



Coatings

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Rheology modifiers

Dispersing agents are interface acting substances, which facilitate the dispersion of a substance in powder form, e.g. a pigment or thickener, in a fluid medium. They reduce the interface tension between the contrarily charged components by reloading the surfaces. Thus, in the dispersion process, the agglomerates are broken up and permanently reduced to primary particles, so that re-agglomeration or flocculation (the forming of hard or soft lumps) are prevented and the necessary storage stability of paints and other coating substances is guaranteed. Dispersing agents are used in dispersion paints, ceramics, adhesives, paper-coatings etc, in order to increase the speed of production and storability. Dispex® dispersing agents have both a stabilising and a dispersing effect. Essential for this is ionisation in water. Dispex® dispersing agents can be mixed with water in any proportion. All the dispersing agents in this range are non-viscous fluids that are easy to handle. For the dispersing of inorganic and organic pigments on the basis of polyurethanes and polyacrylates, the series EFKA® 4000 offers for both aqueous and solvent-based paints a large spectrum to prevent flooding, floating and hard-settling. For all industrial paint systems, we recommend special wetting and dispersing agents with controlled flocculation (EFKA® 5000).

Thickeners also belong to the group of rheology modifiers, which influence a whole range of properties of coating substances: viscosity, consistency, workability, water absorption and retention, open time, runniness, removability, stability in storage, water-resistance, sprayability, resistance to spreading, smoothness of flow, washability, resistance to chafing etc. Thickening agents play a crucial role in this, even though their volume is only small as a proportion of the total formulation, and generally lies between 0.5% or less and a maximum of 2.0%. Viscalex® thickeners are fully synthetic and hence possess a high resistance to bacterial attack. Hardened films with Viscalex® thickeners are highly water-repellent. Paints which have been mixed with Viscalex® thickeners demonstrate an increased resistance to rub-off when wet. Unlike the thickeners which operate though being steeped in an aqueous medium and thus increase its viscosity, associative thickeners interact with the dispersions as bonding agents. The thickening which



takes place through the formation of 'micella bridges' is much more pronounced in connection with fine-particle dispersions than with those of coarse particles.

Rheovis® associative thickeners are easy-to-handle, alkali-soluble, acrylate-associative thickeners which facilitate reliable rheology-control in the production of paints, lacquers and dispersions.

Dispex®	Dispersing agents
EFKA®	Wetting- and Dispersing Agents
Viscalex®	Thickeners
Rheovis®	Associative thickeners

Slip- and Levelling agents

Slip- and levelling agents eliminate surface defects and improve the underground wetting. EFKA® 3000 levelling agents are used to remove lacquer defects such as scratches or orange peel. They also prevent the absorption of pigments. The products are suitable for aqueous and solvent-free systems. A distinction is drawn between process additives on basis of polysiloxanes and silicone-free process additives. Additives on basis of polysiloxanes have an excellent compatibility and underground wetting and are therefore also used in applications of high polishes and wood lacquers. The silicone-free process additives are often used in aqueous and not-aqueous coating materials within the decorative range. Don't hesitate to contact us to define which slip- and levelling fits on your application.

EFKA® Slip-and levelling agents



Defoamers

Defoamers prevent the formation of foam and blisters during the manufacturing and application of coatings. Defoamers are surface active substances which eliminate air bubbles before they can cause characteristic surface defects. EFKA® defoamers are available as silicone-based and silicone-free solutions and as concentrates. By addition of EFKA® antifoaming agents (defoamers) a greatest possible effectiveness and compatibility has been shown, in particular in applications with high shearing stresses.

EFKA® Defoamers



Light Stabilisers

Particularly in European latitudes, lacquers are subjected to very severe, frequently changing effects of weather. Damage to the polymer material caused by UV light, oxygen, dampness or air-pollution, can lead to complete detachment of the lacquer from the coated base. This means that the lacquer can no longer fulfil its actual purpose, which is the protection of the substrate, and this leads to the destruction of the substrate. It was the need to avoid this damage that led to the development of light-protective agents. Modern light-protective agents often consist of a combination of UV absorbers and oxygen stabilisers. The selection and blending of the correct light-protective agents is a crucial part of the resistance of lacquers to weather and ageing.

