurethane foams.

| FG ^{*1} | Product Name | Composition | | No. | Number Average Molecular Weight (Mn) | | | | | | Property | |
|------------------|--------------|--------------------------|------------------------------|-------|--------------------------------------|-----------|------------|-------------|-------------|--------|----------|--------------------------|
| | | Active Hydrogen Compound | Alkylene Oxide ^{*2} | | - 300 | 300 - 600 | 600 - 1000 | 1000 - 2000 | 2000 - 3000 | > 3000 | OHV | Viscosity mPa · s (25°C) |
| 2 | SANNIX PL | Propylene glycol | EO/PO | 2100 | | | | | ● | | 44 | 450 |
| | SANNIX PP | Propylene glycol | PO | 200 | ● | | | | | | 560 | 60 |
| | | | | 400 | | ● | | | | | 280 | 70 |
| | | | | 600 | | ● | | | | | 187 | 85 |
| | | | | 950 | | | ● | | | | 118 | 140 |
| | | | | 1000 | | | ● | | | | 112 | 145 |
| | | | | 1200 | | | | ● | | | 98 | 165 |
| | | | | 2000 | | | | ● | | | 56 | 305 |
| | | | | 3000 | | | | | ● | | 35 | 590 |
| | | | | 4000 | | | | | | ● | 27 | 990 |
| 3 | SANNIX GL | Glycerin | EO/PO | 3000 | | | | | ● | | 54 | 520 |
| | SANNIX GP | Glycerin | PO or EO/PO | 250 | ● | | | | | | 670 | 950 |
| | | | | 400 | | ● | | | | | 400 | 365 |
| | | | | 600 | | ● | | | | | 280 | 275 |
| | | | | 700 | | | ● | | | | 240 | 250 |
| | | | | 1000 | | | ● | | | | 160 | 255 |
| | | | | 1500 | | | | ● | | | 112 | 300 |
| | | | | 3000 | | | | | ● | | 56 | 500 |
| | | | | 3000V | | | | | ● | | 56 | 510 |
| | | | | 3030 | | | | | ● | | 55 | 475 |
| | | | | 3700M | | | | | | ● | 45 | 645 |
| | | | | 4000 | | | | | | ● | 42 | 660 |
| | SANNIX TP | Trimethylol propane | PO | 400 | | ● | | | | | 395 | 700 |
| | SANNIX AP | Aliphatic amine | PO | 470 | | ● | | | | | 360 | 350 |

Continued on the next page →

| FG ^{*1} | Product Name | Composition | | No. | Number Average Molecular Weight (Mn) | | | | | | Property | |
|------------------|--------------|--------------------------------------|------------------------------|-------------------|--------------------------------------|-----------|------------|-------------|-------------|--------|----------|--------------------------|
| | | Active Hydrogen Compound | Alkylene Oxide ^{*2} | | - 300 | 300 - 600 | 600 - 1000 | 1000 - 2000 | 2000 - 3000 | > 3000 | OHV | Viscosity mPa · s (25°C) |
| 6 | SANNIX SP | Sorbitol | PO | 750 | | | ● | | | | 490 | 16,000 ^{*3} |
| Non-disclosure | SANNIX HS | Sucrose | PO | 209 | | | | | | | 452 | 6,000 |
| | | | | 211 | | | | | | | 380 | 1,590 |
| | SANNIX HM | Aromatic amine-based | EO/PO | 551 | | | | | | | 400 | 22,500 |
| | SANNIX NE | Apliphatic amine-based | EO | 240 | | | | | | | 970 | 3,700 |
| | SANNIX NP | Apliphatic amine-based | PO | 300 | | | | | | | 755 | 1,680 ^{*4} |
| | SANNIX HD | Pentaerythritol-based | PO | 402 | | | | | | | 404 | 1,800 |
| | SANNIX FA | Proprietary active hydrogen compound | - | 103 | | | | | | | 50 | 730 |
| | | | | 226 | | | | | | | 60 | 450 |
| | | | | 311E | | | | | | | 42 | 970 |
| | | | | 702 | | | | | | | 38 | 900 |
| | | | | 703 | | | | | | | 33 | 910 |
| | | | | 718 | | | | | | | 29 | 800 |
| | | | | 757 | | | | | | | 32 | 1,100 |
| | | | | 921 | | | | | | | 28 | 1,155 |
| | | | | 951 | | | | | | | 34 | 800 |
| | | | | 7030 | | | | | | | 28 | 1,300 |
| | SANNIX KC | - | - | 714 | | | | | | | 31 | 1,270 |
| | | | | 720 | | | | | | | 34 | 880 |
| | | | | 745 | | | | | | | 34 | 900 |
| | | | | 900 ^{*5} | | | | | | | 22 | 4,800 |

Besides, we developed "PRIMEPOL", which are propylene oxide adducts of propylene glycol or glycerin with high primary hydroxyl content, more than 70% by only propylene oxide.

