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PRODUCT INFORMATION

Performance additives for paints and coatings, ink, inkjet and composite market

Company Introduction

UNIQCHEM is a privately owned specialty additive company with holding company in the UK founded in 2010.

As the premier leader in manufacturing and development of high-performance additives, the global network of UNIQCHEM covers many countries in Europe, America and Asia with regional headquarters in Germany, China and USA.

The regional headquarters consisting of a dedicated team of professionals with decennia of experience in the development, application know-how, production manufacturing, technical service and sales of additives for coatings and inks industry.

Our manufacturing and development of innovative high performance specialty additives are based in Germany and China. Global purchasing of raw materials is taking place from Germany to guarantee the consistency of our products.

Our technology platform contains of many technologies: free radical polymerization, poly-addition reactions, poly-condensation reactions, hydrosililation and special blending technologies.

From our global technical service lab network, we offering our customers the best solutions of product recommendations. We are committed creating added value and improving our customers' formulations with our complete range of specialty additives offering them the right solution.

UNIQ®FOAM for defoamers and air release agents, UNIQ®FLOW for wetting and leveling agents, UNIQ®SPERSE and UNIQ®JET for wetting and dispersing agents, UNIQ®LIGHT for HALS and light stabilizers and UNIQ®VIS for specialties have achieved worldwide recognition for their performance, quality and technical innovation.

We continue to bring new technologies and products to the markets and to work collaboratively with our customers to build on our technical expertise.

Special attention is given to our development of new products. To be innovative, our products needs to give an added value to our customers. Therefore, we continuous developing new products with improved features. That our R&D is successful is proven by the sales of new product developed in the last years. New in-house developed technologies have nowadays about 45% contributions to our global sales, what should be further increase in the coming years.

We want to be your solution partner in specialty additives by strengthening your market position through technology and service,therefore our slogan is 'Customized Solutions':

- Customized Solutions to our Customers by finding solutions and sharing technical experiences through our corporation.
- Customized Solutions to our employees by offering them career opportunities and a safe and healthy working environment.
- Customized Solutions for the future and our environment by making use of environmentally friendly raw materials and less or/and non-polluting products serving the new upcoming technologies.

Our goal is to be the fastest growing and most competitive supplier of specialty additives in this market by offering the best service, supply and samples by our communication, corporation and commitment to you.

Catalog

UNIQ CHEM

Product line and nomenclature

Additives for the coating industrie:

UNIQ®FOAM	100 - 200
UNIQ®FLOW	300 - 400
UNIQ®SPERSE	500 - 600 - 700
UNIQ®VIS	800
UNIQ®LIGHT	900

S = Solvent based

W = Water borne

U = Universal

Additives for ink and inkjet:

UNIQ®SPERSE	9000
UNIQ®JET	9000

Additives for Plastic and composites:

UNIQ®FOAM	P-5xx
UNIQ®FLOW	P-3xx
UNIQ®SPERSE	P-1xx and P-9xx

Defoaming technology

In industrial processes, foam can cause serious problems like:
- They cause defects on surface coatings.
- They prevent the efficient filling of containers.

To avoid these issues, the need for a defoamer or air-release agents is necessary. UNIQCHEM offers these additives under the brand **UNIQ® FOAM.**

A defoamer or an anti-foaming agent is a chemical additive that reduces and hinders the formation of foam in industrial process liquids or is added to break a formed foam already. We can make a distinction between macro- and micro-foam. Macro-foam is often formed at the surface of the coating and micro-foam is entrapment of small air bubbles, they are not able to raise fast enough to the surface. For micro foam you need a so-called air release agent to coagulate the micro bubbles to bigger air bubbles so they can raise faster to the surface to be destroyed.

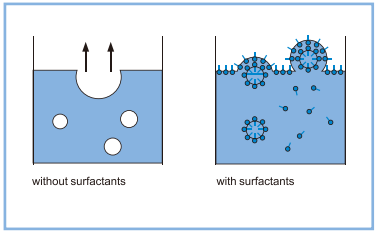
Defoaming

During the production and application of paint systems, foam is an undesired side-effect of mixing, usually slowing production and making it difficult to fill vessels with the correct amount of paint, in addition to causing surface defects such as craters and weak points in the dried film.

What is Foam?

Foam can be described as a stable dispersion of gas bubbles in a liquid medium.

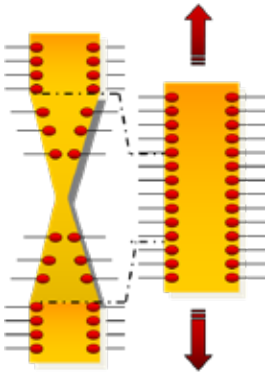
In pure liquids, foam is not stable. Foam is only stable in systems containing surfactants - like substances such as wetting agents, or certain surface control additives needed to improve important properties of the paint; surface active materials tend to migrate to the air/liquid interface of the paint, thereby reducing the surface tension.



Foam originates at various stages of production, such as pumping, stirring, dispersing, and also the application of a liquid paint, through the entrapment of air bubbles. The air-liquid interface of these bubbles is surrounded by the surface-active materials in the paint. Due to the bubbles' low density, they rise to the surface in low-viscosity paints. As the bubbles rise, smaller bubbles can combine to form larger bubbles which rise faster. At the surface, the bubbles accumulate and deform both the surface of the paint and themselves. The air cannot escape because a lamella is formed which is stabilized by the presence of surfactants. Without surfactants, drainage of the liquid would cause thinning of the lamella until breakage occurred.

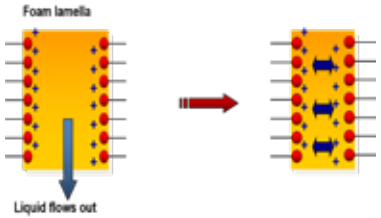
However, the presence of surfactants prevent lamella thinning by

- counterflow of liquid due to a surface tension difference, as result of interface stretching, called the Marangoni effect.



Defoaming

• repulsion by the surfactants at the interfaces, through steric and electrostatic mechanisms. These stabilizing effects result in elasticity of the lamella, preventing them from reaching a critical thickness of ca. 10 nm, which is the criterion for lamella breakage.



Mode of action

To elimnate the foam defoamers and air release agents do need to fulfil certain conditions:

- **Low surface tension** so that it can be concentrate on the boundary layer fluid/ air or gas and then penetrate in the foam, weaken and burst the foam and can also be uniformly dispersed through in the formulation

- **Capacity to spread** over the foam bubbles when the paint system is spayed on the substrate. In this way the defoamer will cover the whole applied surface

- **Insoluble in the medium** for a long time. This will ensure the long term stability of the defoamer

But the selection of the defoamer remains to be critical. when for your systems a defoamer will be selected what is too incompatible it will cause other defects to your systems what is unwanted. These defects can be eg. like craters, causing turbidity or loss of gloss, orange peel and many others. Due to many variaty of resins and coatings systems one defoamer can't be optimal for all formulations and need to be optimized and selected per systems.