Tinuvin®	UV absorbers
Chimassorb®	UV absorbers
Tinuvin®	HALS (Hindered amine light stabilisers)
Tinuvin®	UV absorbers / HALS blends
Lignostab®	stabilisers for wood lacquers



PU catalysts

Under normal conditions the condensation reaction between isocyanates and polyetherpolyols takes place slowly. Tin-organic catalysts, especially dialcyl-tin compounds, accelerate this process and permit precise control of the polyurethane reaction. The curing conditions of dual-component PUR lacquers can be influenced through tin-catalysts according to your requirements.

Baerostab® PU catalysts

Antioxidants

Antioxidants protect lacquer from unwanted changes caused by oxygen, and act as stabilisers.

Primary antioxidants operate through a radical mechanism with a chain-breaking effect. Secondary antioxidants have a stabilising effect, which relies on an ionizing mechanism, and work by breaking down hydroperoxides.

A combination of the two groups can be used to achieve a synergistic effect.

Irganox®	Primary antioxidants
Irgafos®	Secondary antioxidants

Optical brighteners

Tinopal® are first-class intensifying systems which can be widely used in paints and lacquers, and in a large number of other polymer coatings.

Tinopal®	Optical intensifiers
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Photoinitiators

Photoinitiators are the key compounds in UV-curing lacquer and resin formulations. In a fraction of second, decorative or protective coatings for wood, paper, metal and other surfaces can be fully hardened. Further fields of application are found in optics, adhesive technology, electronics and even medical technology. The advantages of UV-curing systems lie in the low concentration of the substances required, and their high reactivity. Photoinitiators can be used very widely in all lacquer systems, and have a high compatibility with most bonding agents. The Irgacure® and Darocur® systems, proven over many years, provide, on one hand, customized solutions and on the other hand a wide span of applications in all areas of UV curing.

Irgacure®	Photoinitiators
Darocur®	Photoinitiators

Cross-linkers / wetting agents

Wetting agents are used as additives facilitating the formation of an interface between fluids and solids. This plays an important role in many technical processes, and also in biological systems. The products of the EFKA® range are anionic network agents with many properties. They are also suitable as emulsifiers for wax emulsions, emulsion polymerizates and for self-emulsifying concentrates.

Alcopol	Wetting agent
EFKA®	Wetting agent



Algicides

Irgarol® is a range of algicides which is fully compliant with new environmental requirements, without any heavy metals. Irgarol® is used, among other things, for painting ships and represents a new generation of marine paints. Irgarol® and Irgaguard® are also used as additives in paints for external building facades in order to prevent the growth of algae, fungi and lichens.

Irgarol®	Algicides
Irgaguard®	Antimicrobials





Polymer binders

This range of water-soluble polymers produces excellent film-formation by glazes without affecting the viscosity. The bonding agents are supplied as easy-to-handle aqueous solutions.

Glascal® W Polymer binders

Plasticizers

The paint industry is increasingly requested to use more environmentally friendly substances. Epoxidised "vegetable-oil" products are well placed to meet these demands. Vegetable oils can be added or combined to epoxy resins to be adapted to individual uses. The addition of epoxy leads to a significantly higher stabilization effect and to a compatibility with nitrocellulose and other paint binding agents which break down acids that exceeds the normal specifications.

Baerostab® Epoxidised vegetable oil

Organic pigments

Cinquasia®, Chromophtal® and Irgazin® are high-quality organic pigments with excellent light-fastness and high resistance to chemicals and solvents. They are suitable for almost all critical applications.

Cinquasia® Organic pigment powder
 Chromophtal® Organic pigment powder
 Irgazin® Organic pigment powder
 Irgalite® Organic pigment powder

Microlith® pigment preparations can easily be stirred into a large number of organic solvents, lacquers and printing-ink binding agents. The base pigments are present in extraordinary fine particles. This makes the product very versatile and gives it advantages such as good dispersion stability and very strong and light-fast colours.

Microlith® Pigment preparations

Unisperse® are highly concentrated pigment dispersions for all types of water-soluble paints and coatings; they are also suitable for aqueous PUR systems.

Unisperse® Aqueous pigment dispersions

The range is completed by a series of pigments for specialised use in grain-effect coatings for wood.

