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Product guide



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Alcohols

n-Butanol – improving coating properties

This product is used to make acrylate monomer, which is used in the production of latexes for waterborne surface coatings and improves binding properties. It is also used as a starter for butylacetate which functions as a solvent for polyurethane based coatings, as a process solvent in production of chemicals and pharmaceuticals and as a co-solvent in water based coatings. n-Butanol is further used as a direct solvent and as an intermediate in the manufacture of chemicals such as butylglycol-ether and amino resins.

2-EH (2-Ethylhexanol) – enhancing with additives

The main application of this colorless liquid is esterification with phthalic anhydride to produce the general-purpose plasticizer DOP (Dioctyl Phthalate), which is used as a plasticizer in PVC. 2-EH is also used as a nitrator which improves cetane number in diesel fuel. Further application areas include lube oil additives, acrylates, PVC stabilizers, oil mining chemicals, special plasticizers, herbicides and ester oils.

Isobutanol – essential intermediate

Isobutanol is used as a solvent in coatings, resins and dyes, and as an extractant. It is also an intermediate in the manufacture of chemicals, such as butylacetate, butylglycolether, butylacrylate and amino resins.

CTF (Cyclic Trimethylolpropane Formal) – low-odor & excellent performance

CTF is a monofunctional alcohol supplied as a colorless liquid suitable for making radiation-curable monomers and esters.

The acrylic ester combines low viscosity, low odor, high reactivity and excellent adhesion. CTF is suitable as a lubricant additive.

Aldehydes

Isobutyraldehyde, n-Butyraldehyde & Propionaldehyde – important chemical building blocks

Isobutyraldehyde, n-Butyraldehyde and Propionaldehyde are important chemical building blocks. Isobutyraldehyde is a necessary intermediate in the paint industry, in the production of pharmaceuticals and vitamins and in the manufacture of Neopentyl Glycol. The main applications of n-Butyraldehyde are the production of n-Butanol, 2-Ethylhexanol and 2-Ethylhexanal. It is also useful in the manufacture of polyvinylbutyral and trimethylolpropane. Propionaldehyde is mainly used as an intermediate in the production of propionic acid. Other important applications areas are pharmaceuticals, synthetic flavors and fragrances.

Acids

Formic Acid – tanning, preserving & cleaning

Formic Acid is used in leather tanning (pickling, deliming, pH-adjustment, etc.), commercial cleaning agents and in the preservation and acidification of animal feed. In the production of fishmeal, Formic Acid helps keep the feed fresh and free from salmonella. Large quantities of formic acid are used as an intermediate in various pharmaceuticals and fine chemicals.

2-EHA (2-Ethylhexanoic Acid) – versatile raw material

This important raw material has versatile application uses in specialty plasticizers, corrosion inhibition in automotive coolants, synthetic lubricants, and metal soaps for paint driers and PVC stabilizers. Further application areas for 2-EHA include the pharmaceutical sector and as preservative in the timber industry.



Propionic Acid – food & feed preservation

Major application areas for this product are agriculture and food industries, to preserve animal feed, grain, baked products and cheese. Propionic Acid can be used as free acid or as calcium/sodium salts to improve feed quality, and thus the resulting food quality. Further application areas include ester solvents, pharmaceuticals, herbicides, and synthetic flavors and fragrances.

Phthalic Anhydride – for alkyds, polyesters & plasticizers

This important intermediate is mainly employed in the production of phthalates such as DOP, which is used as a plasticizer in PVC, unsaturated polyesters and alkyd resins used in the coatings industry.

PIA (Purified Isophthalic Acid) – adding clarity & performance

Key raw material PIA is an aromatic di-carboxylic acid with exceptional purity. Resin and coatings formulators employ PIA to enhance the clarity of PET-bottle grade resins, secure superior water and chemical resistance in unsaturated polyesters and improve the property balance for coating resins. With its 1,3 carboxylic acid configuration, PIA helps break crystallinity in PET (polyethylene terephthalate) bottle and fiber grade, which in turn improves clarity and processing. For unsaturated polyester resins (UPRs) and gelcoats, PIA, combined with Neo (Neopentyl Glycol), secures the production of UPRs with superior water resistance and weatherability. These polyesters are generically termed iso-polyesters and they are the mark of quality that boat builders look for in UPRs and gelcoats. PIA is essential in saturated polyesters for liquid and powder coatings.