In for defoamers we can make a difference between macro-foam and micro-foam. Macro-foam is foam what appears at the surface of your system. Micro-foam is entrated foam into your system what can't rise fast enough to the surface to be destroyed. for both different defoamers are required. When having micro-foam there is a high need for air-release agents who can coagelate micro bubble to bigger bubbles so the rise faster to the surface. This is decribed by the Stokes law:

$$V \sim \frac{r^2}{\eta}$$

It descibes the speed of the air bubble is related to the diameter of your air bubble divided by the viscosity of your system. In simple words: the bigger the air bubble the faster it will rise to the surface.

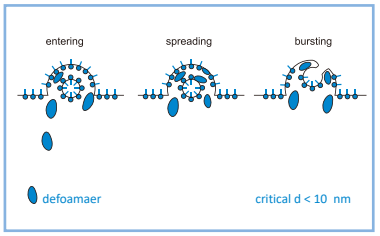
Micro-foam defoaming properties can be enhanced by selecting defoamers who may conatin hydrophobic particles or polyurea.

How do Defoamers work?

To eliminate foam, these stabilizing effects must be avoided using defoamer(s), which should have one or more of the following properties:

- foam destruction to eliminate existing foam
- foam prevention to avoid formation of foam
- air release to assist an air bubble's to rise to the surface

Defoamers act mainly in the stabilized lamella. Therefore it must be insoluble in the paint system, mobile so that it can enter in the lamella and spread at the interface to dis-place the surfactants. The defoamer must have a lower surface tension than the surfactant, leading to an opposite Marangoni effect, i.e. fast thinning and collapse of the lamella.



Choosing a Defoamer

Possible chemical entities for defoamers are molecules with a low surface tension such as silicone and mineral oils, fatty acid and fluorocarbons. To increase the defoaming efficiency, solid particles with a low surface tension can be included, such as hydrophobic silica and metallic soaps. These materials can be incorporated in carriers such as water or organic solvents to promote addition and enable faster distribution of the active substance in the liquid paint. 100% active defoamers are suitable for systems subjected to shear stresses such as grinding, ensuring their distribution and activity as a defoamer.

Different defoamers for different systems:

For solventborne and solvent-free systems

polysiloxanes, polyacrylates and polyolefins are effective, because these types of systems already have a low surface tension. Pure polydimethylsiloxanes can also be used but are critical in terms of their compatibility due to side-effects such as cratering. The best balance between compatibility and incompatibility is achieved through organically-modified polysiloxanes. Modification withfluorine gives even lower surface tensions.

For waterborne systems

a wider range of chemical structures can be used due to the generally higher surface tension of these systems; here mineral oil types and silicones are highly effective.

An important point to consider is the incorporation of the defoamer in the paint system. The defoamer is not soluble in the system, so a good distribution of the active sub-stance is necessary. This should be controlled by the mixing speed and time, otherwise craters can be formed and/or loss of defoaming efficiency is observed.

Wetting and leveling technology

Flow and leveling agents playing a very important role for the superior appearances of your coating.
These additives are needed to avoid problems like: orange peel, Bernard cell formation, floating, flooding, craters, fish eyes, fat edge (also called edge crawling).
Leveling agents, due to the strong surface tension reduction properties can offer good wetting and leveling.
(Fluor modified) Acrylic leveling agents gives good long wave leveling and anti-crater performances.
These wetting and leveling agents are offered by UNIQCHEM under the brand of **UNIQ®FLOW**.

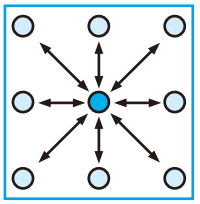
Wetting

The wetting process is a central feature of paint production.

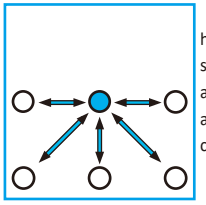
Surface Tension

The main factor in the wetting process is the surface tension of the various components. In order to understand the origin of the surface tension of a given material, for example a liquid, we have to examine the surface of that material on a molecular basis.

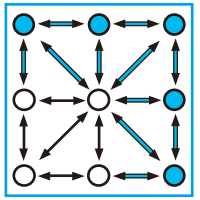
Several attractive forces may exist between single molecules: London, Van der Waals, dipoles, hydrogen-bridges and ionic forces.



In the bulk of the material every molecule is equally surrounded by other molecules leading to equilibrium of forces.



At the surface however, part of the surrounding is missing and therefore all forces are directed into the center of molecules.

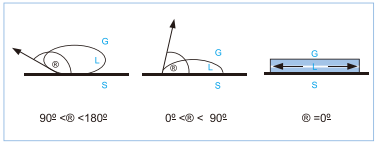


It is even stronger at corners and edges due to less sur- rounding layers being present.

Wetting Processes

The surface tension of a liquid or a solid can be measured by determining the contact angle. The most practical way to calculate it is by the Patton's equation which takes into account the approximation of the solid's surface tension (critical surface tension).

Successful wetting can be directly related to the size of the contact angle.



At a contact angle > 90º no wetting takes place and the droplet keeps its spherical shape.

At a contact angel < 90º wetting improves and the contact surface (droplet-solids interface) increases.

At a contact angle = 0º the desired spreading is achieved.

This is only possible when the surface tension of the liquid is lower than the surface tension of the solid.

Wetting

That means in the coating industry, that only the liquid can be influenced, as the solids such as pigments and fillers, and also the substrate, have a fixed surface tension.

One example of reducing the surface tension of a liquid is the addition of a surfactant. Accumulation at the surface leads to compensation of tension by interaction of the polar groups. The value obtained for the surface tension is determined by the lower surface tension of the surfactant.

This concept is the basis for solving many problems associated with coatings, such as pigment wetting, and surface defects such as craters, poor flow and foam.

Surface Control

Surface control additives are used to prevent surface defects during paint application and improve resistance and appearance of the dry film.

Surface Defects

Possible surface defects during paint application are:

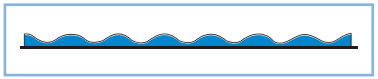
- Orange Peel
- Pinholes
- Craters
- Fish Eyes
- Edge Crawling
- Air-draft Sensitivity
- Telegraphing
- Floating (Bénard cells)
- Silking

Orange Peel:

This typical appearance of the surface is only observed following spray applications. Three main factors influence this defect:

- Viscosity of the sprayed liquid
- Spraying conditions such as pressure, air/liquid ratio
- Surface tension of the liquid

The first two factors depend strongly on the operator. The third factor can be controlled by the paint formulator. Lowering the surface tension of the liquid leads to smaller droplets under the same spray conditions and improves the flow of the single droplets after application.



Craters and Pinholes:

Craters and pinholes are caused by liquid or solid contamination present on the substrate or in the paint, or from the surroundings, before the drying process starts. The reason for the formation of craters is the difference in surface tension between the liquid paint and the contaminant. Such defects increase, as surface tension differences grow. By lowering the surface tension of the liquid, such defects can be avoided.

Pinholes are craters, where the liquid has not formed a homogeneous layer, thereby leaving a depression which penetrates to the substrate.

Fish Eyes:

Fish eyes are caused by insufficient substrate wetting. This occurs when the surface tension of the liquid paint is higher than that of the substrate and no spreading takes place on its surface. Spreading is improved by lowering the surface tension of the liquid.

Telegraphing:

Telegraphing (ghosting) occurs, when areas of different surface tension on the substrate are formed by wiping, by residual traces of a cleaning liquid or by finger prints. These marks appear on the surface of the applied paint film. This effect is clearly seen when the substrate/base coat contains interfacial active substances.