*1 Number of functional group *2 EO: Ethylene oxide/PO: Propylene oxide *3 Viscosity[mPa · s (30°C)]

*4 Kinetic viscosity[mm²/s (50°C)] *5 Polymer polyol

NEWPOL 50HB, LB, 75H-90000, V Products

Used for wetting agent, moisturizer, releasing lubricant, deformer, raw material for lubricant or hydraulic oil, emulsion breaker or heating medium.

| FG ^{*1} | Product Name | Composition | | No. | Property | | | |
|------------------|--------------|--------------------------|------------------------------|-------------------|------------------|--------------------------------------|---------------------|---------------|
| | | Active Hydrogen Compound | Alkylene Oxide ^{*2} | | Mn ^{*3} | Kinetic Viscosity mm ² /s | | Pour Point °C |
| | | | | | | (20°C) | (40°C) | |
| 1 | NEWPOL 50HB | Monoalcohol | EO/PO | 55 | 300 | 16 | 8 | ≦-50 |
| | | | | 100 | 510 | 43 | 19 | ≦-50 |
| | | | | 260 | 970 | 119 | 51 | -49 |
| | | | | 400 | 1,340 | 192 | 80 | -48 |
| | | | | 660 | 1,800 | 343 | 127 | -45 |
| | | | | 2000 | 3,200 | 1,004 | 398 | -35 |
| | | | | 5100 | 3,750 | 2,263 | 925 | -30 |
| | NEWPOL LB | Monoalcohol | PO | 65 | 340 | 18 | 9 | ≦-50 |
| | | | | 285 | 1,170 | 161 | 59 | ≦-50 |
| | | | | 300X | 1,170 | 171 | 65 | ≦-50 |
| | | | | 385 | 1,480 | 190 | 80 | -43 |
| | | | | 625 | 1,870 | 325 | 120 | -40 |
| | | | | 650X | 1,870 | 344 | 130 | -40 |
| | | | | 1715 | 2,390 | 980 | 335 | -38 |
| | | | | 1800X | 2,390 | 1,014 | 351 | -38 |
| | | | | 3000 | 3,070 | 1,665 | 610 | -30 |
| 2 | NEWPOL 75H | Hexylene glycol | EO/PO | 90000 | 14,000 | 56,200 | 19,000 | -3 |
| - | NEWPOL V | Multi-functional alcohol | EO/PO | 10-C | 22,400 | - | 3,300 ^{*4} | -10 |
| | | | | 22F ^{*5} | - | - | 1,950 | - |

*1 Number of functional group *2 EO: Ethylene oxide/PO: Propylene oxide *3 Number average molecular weight

*4 100°C Kinetic viscosity[mm²/s(100°C)] *5 50 wt % aq solution

NEWPOL PE Products

Used for detergent, raw-material for detergent, quasi-drugs, textile agent, emulsifier, dispersant, solubilizer or antistatic agent.

| FG ^{*1} | Product Name | Composition | No. | Property | | | | |
|------------------|--------------|--|-----|---------------------|------------------|-----------------------------|-------------------|------------------|
| | | | | Appearance (20±5°C) | Color (hazen) | Cloud Point (°C) 1% aq sol. | Fleezing Point °C | Mn ^{*4} |
| 2 | NEWPOL PE | Polyoxyethylene - Polyoxypropylene Block Polymer | 34 | Colorless liquid | 10 | 63 | -1 | 1,700 |
| | | | 61 | Colorless liquid | 10 | 24 | -30 | 2,000 |
| | | | 62 | Colorless liquid | 10 | 30 | -4 | 2,400 |
| | | | 64 | Colorless paste | 10 | 59 | 15 | 3,100 |
| | | | 68 | White flake | 10 ^{*2} | 113 ^{*3} | 53 | 8,000 |
| | | | 71 | Colorless liquid | 10 | 20 | -30 | 2,200 |
| | | | 74 | Colorless paste | 10 | 56 | 15 | 3,100 |
| | | | 75 | Colorless paste | 10 | 69 | 17 | 3,500 |
| | | | 78 | White flake | 10 ^{*2} | 110 ^{*3} | 54 | 9,400 |
| | | | 108 | White flake | 10 ^{*2} | 105 ^{*3} | 57 | 16,000 |