Organic & Inorganic Salts

Calcium Formate – improves adhesion & open time

Calcium Formate significantly improves the qualities and properties of tile adhesives. This additive increases open time, improves adhesion and is a highly efficient strength accelerator. It is particularly suitable for tile mortars where acceleration and low skin formation is required. It also improves water stability, pliability and homogeneity.

Potassium Formate – environmentally friendly performance

Used in runway deicers, combining low corrosiveness, a low freezing point and high biodegradability. The properties of density, viscosity, toxicity, biodegradability and compatibility with polymers at high temperatures, make Potassium Formate

a unique base for "Clear brine" drilling and completion fluids in high pressure or high temperature wells. Other applications include heat transfer fluids. Its performance is especially valued when a non-toxic alternative is required, i.e. in food applications.

Sodium Formate – versatile & safe

A major application of Sodium Formate is in the production of sodium hydro sulphite/dithionite, a bleaching agent used mainly in the pulp and paper industry. Sodium Formate is also used in several steps of leather tanning, where it acts as a general pH-neutralizer. It is also useful as an environmentally friendly runway deicer and brines of Sodium Formate can increase yields from oil drilling. Two growing application areas are detergents and as an antifreeze agent in concrete.

Sodium Sulphate – a clear winner

Used in glass production, Sodium Sulphate decomposes and facilitates the removal of the last air bubbles in the melt. Another application is as filler in detergents. We also supply Sodium Sulphate to the fertilizer industry. Certain crops such as sugar beets and tomatoes benefit from added sulphur.

Feed Additives

ProSid™ – mold inhibitors, toxin binders

Our ProSid™ feed additives include a number of products that are dedicated to preventing or minimizing mold damage in order to improve livestock health and performance. Their properties have been fully investigated and product formulations have been developed to ensure you achieve optimal results. Our solid and liquid mold inhibitors are based on organic acids and esters of organic acids that prevent mold growth. Our mycotoxin binder comprises a mix of binders that remove toxins by absorbing them so they can be readily excreted. Our mycotoxin binders also support the immune system to minimize the negative effects of mycotoxins in livestock.

ProPhorce™ – acidifiers & bacterial inhibitors

Our ProPhorce™ feed additives include a number of solid and liquid products that are dedicated to stomach acidification and bacterial inhibition in order to improve performance and farm productivity. They comprise either organic acids or organic acids combined with essential oils and esters of organic acids. Their properties have been investigated and product formulations have been developed to ensure you achieve optimal results. Individual additives are tailored to enhance gut health both for poultry and swine.

ProFare™ – enzymes for non-starch saccharides

Not all grains used as feed or part of a feed mix are of comparable nutritional value to animals. This is because these grains contain non-starch saccharides that cannot be broken down to simpler sugars by enzymes in the gastrointestinal tract (GIT) of your livestock. Our solution to the problem of non-starch saccharides is an enzyme product line called ProFare™ that catalyzes the breakdown of various indigestible saccharides.

ProTain™ – highly effective antioxidants

Oxidation of feed ingredients is a common problem in the feed industry. Our solution to the problem of oxidation is an antioxidant product line called ProTain™. ProTain™ products prevent the chemical reactions involved in the oxidation process, from taking place.

ProMyr™ – effective silage additives

Our ProMyr™ product range helps prevent and overcome mold and bacteria related problems. Recent research shows that acid-based silage additives are superior in creating an environment where lactic acid bacteria predominate over harmful bacteria. Quick acidification also stops the natural spoilage of proteins in the base material, thereby increasing its nutritional value.

Food Additives

Profina™ – food preservatives for freshness

The Profina™ range includes food-certified sodium and calcium propionates, which keep foodstuffs fresh for a longer period by reducing ingredient oxidation and inhibiting microbial growth. Your breads, pastries, cakes and biscuits are preserved from production to consumption. Profina™ improves the taste and texture of your baked products and is also suitable for use in some cheeses and other food products.

Acetic Acid – launched in the 1880's

Our Acetic Acid, Absolute Pure Vinegar, was launched in the 1880's and soon won prizes for its purity and taste at exhibitions in Chicago, Lübeck, Copenhagen and Gothenburg. This product also helped build the foundation of our chemical business and still bears our historic brand. The product is sold by Swedish retailers.

Plasticizers

Emoltene™ 100 – new generation of plasticizers

This new generation of general purpose plasticizers for PVC is characterized by low viscosity and is highly effective. Emoltene™ 100 performs well in all major PVC applications like cables, flooring, film, coatings and coated fabrics. The low volatility, slow migration and solvent resistance are among the properties that are highly appreciated.