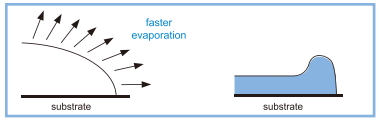
Air-draft Sensitivity:

Local differences in surface tension of the paint caused by non-uniform evaporation of the solvent can cause air-draft sensitivity. Locally confined evaporation leads to an increased surface tension in the film. Rupture of the film can take place when this surface tension rises above the substrate's surface tension, and de-wetting takes place. This problem is avoided by lowering the surface tension of the liquid.

Edge Crawling:

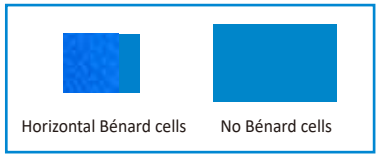
Edge crawling is found at the edges of the substrate, because the surface of the applied paint film is larger at the edges. Here faster evaporation of solvents takes place, leading to a stronger increase of surface tension than in the rest of the liquid film. A higher surface tension causes the surface to crawl, because it is trying to adopt a smaller overall size.

This problem is avoided by lowering the surface tension of the liquid.



Floating (Bénard cells) and Silking:

Floating and silking are related to processes taking place in the liquid paint during the drying phase. Differences in the density and surface tension give rise to turbulent flow of material from the lower to the upper part of the film. In pigmented systems, the pigments settle in different areas depending on their mobility. On horizontal surfaces, this floating is seen as hexagonal patterns; so-called Bénard cells. Silking has the same origin but is limited to vertical surfaces and shows as line-shaped patterns. These defects can be avoided by minimizing the surface tension differences occurring during the drying process.



Leveling

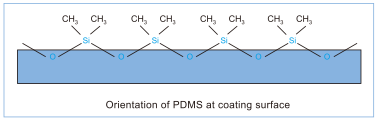
All these defects are caused by differences and changes in the surface tensions of the liquid paint, substrate and contaminants.

With “Wetting” it was shown that effective wetting of a solid takes place when the liquid has a lower surface tension than the solid. When the surface tension of the liquid paint is high, the system is more sensitive to wetting defects. In general, modern synthetic resins have a higher surface tension than those based on natural fatty acids. Aqueous systems have a high surface tension due to their polarity.

The main solution to these problems is to adjust the surface tension of the liquid to that of the solid. Therefore additives to improve leveling need a low intrinsic surface tension and a high mobility towards the interface they have to influence.

Slip

An additional requirement for a coating is good slip. This so-called “slip” improves the aesthetic impression and helps to protect the film against scratches, metal marking and dirt. Slip properties are only achieved by using long chain polysiloxanes containing dimethylsiloxane groups. The friction at the surface caused by irregularities is reduced by the lubrication effect of the dimethylsiloxane groups concentrated at the surface, without producing a greasy layer.



The slip can easily be determined by slip angle measurement or by touch.

Protection by slip is most important in the initial drying stage, where the surface is still vulnerable to mechanical influences. Only a small amount of silicone-leveling agent is needed for the optimum slip performance, whereas over-dosage can lead to unwanted side-effects.

A common unwanted side-effect of some polyether-modi- fied siloxanes is their surface-activity, sometimes giving rise to foam stabilization. Often, therefore, the simultaneous use of a defoamer is recommended.

Alternatively, an alkyl-modified siloxane or polyacrylate can be used as leveling agent to avoid foam formation during paint application.

Leveling Agents

The UNIQCHEM range of slip and leveling agents are based on the following chemical families:

- Long chain polysiloxanes are the most common leveling agents in the coating industry. Pure polydimethyl siloxanes are not used in the UNIQCHEM range due to their incompatibility with many resins. To improve this, the polydimethyl siloxane backbone is modified with alkyl or polyether side chains. In addition, reac- tive groups such as isocyanates, double bonds, hydroxyl groups and acid groups can be incorporated, leading to the advantage that the leveling agent can be crosslinked into the film. They are suitable for solventborne systems, waterborne systems or both, depending on the type of side-chain used.
- Polyacrylates are produced from special monomers with a low surface tension. These structures move to the interface, equalizing the surface tensions.

They are known for not causing inter-coat adhesion problems in the dry film, and depending on their modification, they can be used in solvent- or waterborne systems.

- Short chain polysiloxanes were developed to bring silicone-based leveling agents which will not affect inter- coat adhesion. The main benefit is found in water-based system.

Dispersing technology

Dispersing agents playing a very important role for the wetting and stabilization of pigments.
The faster the wetting is taking place the faster the stabilization can take place. In this process it is important to be able to reduce the particle size back to the primary particle of the pigment. Than you will achieve the maximum color strength.
Very good dispersing agents will offer you very good viscosity reduction, color strength, reduction in processing time.
These Wetting and dispersing agents are offered by UNIQCHEM under the brand UNIQ®SPERSE.

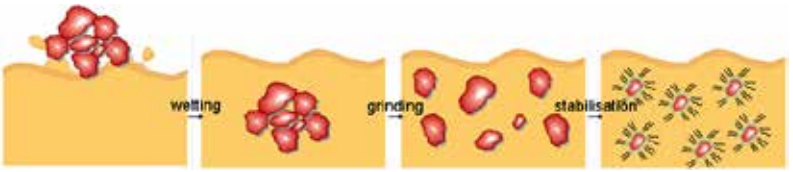
Dispersing technology

By the preparation of colored paint, a good dispersion quality is one of the most difficult factors. The dispersion process consists of converting dry pigments into pigment dispersion, which must be fine and sufficiently stable to achieve the final coloristic properties and stability. This is a complex process there resin, type of pigment, solvents and the use of dispersing agents are playing here an important role.

1. Dispersion process

High saturation and colouring properties of high quality coatings are characterized by good dispersion of pigments, optimization of particle size and long-term stability.

The dispersion process of a pigment in liquid coatings can be divided into the three processes:



Pigment wetting: The air and moisture covering the pigment is replaced by the resin solution. The solid/gas interface (pigment/air) is transformed into a solid/liquid interface (pigment/resin solution).

Grinding stage: By high shear forces the pigment agglomerates are broken up into smaller units, preferable primary particles.

Stabilization:The pigment dispersion is stabilized by dispersing agents in order to prevent the formation of uncontrolled flocculates. The resultant suspension is stabilized due to the adsorption of binder species or molecules at the pigment surface.

Dispersing additives, which adsorb on the pigment surface, facilitate liquid/solid interfacial interactions and help to replace the air/solid interface by a liquid medium/solid interface.

The grinding process can be regarded as a de-flocculation process. In the absence of stabilizing agents, effects such as reduced color strength, decreased gloss, and altered rheology may occur.

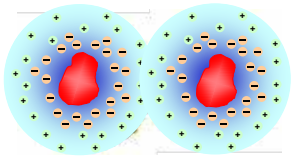
1.1 Stabilizing of Pigment dispersion

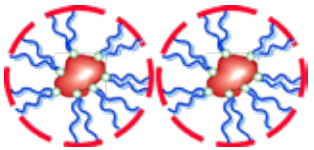
The pigment dispersion what is achieved in the last step will be used later in the let down system where it should stay stable during storage and later during the application and film formation.