*1 Number of functional group *2 25 wt % aq solution *3 Measured in a sealed tube *4 Number average molecular weight

NEWPOL BP, BPE Products

Used for raw material for resins or organic intermediate, resin improver, etc.

| FG ^{*1} | Product Name | Composition | | No. | Property | | | | |
|------------------|--------------|--------------------------|------------------------------|------|------------------|----------------------------------|-----|------------------|--------------------------|
| | | Active Hydrogen Compound | Alkylene Oxide ^{*2} | | Mn ^{*3} | Appearance (20±5°C) | OHV | Color (hazen) | Viscosity mPa · s (60°C) |
| 2 | NEWPOL BP | Bisphenol A | PO | 2P | 350 | Pale yellow liquid ^{*4} | 322 | 40 | 1,600 |
| | | | | 23P | 400 | Colorless liquid ^{*4} | 310 | 20 | 1,230 |
| | | | | 3P | 530 | Colorless liquid | 280 | 20 | 800 |
| | | | | 5P | 560 | Colorless liquid | 211 | 10 | 180 |
| | NEWPOL BPE | | EO | 20 | 330 | White block | 343 | 30 ^{*5} | |
| | | | | 20NK | 325 | White block | 345 | 30 ^{*5} | |
| | | | | 20T | 320 | White granule | 349 | 10 ^{*5} | |
| | | | | 40 | 410 | Colorless liquid | 276 | 20 | 278 |
| | | | | 60 | 490 | Colorless liquid | 228 | 10 | 174 |
| | | | | 100 | 670 | Colorless liquid | 167 | 10 | 120 |
| | | | | 180 | 1,020 | Colorless liquid | 110 | 10 | 130 |

*1 Number of functional group *2 PO: Propylene oxide/EO: Ethylene oxide *3 Number average molecular weight/calculated by OHV

*4 Solid at 20°C *5 Molten, measured at 110°C

NEWPOL PP, GP Products

Used as wetting agent for cosmetics, moisturizer, surfactants, raw material for cosmetics, surfactants, synthetic lubricants or releasing lubricant

| FG ^{*1} | Product Name | Composition | No. | Property | | | | |
|------------------|--------------|--|------|---------------------|-----|--------------------------|------------------|----------------------------|
| | | | | Appearance (20±5°C) | pH | Viscosity mPa · s (25°C) | Mn ^{*2} | Specific Gravity (20/20°C) |
| 2 | NEWPOL PP | Propylene oxide adduct of propylene glycol | 200 | Colorless liquid | 6.0 | 60 | 200 | 1.015 |
| | | | 400 | Colorless liquid | 6.0 | 70 | 400 | 1.013 |
| | | | 600 | Colorless liquid | 6.5 | 85 | 600 | 1.020 |
| | | | 950 | Colorless liquid | 6.5 | 140 | 950 | 1.009 |
| | | | 1000 | Colorless liquid | 6.5 | 145 | 1,000 | 1.009 |
| | | | 1200 | Colorless liquid | 6.5 | 165 | 1,150 | 1.008 |
| | | | 2000 | Colorless liquid | 6.5 | 305 | 2,000 | 1.006 |
| | | | 3000 | Colorless liquid | 6.5 | 590 | 3,200 | 1.005 |
| | | | 4000 | Colorless liquid | 6.5 | 950 | 4,150 | 1.004 |
| | | | | | | | | |
| 3 | NEWPOL GP | Propylene oxide adduct of glycerin | 250 | Colorless liquid | 6.0 | 950 | 250 | 1.088 |
| | | | 400 | Colorless liquid | 6.5 | 365 | 420 | 1.055 |
| | | | 600 | Colorless liquid | 6.5 | 275 | 600 | 1.042 |
| | | | 1000 | Colorless liquid | 6.5 | 255 | 1,050 | 1.025 |
| | | | 3000 | Colorless liquid | 6.5 | 500 | 3,000 | 1.012 |
| | | | 4000 | Colorless liquid | 6.5 | 660 | 4,000 | 1.011 |
| | | | | | | | | |

*1 Number of functional group *2 Number average molecular weight/calculated by OHV

■ PEG Products (Polyethylene glycol)

Used in many industries, such as intermediates for the manufacture of surfactants, plasticizers, lubricants, etc.