Emoltene™ 244 – specialty plasticizer with low color & low viscosity

This PVC plasticizer is characterized by low viscosity and is highly effective. Emoltene™ 244 offers better cold flex and fusion properties and better tensile strength than other common polyester plasticizers. It is often used in PVC plastisols where its low viscosity helps improve processing. It secures excellent solvent resistance and also has a lower toxicity profile than alternative products.

Polyalcohols

BEPD (Butyl Ethyl Propanediol) – outstanding properties

This solid amorphous (semi-crystalline) diol has a low melting point and contains two primary hydroxyl groups. BEPD is useful in improving performance properties of saturated and unsaturated polyesters. It improves hydrolytic stability, detergent resistance and outdoor durability and important end-use areas include coatings for domestic appliances, coil coatings and automotive coatings.

MPD (Methyl Propanediol) – ideal processing performance & stability

MPD is a liquid diol with two primary hydroxyl groups. It is an ideal component in liquid and powder polyesters and is often combined with Neo. MPD improves processing, reduces glycol losses and provides liquid resins with better storage stability.

Neo (Neopentyl Glycol) – improving resistance & coating properties

Neo, the main diol in saturated polyesters for powder coatings, it imparts good crystallinity and excellent coating properties. Neo is also used in liquid saturated polyesters for coatings, in alkyds and in polyurethanes. In unsaturated polyesters, mainly gel coats, Neo improves water and chemical resistance. Neo has two primary hydroxyl groups and is delivered in solid form as flakes or at an elevated temperature as Neo 90 aqueous solution or a hot melt.

TMP (Trimethylolpropane) – high quality resins & curing agents

This product is an important raw material for high quality industrial resins including saturated polyesters and alkyds. TMP is also widely used in polyurethanes, acrylic/methacrylic esters and alkoxyates. In addition, it is a key component in production of fatty acid esters for synthetic lubricants and in the surface treatment of pigments, primarily TiO₂. TMP has three primary hydroxyl groups, a low melting point and is available in flaked form or as hot liquid.

Glycerine tech – competitive offer for technical applications

Glycerine tech can replace refined glycerine in many technical applications. Our Glycerine tech is a 98% glycerine grade and, unlike crude glycerine, it contains no salt and only minimal water. The use of Glycerine tech in formulations, in place of refined glycerine, is expected to yield the same end-product quality. Our Glycerine tech is a competitive alternative to the fully refined grade, which has been the only option open to formulators until now. It offers a competitive solution for applications such as alkyd resins and for PU-applications.

Di-TMP (Di-Trimethylolpropane) – unique durability & safety

This unique product is increasingly used in environmentally friendly applications. It improves the performance of radiation curing acrylate esters, synthetic lubricants and in micronized form it is useful in PVC stabilizers. Di-TMP, a solid four-functional polyol with a low melting point, also meets your highest demands for outdoor durability in resins for surface coatings.

Penta (Pentaerythritol) – providing versatility & quality

Penta is a tetrafunctional compound of primary hydroxyl groups. The compact structure and high density of hydroxyl groups provide outstanding properties. The main application area is as a branching monomer for alkyd resin, where it yields excellent balance between drying speed, viscosity and water resistance. It also enhances end-product performance in a wide range of applications such as alkyd-based coatings, synthetic lubricants, rosin esters, hot-melt adhesives and explosives. In addition, Penta is used in phenolic antioxidants for polyolefines and in micronized form as a key component in fire-retardant (intumescent) systems and PVC stabilizers.



Di-Penta (Di-Pentaerythritol) – environmentally friendly performance

Di-Penta is a crystalline solid with six primary hydroxyl groups and a high melting point. It is an important raw material for many environmentally friendly applications. It improves properties in radiation curing monomers, synthetic lubricants and high solid alkyds. In micronized form it is useful in fire resistant (intumescent) systems and in lead-free PVC stabilizers.

Micronized Polyalcohols

Micronized and supermicronized Penta, Di-Penta, Di-TMP are used as co-stabilizers for PVC to enable heavy-metal-free systems, avoiding lead and tin.

Alkoxyated Polyalcohols

Broad product range

This range of liquid polyols contains primary hydroxyls when ethoxylated and secondary hydroxyls when propoxylated. They have functionalities from 2 to 6 and OH values of up to approximately 1000 mg KOH/g. The alkoxyate range is used, for example, in low-toxicity, radiation-curing acrylate esters, polyurethanes, alkyds, polyesters and other specialty products. Ethoxylates are used as internal emulsifiers, and propoxylates contribute to excellent hydrolytic stability and improved compatibility.