Orasol® Speciality paints
 Irgasperse® Speciality paints
 Radglo® Effect pigments, luminous pigments

Organic pigments for printing inks

Bodo Möller Chemie offers colour pigments and dispersions for inks and flexo colours. We deliver pigments for printing inks and also for packaging. For the fabrication of printing inks, we offer a large choice for offset, flexo and gravure printing colours. Our pigments for the printing ink industry are specially designed for superior applications. They have a very good dispersibility and product stability, making them to a good choice for numerous applications. Our pigment portfolio also includes substances adequate for UV curing and developing high brilliance. We can offer you perfectly matched systems, including the corresponding pigment and photoinitiator DAROCUR® and IRGACURE® and the ideal levelling and dispersing agent.

CINQUASIA® Organic pigment powder
 IRGALITE® Organic pigment powder
 IRGAZIN® Organic pigment powder
 CROMOPHTAL® Organic pigment powder
 PERGASOL® Organic pigment powder

Matting agents

Acryperl® is an innovative matting agent which is highly effective in low concentration. It is stable by high temperatures and produces no yellowing. It is UV-resistant and has no impact on mechanical properties. Acryperl® can be used in many forms of polymers such as ABS, PVC, PU and TPE.

Through particular demands for particle-creation we can offer matting agents for high-grade thin-coating systems.

Acryperl® Matting agents





Effect pigments: fluorescent pigments

Fluorescent pigments for luminescent paints change through fluorescence the blue and UV domain of the day light in light of bigger wavelength. Typical colours for this are blue-green, yellow and red. It's especially by bad weather and by dawn, when the proportion of blue in light is the highest, that we can obtain bigger contrasts. Our RADGLO® fluorescent pigments are used in lacquers, dispersions and plastics.

RADGLO® Fluorescent pigments

Effect pigments: metallized pigments

METASHEEN® is a range of vacuum-metallized aluminium pigments that provide high-quality coating effects for a variety of end use applications: packaging, varnish, printing inks and cosmetics. Used in printing inks, METASHEEN® pigments can be placed directly on the printing stock enabling individual packaging designs. On surfaces like films or laminated papers, these pigments produce a mirror-like effect. Metallized materials can then be printed normally to obtain further individual effects. METASHEEN® pigments are the only vacuum-metallized pigments available in a dispersing form. They are easy to use, and are characterised by an extraordinary brilliance and by an excellent covering power.

METASHEEN® High brilliance silver aluminium effect pigment



Effect pigments: pearlescent pigments

The pearlescent effect amplifies deepness and outlines and can also be used to accentuate other colours. With special effects, new designs are possible, enabling brand manufacturers and distributors to attract attention on their products. The pearlescent effect can be used alone or as a shade of colour and is adequate for different printing ink systems like flexo, engraving, serigraphy and offset printing. Decorative pearlescent pigments can reproduce the special shine and colours of natural pearls or of metal. By changing the particles size it is possible to match exactly the intended application.

XYMARA™ Pearlescent pigments



Titanium dioxide

Titanium dioxide, TiO₂ by its chemical formula, is the most extensively used white pigment, or colouring agent, in the world, being well established in paint, plastics, printing ink and paper applications. Titanium dioxide is used in coloured products as well as in white paints and plastics, providing coloured paints with hiding power and plastics with opacity. Our Sachtleben TiO₂-Pigments draw out by the good cover strength and the low abrasion. This will be respected especially in the emulsion paint industry and particularly in the decorative coatings industry.

Colour pastes

Our Alco® special colour pastes strikes the right note. For dyeing most diverse plastics, as for example PVC, PMMA, EP, UP, PUR we supply the necessary colour pastes. Equal if customized pastes or the use of special pigments is desired, we supply the necessary colour pastes. By the accurate tuning of pigments and cross-linking agents the Alco® pastes unfold an optimal colour strength.

The compatibility with all usual binders permits a versatile use.

Alco® Colour pastes for the use in PU, EP, PVC, PE, PMMA

Aquaran® Universal colour pastes for aqueous systems



Basic resins

Our epoxy resins and curing systems are the right basis wherever high quality is demanded, tailor-made solutions are sought or more durable and cost-effective corrosion- and weather-proofing for buildings is required.

Modified and unmodified liquid epoxy resins and curing agents

These resins are mainly used in surface protection; typical fields of application are the building industry, ship-painting and applications in the corrosion protection. We offer a large selection of hardeners based on polyamidoamines and polyaminoimidazolins and polyamidoamin adducts, as well as those based on aromatic, aliphatic and cycloaliphatic amines.