Stability of pigment concentrates or actually preventing pigment particles to re-agglomerate again is depending on the dispersing agent. The distance between 2 particles needs to be big enough that they can repulse each other.

There are two principal mechanisms for the stabilization of pigmented dispersions described:

1.1.1 Electrostatic stabilization is only working in a water based application. When two particles having the same charges approaching each other will result in a repelling effect. The resulting Coulomb-repulsion of the charged particles allows the system to remain stable.





1.1.2 Steric stabilization suited for water and solvent based systems is when pigments are sterically stabilized (the surface of the solid particles are completely covered by polymers) making particle-to-particle contact impossible. Strong interactions between polymers and solvents (organic solvent or water) prevent the polymers from coming too closely into contact with one another (flocculation).

Steric stabilization relies on the adsorption of a layer of resin or polymer chains on the surface of the pigment.

One fundamental requirement of steric stabilization is that the chains are fully solvated by the medium. This is important because it means the chains will be free to extend into the medium. In systems where the chains are not so well solvated they will prefer to lie next to each other on the surface of the pigment, providing a very much smaller barrier to inter-particulate attraction what will result in much easier flocculation.

2 Dispersants Families

The choice of the dispersing agents for the pigment stabilization is a key issue in the coating and ink industry. Formulators have to find the most suitable products for their formulation taking into account the final application of their coating, the coating system (water based, solvent based, etc.) and the other additives.

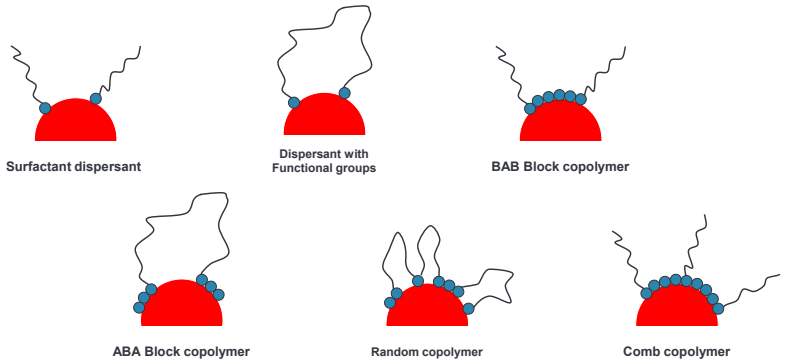
The role of the dispersing agents is to enhance the dispersion process and ensure a fine particle size in order to stabilize pigments in the resin solution. As explained earlier, an efficient dispersant has to perform the three main functions: pigment wetting, dispersing, and stabilizing. Dispersing agents generally differ for aqueous and solvent-based coatings.

In term of chemical structure one can divide dispersing agents into the two following classes:

- Surfactants, also called low molecular weight dispersing agents
- Polymeric dispersants, also called high molecular weight dispersants

The main differences of those two types of dispersants being the molecular weight, the stabilization mechanism and the resulting let down stability.

In addition polymeric dispersing agents have multiple anchor groups where surfactant like dispersing agents more related to a polar head with a side chain for the compatibility.



2.1 Polymeric dispersants

Polymeric dispersants stabilize paints, coatings and ink systems via a steric stabilization mechanism.

They must have specific anchor groups capable of being strongly adsorbed into the particle surface and must contain polymeric chains that give steric stabilization in the required solvent or resin solution system.

Polymeric dispersants differentiate themselves from the other types of dispersing agents through considerably higher molecular weights. Because of its structural features, a polymeric dispersant is bound to numerous sites at the same time, forming durable adsorption layers upon many pigment particles. Optimal steric stabilization is achieved when the polymer chains are well solvated and properly stretched, therefore they must be highly compatible with the surrounding resin solution. If this compatibility is obstructed, the polymer chains collapse causing the steric hindrance and the resulting stabilization to be lost.

In order for additives to be effective, the adsorption into the pigment surface must be durable and permanent. The surface properties of the pigment particles are therefore crucial to the additive's effectiveness:

With pigments possessing high surface polarities, such as inorganic pigments that are ionically constructed, the adsorption of any dispersing additive is relatively easy.

However, for pigments with nonpolar surfaces, such as organic pigments whose crystals are composed of nonpolar individual molecules, a proper adsorption is rather difficult to obtain with conventional additives. The wide range of anchor groups that polymeric dispersants provide make them very efficient to anchor on pigments with nonpolar surfaces.

In the traditional method of stabilizing pigments in water, the stabilizing charges used are often disturbed by impurities, such as other ions, or the presence of other pigments with different zeta-potentials. This leads to a destabilizing effect, caused by the reduction of the repulsive forces. Steric stabilization can avoid this issue, making polymeric dispersants very useful for dispersing all types of pigments, even the organic ones that are very difficult to be deflocculated by traditional wetting and dispersing additives.

The nature of the polymeric chain is critical to the performance of polymeric dispersants. If the chains are not sufficiently solvated, then they will collapse on to the pigment surface allowing the particles to aggregate or flocculate. The need for compatibility with the medium extends throughout the final drying stages of any applied coating. If it ceases to be compatible, flocculation may occur leading to a decrease of surface properties such as losses in gloss and tinting strength, etc.

The molecular weight of the polymeric dispersants must be sufficient to provide polymer chains of optimum length to overcome Van der Waals forces of attraction between pigment particles:

Finally, for good surface coating properties and performances, the polymer must be fully compatible with the coating resin after the solvent has evaporated off and the resin has been cross-linked.

2.2 Low molecular weight dispersant (Surfactants)

Surfactant dispersants are conventional low molecular weight dispersing agents. Surfactant molecules are able to modify the properties and, in particular, they lower the interfacial tension between the pigment and the resin solution.

This surface activity arises because the surfactants' structure consists of two groups of contrasting solubility or polarity. In aqueous systems, the polar group is known as a hydrophilic group and the non-polar group as hydrophobic or lipophilic. In non-aqueous systems, the polar group is known as the oleophobic group and the non-polar group as oleophilic. Surfactants are classified according to their chemical structure and, more specifically, their polar group: anionic, cationic, electroneutral and non-ionic.

ANIONIC COMPOUNDS

ANIONIC

e.g sodium oleate

$C_{17}H_{33}COO^{-}Na^{+}$

CATIONIC COMPOUNDS

CATHIONIC

e.g.oleylamine

$C_{17}H_{33}\text{-}CH_2\text{-}NH_3^{+}\text{-}OOC\text{-}CH_3$

ELECTRONEUTRAL COMPOUNDS COMPOUNDS

ELECTRONEUTRAL

e.g. oleylamine oleate

$C_{18}H_{35}NH_3^{+}\text{-}OOCC_{17}H_{33}$

NON-IONIC

NON-IONIC

e.g.aliphatic polyether

$C_{17}H_{33}CO\text{-}(OCH_2CH_2)_8\text{-}OH$

As with the polymeric dispersing agents, their effectiveness is determined by:

• The absorption of the polar group onto the pigment surface. The anchoring groups can be amino, carboxylic, sulfonic, phosphoric acids or their salts.

• The behaviour of the nonpolar chain in the medium surrounding the particle. This part of the molecule (aliphatic or aliphatic-aromatic segments) must be highly compatible with the binder system.