Nonionic Diol

Ymer™ N120 – providing nonionic stabilization

Ymer™ N120 is a polymeric nonionic hydrophilic building block containing two primary hydroxyl groups and a long ethoxylated capped side chain. It can be built in along the polymer backbone to provide nonionic stabilization of waterborne resins, e.g. polyurethane dispersions, alkyds or polyesters. Nonionic stabilized dispersions display shear and low temperature stability and excellent tolerance towards electrolytes and low pH.

Hydroxy Acids

Bis-MPA (Dimethylolpropionic Acid) – anionic monomer of choice

Bis-MPA is a crystalline solid with two primary hydroxyl groups, one tertiary carboxyl group and a high melting point.

It is a key raw material for anionic polyurethane dispersions for wood, industrial coatings, leather and textile surface finishes. Bis-MPA is also useful in waterborne alkyds, polyesters and in a number of special applications.

Allyl Ethers

APE (Allyl Pentaerythritol) – acrylic cross-linker

APE, the triallylether of Penta, is used as a cross-linker in various acrylic polymers including thickeners and super-absorbents. This liquid product allows you to obtain high gloss polyester and improves surface hardness. It is also useful in emulsion paints and contains three allyl groups and one hydroxyl group.

TMPDE (Trimethylolpropane Diallyl Ether) – excellent direct gloss coatings

TMPDE is used in direct gloss polyester coatings, mainly wood coatings but also for putties in automotive repair, to improve surface hardness. This liquid product contains two allyl groups and one hydroxyl group. It is used in unsaturated polyesters giving excellent coatings for furniture with high build and gloss. Formulations are available for UV curing and peroxide curing. Two grades are available: TMPDE 80 and TMPDE 90.

TMPME (Trimethylolpropane Monoallyl Ether) – enabling hybrid systems

TMPME is Monoallyl Ether of TMP with minimum 98% purity. It is a liquid product containing one allyl group and two hydroxyl groups, so it can be regarded as a diol. TMPME is used in high-tech products to enable hybrid systems. For example, it can be used for cross-linking in automotive coatings or to combine silicone compounds with organic chemicals in various applications.

Caprolactones

Capa™ Caprolactones – spearheading performance in products & processes

Capa™ is our range of caprolactones, comprising monomer and polycaprolactones of varying molecular weight and functionality. Capa™ Polyols are often used in high performance polyurethane coatings, adhesives and elastomeric applications as well as waterborne PUDs. Capa™ Thermoplastics are essential for the production of shoe components for top-quality shoes and modern orthopedic braces. Capa™ Polycaprolactones offer special performance properties thanks to the unique ring-opening addition polymerization route used in their manufacture. This results in low acid values and a very narrow molecular weight distribution for the products when compared to adipate polyesters. We provide

targeted support to develop new grades, application areas and enable the properties of Capa™ products to be exploited fully in the most demanding applications and to the most precise customer specifications.

Coalescing Agents

Coalescers NX 795 & NX 800 – enhancing polymer dispersions

NX 795 is a superior coalescing agent suitable for use in combination with all typical aqueous polymer dispersions. NX 795 promotes uniform film formation with optimal properties, reduces the minimum film-formation temperature and is easy to incorporate. NX 800 is a new coalescing agent with low-odor for fresher and cleaner air without compromising effective performance. Both products ensure optimal results even when applied under less than ideal conditions.

Specialty Polymers

Boltorn™ dendritic polymers – high performance additives

Our range of Boltorn™ dendritic polymers are hyperbranched aliphatic polyester polyols used as property improvers for numerous applications. Our Boltorn™ H311 improves firmness and comfort in automotive seating foam and Boltorn™ P500 helps meeting seating specifications at lower density as well as providing excellent scratch resistance for UV-cured plastic coatings.

Boltorn™ W3000 is an effective air-drying, water-dispersing additive that offers a competitive & environmentally sound solution for partially replacing solvent with water in solventborne paints



Oxymer™ polycarbonate diols – durability & perfect finish for performance polyurethanes

Our range of Oxymer™ polycarbonate diols secures excellent UV and chemical resistance, hydrolytic stability and outdoor durability. The Oxymer™ range extends our contribution to polyurethane formulators with polycarbonate diols at competitive prices. Oxymer™ M, available as M112 and M56, are amorphous highly hydrophobic polycarbonate diols, suitable for low surface energy coatings and beneficial for good wetting characteristics. Oxymer™ C112 is an amorphous polycarbonate diol with a surface energy closer to conventional macrodiols, improved abrasion resistance and flexibility compared to Oxymer™ M112.