| Product Name | Mn ^{*1} | OHV ^{*2} | Color (hazen) | Appearance (20±5°C) | pH ^{*3} | Fleezing Point °C |
|--------------|------------------|-------------------|------------------|------------------------|------------------|----------------------|
| PEG-200 | 200 | 563 | 10 | Colorless liquid | 5.5 | <-35 |
| PEG-300 | 300 | 372 | 10 | Colorless liquid | 5.5 | -10 |
| PEG-400 | 400 | 281 | 10 | Colorless liquid | 5.5 | 7 |
| PEG-600 | 600 | 187 | 10 | Colorless liquid | 5.5 | 20 |
| PEG-1000 | 1,000 | 112 | 10 ^{*4} | Wax | 6.5 | 37 |
| PEG-1500 | 550 | 207 | 10 ^{*4} | Paste | 5.5 | 40 |
| PEG-1540 | 1,450 | 79 | 10 ^{*4} | Wax | 6.0 | 45 |
| PEG-2000 | 2,000 | 56 | 10 ^{*4} | Wax | 5.5 | 51 |
| PEG-4000N | 3,100 | 36 | 10 ^{*4} | White flake | 6.5 | 55 |
| PEG-4000S | 3,400 | 33 | 10 ^{*4} | White flake | 6.5 | 56 |
| PEG-6000P | 8,300 | 14 | 10 ^{*4} | White powder | 7.0 | 61 ^{*5} |
| PEG-6000S | 8,300 | 14 | 10 ^{*4} | White flake | 6.5 | 61 ^{*5} |
| PEG-10000 | 11,000 | 10 | 10 ^{*4} | White flake | 6.5 | 62 ^{*5} |
| PEG-13000 | 13,000 | 8.6 | 10 ^{*4} | White flake | 6.5 | 62 ^{*5} |
| PEG-20000 | 20,000 | 5.6 | 10 ^{*4} | White flake | 7.0 | 63 ^{*5} |
| PEG-20000P | 20,000 | 5.6 | 10 ^{*4} | White powder | 7.0 | 63 ^{*5} |

^{*1} Number average molecular weight/calculated by OHV ^{*2} Hydroxyl value by acetylation ^{*3} 5 wt % aq solution

^{*4} 25 wt % aq solution ^{*5} Melting point

*Details are described in following leaflets (PRODUCT OUTLINE) depending industries.
Besides, some products have Individual brochure or Products brochures. (Please refer to the INDEX)

1 PERFORMANCE CHEMICALS FOR SYNTHETIC RESIN & RUBBER INDUSTRIES AND PAINT, INK & PIGMENT INDUSTRIES

- 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 Thickeners 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 Pharmaceuticals
- 1. Tablet Binders
 - 2. Base Materials for Ointments
 - 3. Coating Agents for Tablets
 - 4. Germicides (Pharmaceutical Use)
 - 5. Other Products for Pharmaceuticals
- Performance Chemicals for Agrichemicals
- 1. Dispersants for Agrichemical Granule Preparations
- Performance Chemicals for Detergents
- 1. Base Materials for Detergents
 - 2. Germicides (Industrial Use)
 - 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 Crushpad 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. Lubricants 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 Accelerator
- 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. Emulsifying Agent/Solubilizing Agent/Dispersing Agent
- 3. Conditioning Agents/Styling Agents
- 4. Thickeners/Gelling Agents/Film-Forming Agents
- 5. Moisturizing Agents/Moistening Agents
- 6. Antibacterial/Anticeptic

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

Examples of Sanyo Chemical Nonionic Surfactants The List of their HLB



HLB (Hydrophile-Lipophile Balance) is a numerical value which represents a balance between hydrophilic groups and lipophilic groups in molecules of surfactants from 0 to 20.
The higher the HLB value, the more hydrophilic (water-soluble) the surfactant.