The stabilization mechanism of surfactant-like dispersing agents is electrostatic: the polar groups forming an electrical double layer around the pigments particles. Due to the Brownian movement the pigment particles frequently encounter each other in the liquid medium thus having a strong tendency to re-flocculate on the let down stage.

Because of their chemical structure (eg: low molecular weight) and the electrostatic method of stabilization, surfactants may cause the following defects:

• Water sensitivity: Surfactants generally have a tendency to provide water sensitivity to the final coating, thus making them inappropriate for use in outdoor applications.

• Foam formation: Many surfactants generate foams which lead to surface defects (eg. fish eyes, craters) on the final coating. If foaming occurs at the milling stage it can also cause a loss of production capacity.

• Interference with intercoat adhesion.

Over the past years specific surfactants have been developed to minimize these defects, and some provide other advantages to the final paints such as defoaming/dearation or difficult substrate wetting.

The most widely used surfactants for pigment dispersion in coating formulations are:

- Fatty acid derivatives
- Phosphate esters
- Sodium polyacrylates / polyacrylic acid
- Acetylene diols
- Soya lecithin

Main differences between LMW dispersant and HMW dispersant:

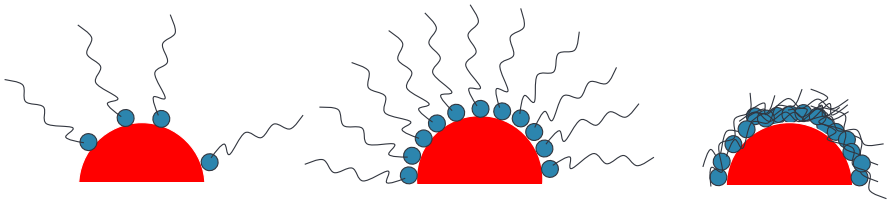
	Conventional wetting and dispersing agents	HMW polymeric dispersing agents
General Main Effect	•Reduce surface tension to facilitate wetting during grinding process. •Using difference in charges to perform the anchoring process •Using repulsion of same charges and attraction of different charges for stabilization	•Reduce surface tension to facilitate wetting during grinding process •NOT using difference in charges to perform the anchoring process •Use steric hindrance for stabilization
Chemistry	Low molecular weight surfactant, most of the time contain ionic group as pigment affinity	Functional copolymer with special pigment affinity group
Molecular weight	500 – 2000 g/moll	4000 – 25000 g/moll
Dosage, solid dispersant on pigment (SOP)	0.2 – 5 %	1 – 60 %

3 Required amount of dispersant.

Dispersing agents are not just additives to conventional mill-bases. The choice of the most suitable dispersing agents is sometimes difficult and their usage require sometimes specific guidelines.

The choice of dispersant is also related to the surface nature of the pigment. The polarity of the surface of the pigment differs from organic (non-polar) to inorganic (more polar), and this means that the nature of the dispersant anchor group is critical for optimum absorption. The choice of anionic anchor group (acidic value) should allow for better performance with inorganic pigments and a cationic anchor group (amine value) should be more appropriate for organic pigments.

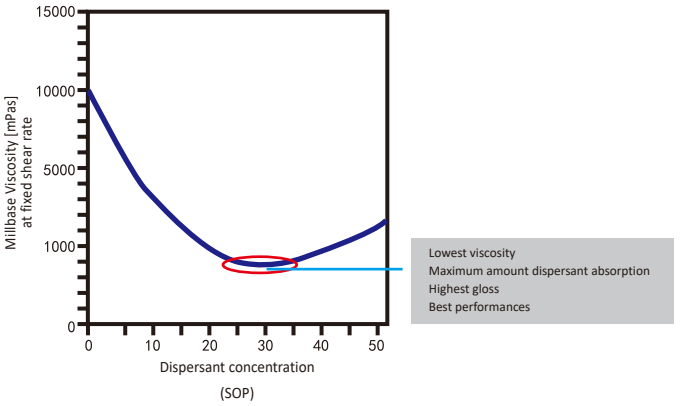
The surface area of the pigment also affects the level of dispersant used, and in general, if too little is used then the full benefits will not be realized. If too much is used, it can be shown that the thickness of the protective barrier is actually reduced as a result of overcrowding on the pigment surface. Therefore the use of an excess level of dispersant actually leads to final coating properties which are inferior to those obtained with an optimized dosage.

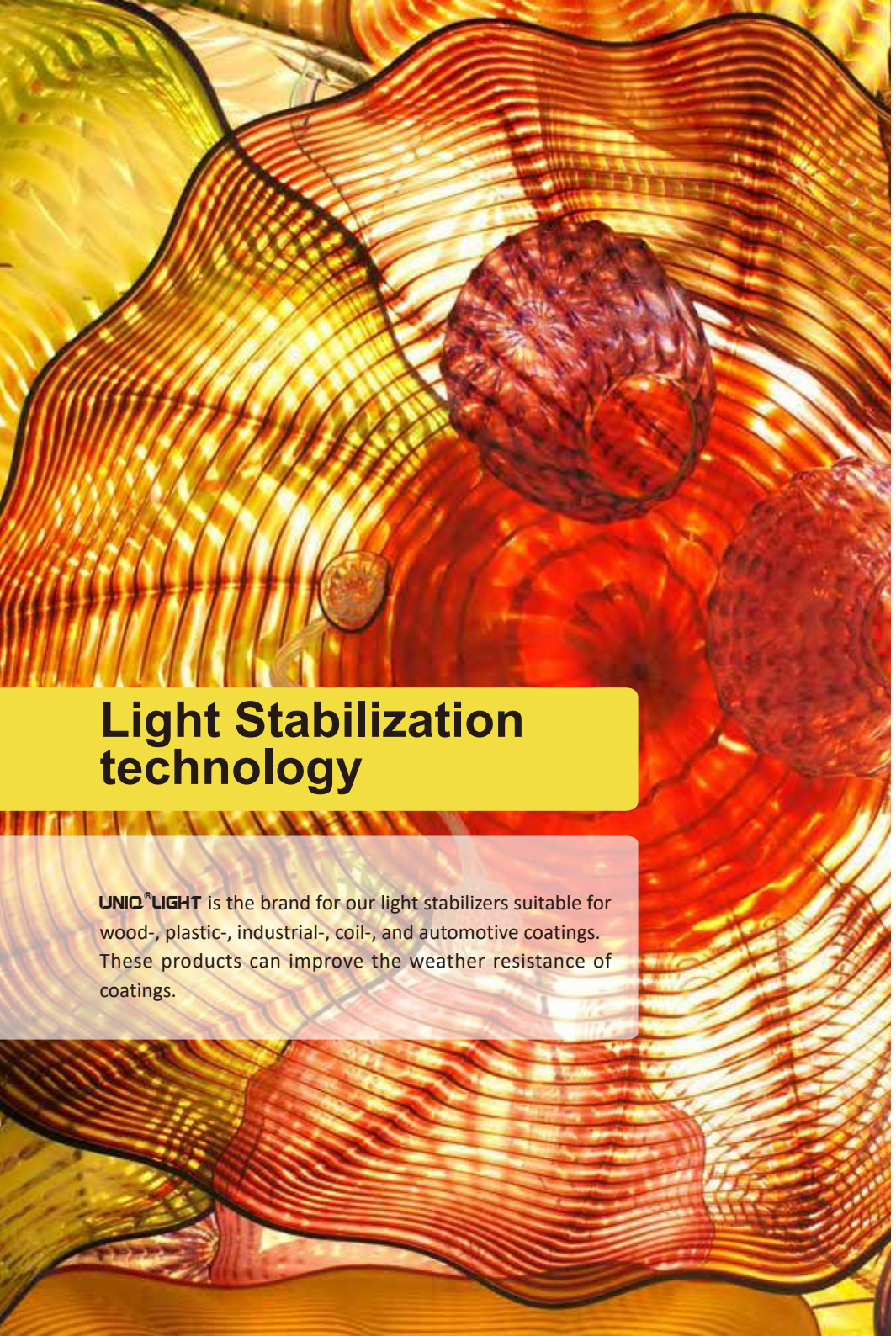


As a general rule, 2-2.5 mg of polymeric dispersant, per square meter of pigment surface area will be close to the optimum amount required.