CHS Epoxy® Liquid epoxy resins

Telalit® Liquid curing agents



Reactive diluents

Reactive diluents are low-viscosity glycidyl ethers of short-chain aliphatic alcohols or alkylphenols. They are used in the formulation of solvent-free paints and coatings as well as additives in combination with other polymers such as PVC, acrylate resins, and PUR, to improve adhesion and stability against degradation reactions. Our Lapox® portfolio of reactive diluents contains all usual types.

Lapox® Reactive diluents



Solid epoxy resins and curing agents

For solvent-based systems we recommend a selection of solid basic resins and the appropriate types of hardener.

CHS Epoxy® Solid epoxy resins
Telalit® Solid epoxy hardeners

Water-based epoxy resins and curing agents

These water-dispersible resins and hardeners are suitable for dispersion paints for a wide variety of materials.

CHS Epoxy® Water dispersible epoxy resins
Telalit® Water dispersible hardeners

Rosin based resins

Everybody that learnt violin knows about rosin. But of course rosin is not only used to coat the violin elbows, it is also an important component of nature resin lacquers. For rosin based resins there are various areas of application such as in nature resin lacquers and glazes, cements, floor mats, synthetic resins and adhesives. Let us show you.

Abiester™, Abifen™, Abimal™

Rosin based resins



Alkyd resins

Alkyd resin is a synthetic polyester resin that is modified with natural fatty acids and/or oils and/or synthetic fatty acids. The variation options of alkyd resin in structure and composition in the lacquer-technical characteristics is extraordinarily large. The advantage of alkyd resin, opposite other binder systems, is still in the technologically tremendous range of variation. These make possible custom-made products for certain characteristics and areas of application. Furthermore alkyd resin is characterised by a simple workability and application, and not least alkyd resins are still very low-priced. Water-based alkyd resin is becoming more and more popular due to the pressure made by the European Union legislation, and the demand is increasing subsequently. Our new product range Hydrosopol® comprises products such as middle and long oil alkyd resins, which fulfil both the high qualitative requirements and the legal regulations of the VOC guideline.

CHS-Alkyd® Conventional alkyd resins
CHS-Hydrosopol® Waterbased alkyd resins

Calcium carbonates

Calcium carbonates are composed of the crystalline mineral, calcite, which occurs naturally in the form of chalk, limestone or marble. Calcium carbonate is the most significant filler nowadays and one of the most widespread binders on earth. Calcium carbonates are used in many plastic applications in order to ameliorate the mechanical, rheological and optical properties. Calcium carbonates can be processed by crushing and fractionation to suit almost all applications. Some product forms undergo a surface treatment with a stearate ameliorating the processing and the dispersion. A good dispersibility and a high degree of whiteness combined

with positive mineral properties make the use of calcium carbonate as ecological filler inoffensive. It suits perfectly for applications in paints and coatings.

Carbital™ Calcium carbonate on the basis of chalk and marble
Polcarb™ Calcium carbonate on the basis of chalk
Feriaplast Calcium carbonate
ImerCarb™ Coated and uncoated calcium carbonate
Micronic™ Micronized calcium carbonate
Queensfil™ Special calcium carbonate
ImerSeal™ Special calcium carbonate

Dolomite

Dolomite is a calcium magnesium carbonate. Its colours are from white, grey, yellowish to red brown. The colour red brown is a sign of strong alteration. Dolomite is composed of calcite and fine grained sediment. It is used as filler in plastics and paints. The construction materials industry uses it as additive for wet mix aggregate, as filler for bitumen and concrete, as bulking material and filler for plasters, road construction materials and cement row materials.



Kaolin

Kaolin is natural clay formed over many millions of year by the hydrothermal decomposition of feldspath rocks like granite or porphyry. Kaolin is mined in many locations throughout the world but the quality is often insufficient. Kaolin is composed of primary and secondary kaolinites. The primary kaolinites have in its disc structure a ratio from length to thickness of 10:1 up. The individual discs have a hexagonal crystalline form. Kaolins are not only used as fillers in paints and coatings, they also provide particular interesting properties. The particle shape and the charge distribution impact on the rheological behaviour, the attainable thixo-

ropy avoids settling of pigments and the lamellar particle shape provides positive mechanical values like a high reflecting and covering power. At the same time the surface hardness of the end product is improved.