| | HLB | Synthetic Alcohol-based | | | | | |
|-------------|-------------|-------------------------|--------|-----------------|-------------------|-----------------|-------------------|
| | | NAROACTY | | SANNONIC | | SEDORAN | |
| | | Primary Alcohol | | Primary Alcohol | Secondary Alcohol | Primary Alcohol | Secondary Alcohol |
| Lipophilic | 1.8 - 2.0 | | | | | | |
| | 4.0 - 4.3 | | | | | | |
| | 4.7 | | | | | | |
| | 5.7 | | CL-20 | | | | |
| | 6.0 - 6.2 | | | | | | SF-506 |
| | 6.6 | | | | | | |
| | 7.3 | | | | | | |
| | 8.0 - 8.2 | ID-40 | | | SS-30 | | |
| | 8.3 - 8.6 | | | | | | |
| | 8.9 - 9.0 | | CL-40 | | | | |
| Hydrophilic | 10.0 - 10.2 | | CL-50 | | | | |
| | 10.5 - 10.6 | | | | SS-50 | | |
| | 10.9 | | | | | | |
| | 11.7 | | CL-70 | FN-80 | | FF-180 | |
| | 12.0 | | | | SS-70 | | |
| | 12.3 - 12.4 | ID-60 | | | | FF-200 | |
| | 12.6 | | CL-85 | FN-100 | | | |
| | 12.9 - 13.0 | | | | | FF-210 | |
| | 13.1 - 13.2 | ID-70 | CL-95 | DE-70 | SS-90 | | |
| | 13.3 - 13.4 | | CL-100 | | | | |
| | 13.6 | | | | | | |
| | 13.8 - 14.0 | | | FN-140 | | FF-220 | |
| | 14.1 - 14.3 | | CL-120 | | | | |
| | 14.5 | | | | SS-120 | | |
| | 14.7 - 14.9 | | CL-140 | | | | |
| | 15.0 - 15.3 | | CL-160 | | | | |
| | 15.5 - 15.7 | | | | | | |
| | 16.0 | | CL-200 | | | | |
| | 16.6 - 16.7 | | | | | | |
| | 17.8 | | CL-400 | | | | |

How to see the table
The second line shows the trade names of products, and each product number is in the corresponding cell in the following lines after line 4.
For example, the cell at column 3/line 11 represents NAROACTY ID-40. The cell at column 6/line 11 represents SANNONIC SS-30.

| Natural Alcohol-based | | | | | Fatty Acid Ester-based | | Pluronic |
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| EMULMIN | | | | | IONET | | NEWPOL |
| -C12- | C12-C14 | -C16- | C16-C18 | -C18- | PEG Ester | Sorbitan | |
| | | | | | | S-85 | PE-61 PE-71 |
| | | | | | | S-80 | PE-62 |
| | | | | | | S-60V | |
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| | | | | | DL-200 | | |
| | | | | | DS-300 | | |
| | | | 40 | | DS-400 | | PE-34 PE-64 PE-74 |
| | | | | | MO-200 DO-400 | S-20 | |
| | | | 50 | CO-50 | | | |
| | | | | | | | PE-75 |
| | | | | | DO-600 | | |
| | | | 70 | | | | |
| | | | | | MO-400 | | |
| | | | | | MS-400 | | |
| NL-70 | | | | CO-100 | | | |
| FL-80 HL-80 | | | | | | | |
| FL-100 HL-100 | | CC-100 | | | DO-1000 | | |
| LS-80 NL-80 | L-90-S | | 110 | | | | |
| | | | | | | | |
| LS-90 NL-90 | | | | | | | |
| NL-100 | | | | | MO-600 | | |
| | | CC-130 | 140 | | | | |
| NL-110 | | | | | | | |
| | | CC-150 | | | | T-60V | |
| | | | 180 | | | T-80V | PE-108 PE-128 |
| | | CC-200 | 200 | | MS-1000 | | PE-68 PE-78 |
| | | | 240 | | | | |
| | | | | | DS-4000 | T-20C | |
| | L-380 | | | | | | |

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Subsidiaries and Affiliates

San Nopco Co., Ltd.

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Manufacture and sales of industrial agents for pulp & paper, paints, latex, ceramics, and electronics

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- Dispersant
- Wetting agent/Emulsifier
- Rheology modifier
- Water retention aid/Rheology improver
- Surface control agent
- Leveling agent/Tackifier
- Preservative/Anti-fouling agent
- Foam stabilizer/Rust preventive
- Water repellent agent/
Fluorescence brightening improver
- Surface sizing agent/Flame retardant
- Conducting agent/
Dimensional stabilizer

Coating Chemicals (Non aqueous)

- Defoamer
- Dispersant
- Leveling agent/Tackifier
- Ultraviolet curing compound

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- Defoamer
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 - for electronic component manufacturing process
 - for exterior siding board making process
 - for cement
 - for metal treatment process
 - for waster water treatment
 - for paper manufacturing process
 - Kraft pulp washing process
 - Paper making process
 - Pulp cleaning process
 - Bleaching process
 - Waste water treatment
- Dispersant
 - for fine ceramics manufacturing process
 - for pigment (inorganic, organic)
- Lubricant for fine ceramics manufacturing process
- Emulsifier
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- For powder coating

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- Scorch inhibitor
- Desiccant for urethane coatings, sealants

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