$$\text{Solid dispersant on pigment (SOP)} = \frac{\text{Pigment surface area}}{4 - 5}$$

A ladder series of polymeric dosage levels should be evaluated based around this 2-2.5 mg/m^2 level. Measurement of dispersion viscosity will show a minimum at the optimum dosage; although it is also possible to measure gloss or colour strength of the coating which will show a maximum at the same optimum dosage.





Light Stabilization technology

UNIQ®LIGHT is the brand for our light stabilizers suitable for wood-, plastic-, industrial-, coil-, and automotive coatings. These products can improve the weather resistance of coatings.

Light Stabilizers Theory

Coatings used to beautify and protect base materials must themselves be protected from potentially harmful environmental elements such as heat, oxygen, water and especially light. Although many polymers do not absorb ultraviolet radiation directly, all coatings contain some components that may absorb UV light, initiating oxidative degradation of the polymer.

Ultraviolet radiation—the most common source is the sun—can lead to decreased performance and undesirable appearance changes in coatings. Artificial light can cause similar changes. UV radiation can cause harm by breaking down the chemical bonds in a polymer's structure. This degrades the binder and can lead to such changes as cracking, checking, loss of gloss, chalking, pigment fading, delamination or peeling, yellowing, corrosion and loss of physical and protective properties of the coating. This chemical process is photo-oxidation.

Process of photo-oxidation by UV Radiation

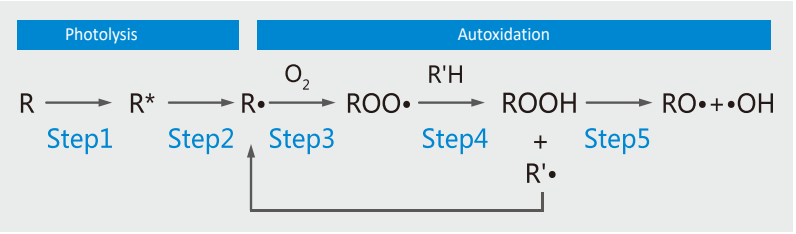


Photo-oxidation is two distinct processes. The first is photolysis, a complex process occurring in several steps, which involves the absorption of UV radiation, followed by the formation of free radicals due to the breaking of molecular bonds. The second is autoxidation. Here, the free radicals formed during photolysis interact with oxygen to form peroxy radicals.

There are five separate steps during photo-oxidation. In the schematic at below, R represent the coating binder or UV absorbing component.

Step1

$R \longrightarrow R^*$

Coating absorbs UV radiation. The energy from the absorbed UV radiation "excites" the absorbing species(either binder molecules or impurities) and raises them to a higher energy level (R*). These excited state molecules are very reactive and may undergo a wide range of processes. Two common processes are return to the ground state or hemolytic bond cleavage.

Step2

$R^* \longrightarrow R\bullet$

If the molecule cannot be brought to its ground state, hemolytic bond cleavage and the formation of free radicals(R•) will occur.

Step3

$R\bullet \xrightarrow{O_2} ROO\bullet$

The free radicals formed during photolysis readily react with oxygen to form peroxy radicals. This is called autoxidation.

Step4

$ROO\bullet \xrightarrow{R'H} ROOH + R'\bullet$

The peroxy radicals attack the polymer backbone(R'H) via hydrogen abstraction, forming hydroperoxides and more free radicals. These free radicals again readily react with oxygen in Step 3 to form additional peroxy radicals.

Step5

$ROOH \longrightarrow RO\bullet + \bullet OH$

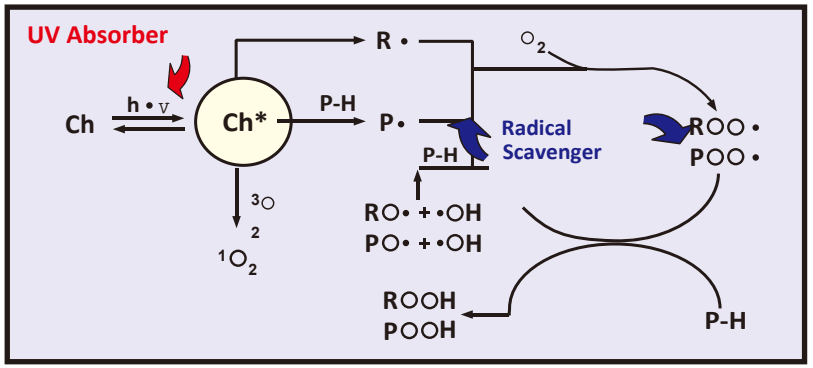
The hydroperoxides, which are very unstable to both UV radiation and heat, fragment and form additional free radicals. As the processes continue, more and more molecular bonds break, leading to a deterioration of the desired coating properties.