Calcined kaolins

Calcined Clay are produced by heating natural kaolin (China Clay) to high temperatures (ca. 1000°C). They are used as fillers in the paint and coatings industry. Calcined kaolin can be coated with silane in order to obtain a surface that chemically bounds with the polymer. Calcined kaolins are dielectric and for the most part have a high degree of

whiteness. Their chemical resistance is very high, even against acids.

Supreme™	Kaolin
Speswhite™	Kaolin
Polsperser™	Kaolin Slurries
Polarite™	Coated Kaolin
Polwhite™	Kaolin
PolStar™	Kaolin
Devolite™	Kaolin
Stockalite™	Kaolin
Hexafil™	Kaolin
Light Kaolin BP	Kaolin
MetaStar	Metakaolin
Molochite™	Kaolin
Opacilite™	Kaolin
Barrisurf™	Nano Kaolin



Biocides

Promex products are preserving agents. These include wet preserving agents preventing infestation by bacteria and yeast in liquid paint as well as dry preserving agents protecting surfaces from fungal attack in the long term. We offer a wide variety of components and component combinations like CIT, CMIT / MIT, BIT, OIT, Bronopol, Diuron, Triazin and other standard chemicals. These products are used in paints and coatings, cleaning agents, adhesives, lubricants, wax emulsions, concrete additives and paper manufacture.

Promex™ Biocides

Micronized amorphous silica gel

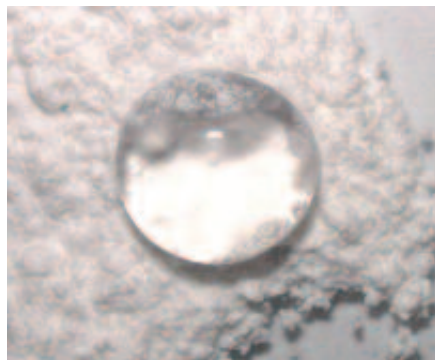
SYLYSIA®, the micronized amorphous silica we offer, is top class of silica. It's a wide range of synthetic, micronized amorphous silica gel having good porosity and high purity, mainly used as a matting agent in coatings. The chemical structure of SYLYSIA® is based on Silicon Dioxide (SiO₂), one of the most abundant substances on earth. The refractive index of SYLYSIA® is 1,46 similar to many polymer materials which implies high transparency. Synthetic micronized silica gel can be used in very different applications including matting agents in paint and coatings, film anti-blocking, catalyst carrier, and many others.

Sylsya® Amorphous silica gel

Zeolite – Functional additive

Zeolites are aluminium-silicate minerals that have a very wide internal surface (up to approx. 400 m²/g) due to their special micro-porous structure. As a result, zeolite can store an inimitable quantity of water or other substances. In addition, zeolite has also a selective ion exchange property in relation to a special chemical composition (in this case, the highest clinoptilolite percentage possible is the decisive quality criterion). Lithos owns many open cut mines and, as a result, can constantly guarantee high quality and availability of raw material. The zeolite products differently processed by Lithos can be used in different applications thanks to their special properties. The industrial applications of zeolite are in paper production, filler for the rubber production, mining of heavy and non ferrous metals and hydrogen and nitrogen separation of the air.

LithoFill Very pure natural zeolite



Talc – soapstone

Talc is the world's softest mineral. Talc is a hydrated magnesium sheet silicate with the chemical formula Mg₃ Si₄ O₁₀ (OH)₂. The elementary sheet is composed of a layer of magnesium-oxygen/hydroxyl octahedra, sandwiched between two layers of siliconoxygen tetrahedra. The main or basal surfaces of this elementary sheet do not contain hydroxyl groups or active ions, which explains talc's hydrophobicity and inertness. In plastic applications, Talc is used as filler medium for polypropylene/polyamide/polyethylene; it increases rigidity and whiteness levels nucleating agent, insulating, flame-retarding, water-repellent. In paints and coatings, Talc is used in construction systems, corrosion protection, grindable systems, adhesives; improved viscosity and covering power, prevents sedimentation, fixes pigments.

Talc Natural layered silicate with a platelet structure





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