Products for Intumescent Fire Protection Systems

Charmor™ for intumescent fire protection system – protecting people & property

The Charmor™ range is used in fire-protective (intumescent) systems. In airports, sports arenas, schools, hospitals and produc-

tion plants the protective power of Charmor™ products facilitates safe evacuation of people and limits structural damage when fire breaks out. Our Charmor™ products are Penta, Di-Penta and Penta/Di-Penta mix, which are micronized or supermicronized.

Bio-based Esters

RME (Rapeseed Oil Methyl Ester) – going green with renewable biofuel

Our RME is a renewable biofuel for diesel engines that can be blended with diesel or replace diesel altogether. Renewable energy sources like RME are good for the environment since they reduce dependency on fossil fuels and decrease global warming. Our new RME plant boasts the most efficient state-of-the-art technology for producing RME and this, combined with our extensive chemistry expertise, ensures that we can deliver RME of the highest available quality. We have the ability to meet Sweden's total RME demand for a 5% blending with standard diesel.



Oxetanes

TMPO (Trimethylolpropane Oxetane) – effective chemical building block & diluent

TMPO is useful as a reactive diluent in cationic UV curing or as a chemical building block. The product is a low-viscous liquid with low toxicity. The molecule contains a four-membered reactive ring and one hydroxyl group. The number of subtypes and applications are improving and developing continuously.

Other Products

Polyol PX – low-cost alternative

Polyol PX, a solid amorphous material at room temperature, is a mix of polyhydric alcohols from the Penta process. The functionality is 2.8 - 3.0 for all primary hydroxyl groups. It is primarily used as a building block for esterification where low cost is more important than color formation. It is used in liquid phenolic resins. Polyol PX is also available in various forms including a 70% aqueous solution for easy handling.

Polyol TD – low-cost alternative, uncompromised performance

Our Polyol TD is now available as a low-cost alternative to di-ethylene glycol and propylene glycol derivatives for applications including the production of esters, functional fluids, high boiling solvents, emulsion paints to control open time and as a carrier for pigment concentrates. It offers an unbeatable performance to price ratio in many different applications. Polyol TD is a mixed polyol with an OH-functionality of ~1,8. It is a non-volatile clear liquid, soluble both in water and in many organic solvents.

m-Xylene – necessary building block for certain specialty chemicals

Meta-xylene is produced using Sorbex technology licensed by UOP. Its major applications are in agrochemicals, pigments, mosquito repellent, inner gas barrier, aroma chemicals, epoxy resin curing agent and pharmaceutical intermediates.

Formox

Formox, a business within our company, is the global leader in formaldehyde technology, accounting for nearly half the new formalin capacity installed worldwide over the past 10 years. We offer a unique combination: own process technology, vast experience of own formaldehyde production, own development, production and sales of high-performance catalysts and dedicated, long-term technical support to our customers. Formalin is a key raw material for adhesives in the wood panel industry and as a building block for a wide variety of chemical industries and processes.





Your Winning Formula

The Perstorp Group, a trusted world leader in specialty chemicals, places focused innovation at your fingertips. Our culture of performance builds on 130 years of experience and represents a complete chain of solutions in organic chemistry, process technology and application development.

Matched to your business needs, our versatile intermediates enhance the quality, performance and profitability of your products and processes. This is how we enable you to meet market demands for safer, lighter, more durable and environmentally sound end-products – for the aerospace, marine, coatings, chemicals, plastics, engineering, and construction industries, as well as automotive, agricultural, food, packaging, textile, paper and electronics applications.

Our chemistry is backed by reliable business practices and a global commitment to responsiveness and flexibility. Consistent high quality, capacity and delivery security are ensured through strategic production plants in Asia, Europe and North America, as well as sales offices in all major markets. Likewise, we combine product and application assistance with the very best in technical support.

As we look to the future, we strive for the development of smarter and safer products and sustainable processes that reduce environmental impact and create real value in new chemical applications. This principle of proactive innovation and responsibility applies not only to our own business, but also to our work with yours. In fulfilling it, we partner with you to create a winning formula that benefits your business – as well as the people it serves.

Discover your winning formula at www.perstorp.com