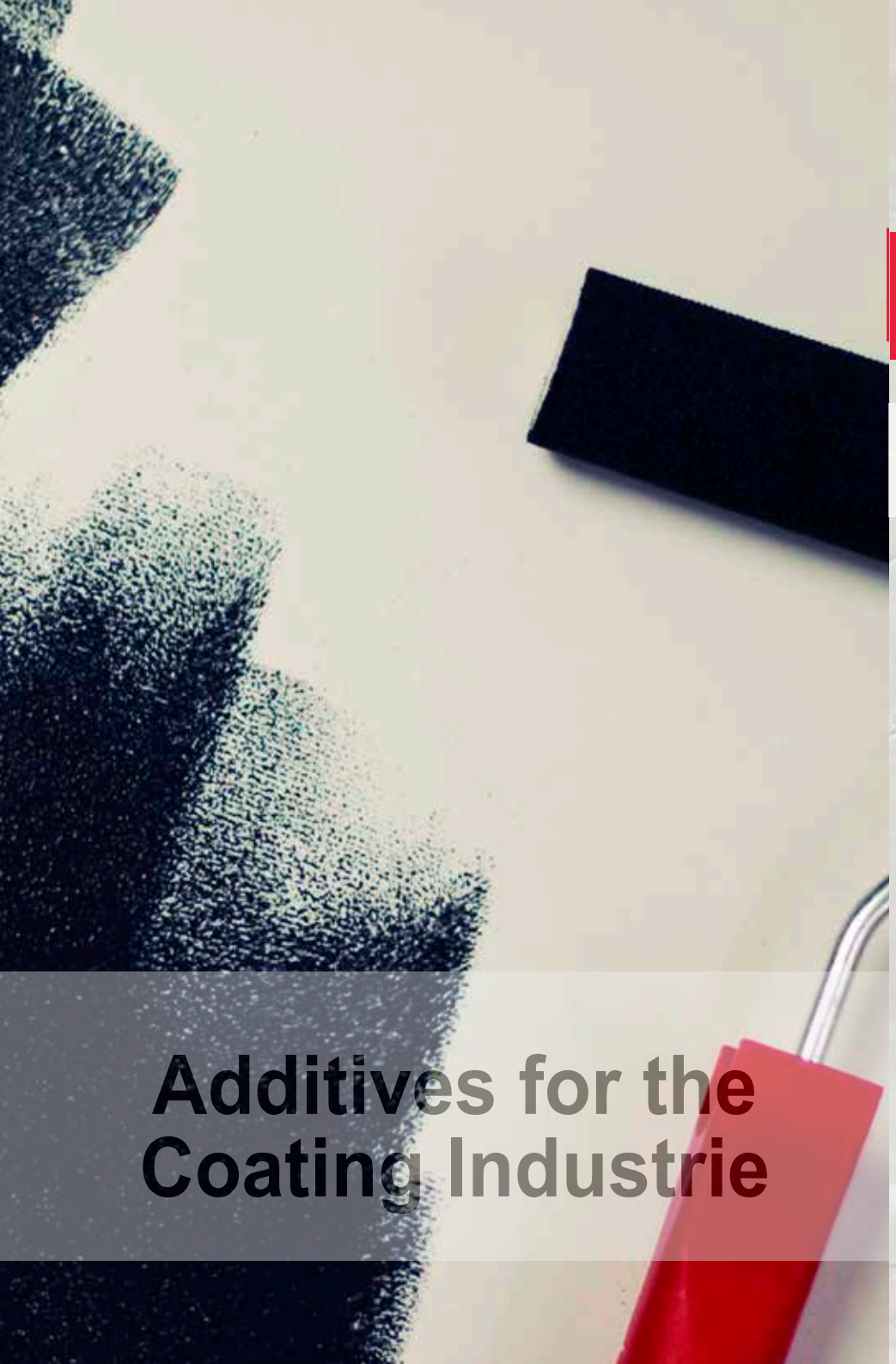
Types of light stabilizers

There are two types of light stabilizers. One is UV absorber which is to absorb harmful UV light to protect the coating. The other is hindered amine light stabilizer which is to capture free radicals to avoid coating degradation.

• UV absorbers is to absorb UV light in competition with the chromophores which are part of the polymer backbone to prevent degradation. They are colorless or almost colorless additives, which have a strong absorbability in the ultraviolet part of the spectrum. UV absorbers can dissipate light energy as thermal energy.

• Hindered Amine Light Stabilizers(HALS) is to capture free radicals before subsequent reactions leading to degradation can take place. HALS can impede thermo-oxidation. The polymer contains the HALS will still keep the resistance to photo-degradation even run of the HALS. The explanation for this phenomenon is that HALS' oxidation products, such as hydroxyl-amine and aminoether, can inhibit photo-degradation. Hydroxyl-amine and aminoether are all able to capture peroxide free radicals.





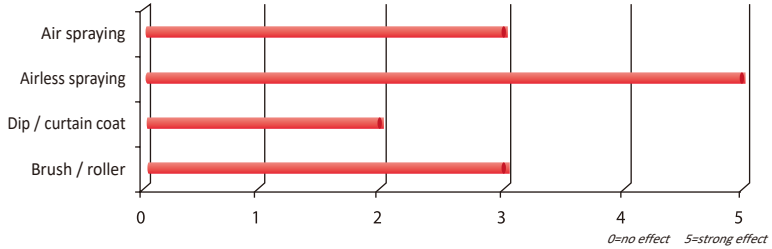
Additives for the Coating Industrie

UNIQ® FOAM

for coating industrie

UNIQ®FOAM 120 S

Solution of non-silicone defoaming polymers



UNIQ®FOAM 120 S is a strong defoamer suitable for all solvent borne coating systems. It prevents the formation of foam during the manufacture and filling.
The additive has an immediate foam-destroying effect and does not have influence on the intercoat adhesion. Due to the strong defoaming performances, the product is less suitable for high gloss clear coatings. Influence of transparency in clear systems should be evaluated.

Special Features

- Solvent-borne applications
- Strong defoaming effect
- Does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20° C	0.8 g/cm^3
Flashpoint	30°C
Color	Max. 1
Appearance	Slight yellowish liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Added in grinding stage or under high shear forces incorporation.

Due to its strong incompatibility, the influence upon the transparency of clear systems or other surface defects must be evaluated.

Packaging

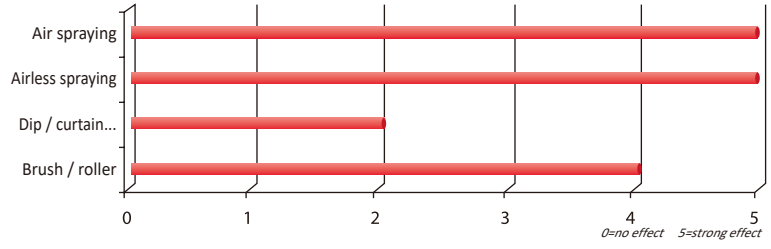
- 22 kg
- 150 kg

Shelf life

UNIQ®FOAM 120 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 130 S

Solution of non-silicone defoaming polymers



UNIQ®FOAM 130 S is very strong defoamer based on acrylic polymer (polyvinyl ether), showing superior de-aerating effects. Suitable for all solvent based paints, to be used in various thermo-setting- and air-drying paints. Applications include architectural paints, floor coats, heavy duty paints, auto-refinishes, coil coatings and car OEM.

Special Features

- Strong defoamer
- Suitable for pigment systems
- Suitable for high viscosity and high solid coating systems
- Does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.9 g/cm^3
Color	Max. 1
Appearance	Slight yellowish clear transparent

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Due to its strong incompatibility, the influence upon the transparency of clear systems or other surface defects must be evaluated.

Packaging

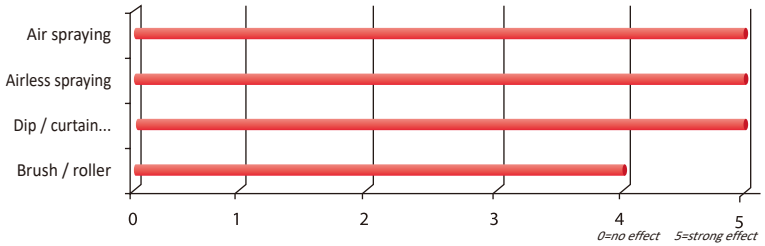
- 25 kg
- 170 kg

Shelf life

UNIQ®FOAM 130 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®FOAM 131 S

Solution of non-silicone defoaming polymers



UNIQ®FOAM 131 S is strong defoamer mainly suitable for pigmented coating systems. Due the chemical structure the product will not cause turbidity, but will over good air-release and macro defoaming properties. The product is well suited for spraying applications.

Special Features

- Strong defoamer
- Suitable for pigment systems
- Suitable for high viscosity and high solid coating systems
- Does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.94 g/cm³
Color	Max. 1
Appearance	Yellowish transparent

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Due to its strong incompatibility, the influence upon the transparency of clear systems or other surface defects must be evaluated.

Packaging

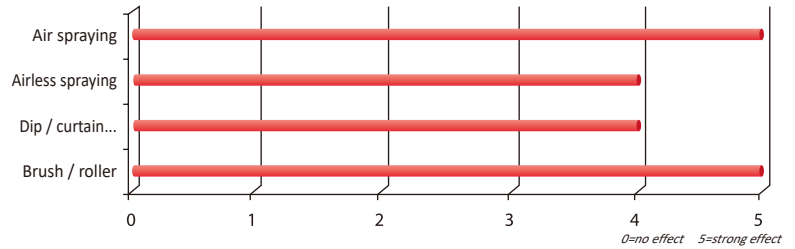
- 25 kg
- 170 kg

Shelf life

UNIQ®FOAM 131 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 132 S

Silicone free defoamer



UNIQ®FOAM 132 S is medium to strong defoamer to be used in clear coatings as well suitable for pigmented coating systems. Due the chemical structure the product will not cause turbidity, but will give good air-release and macro defoaming properties. Also very well suited for UPE primers remaining high clarity and transparency. The product is well suited for spraying applications.

Special Features

- Strong defoamer
- Suitable for clear coats and pigmented coatings systems
- Does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.98 g/cm³
Color	Max. 1
Appearance	Yellowish transparent

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

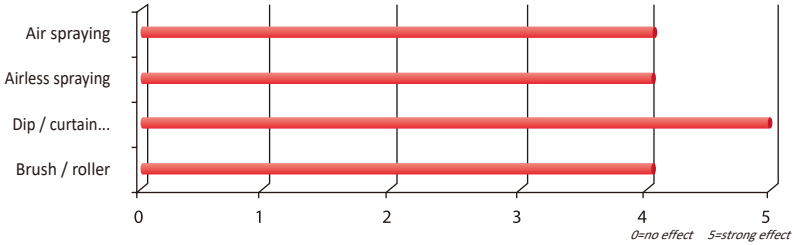
- 25 kg
- 180 kg

Shelf life

UNIQ®FOAM 132 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 150 S

Solution of non-silicone defoaming polymers



UNIQ®FOAM 150 S is a strong defoamer can be used for all solvent borne coating systems, especially suitable for solvent free epoxy and solvent free UV system. The additive has an immediate foam-destroying effect with very strong deaeration and does not have influence on the intercoat adhesion. With epoxy resin the defoamer can give slight haziness, but as soon the hardener is added the products becomes fully clear. Therefore the product is suited for pigmented and non pigmented systems.

Special Features

- Solvent-borne and solvent free applications
- Strong defoaming and deaeration effect
- Does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20°C	1.05 g/cm³
Color	Max. 3
Appearance	Clear colorless liquid

Addition levels

• Based on total formulation: 0.1 – 1.0 %
Can be added in any stage of the formulation.

Due to its strong incompatibility, the influence upon the transparency of clear systems or other surface defects must be evaluated.

Packaging

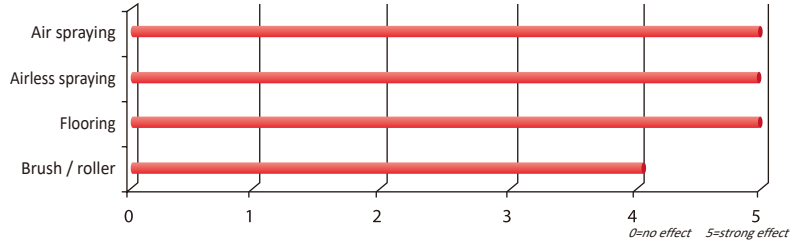
- 25 kg
- 190 kg

Shelf life

UNIQ®FOAM 150 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 152 S

Silicone free polymer defoamer



UNIQ®FOAM 152 S is a strong silicone free defoamer can be used for all solvent borne coating systems, especially suitable for solvent free self-leveling epoxy system. The additive has an immediate foam-destroying effect with very strong deaeration and does not have influence on the intercoat adhesion. At the same time, it will help to maintain the good film appearance by the additional leveling properties in high gloss systems and will give good clarity.

Special Features

- Quick de-aeration and defoaming effect for pigmented and non pigmented solvent free coating system
- Does not interfere intercoat adhesion
- Excellent film appearances
- Silicone-free
- Heat stable

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	□
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.92 g/cm³
Refractive index	1.480
Color	Max. 1
Appearance	Slight hazy colorless liquid

Addition levels

• Based on total formulation: 0.1 – 1.0 %
Can be added in any stage of the formulation.

Although the product may be slightly turbid, this cannot be observed anymore in the final dry film.

Packaging

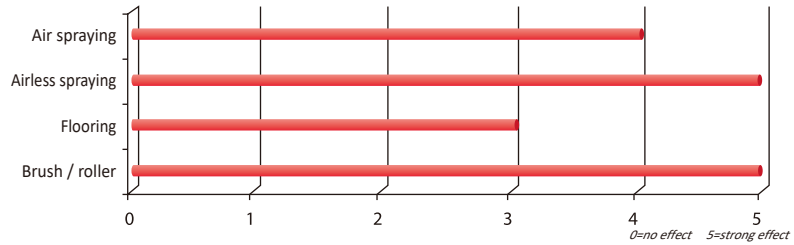
- 22 kg
- 170 kg

Shelf life

UNIQ®FOAM 152 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 155 S

Silicone free polymer defoamer



UNIQ®FOAM 155 S is a strong defoamer can be used for all solvent borne and solvent free coating systems, especially suitable for solvent free UV system. The additive has an immediate foam-destroying effect with very strong deaeration and does not have influence on the intercoat adhesion. At the same time, this product can improve the leveling performance.
The compatibility needs to be checked, especially in clear coats.

Special Features

- Solvent-borne and solvent free applications
- Strong defoaming and deaeration effect
- Improve the leveling performance
- Does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Can/coil coatings	■
Pigment concentrates	■
Protective coatings	■
Industrial coatings	□

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.00 g/cm3
Appearance	Transparent viscous liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Can be added in any stage of the formulation.

Check compatibility especially in clear coats.

Packaging

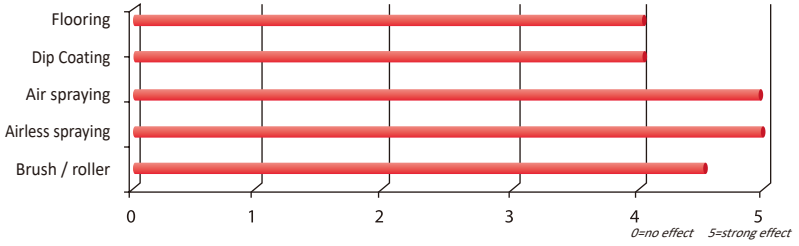
- 25 kg
- 190 kg

Shelf life

UNIQ®FOAM 155 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 158 S

Silicone free polymer defoamer



UNIQ®FOAM 158 S is a Silicone free polymeric defoamer suited for solvent-free-, radiation-curing wood- and industrial coatings, printing inks and adhesives. It an be used in pigmented and clear coat systems applicable in every coating layer without effecting the intercoat adhesion and recoatability. Specially suited for epoxy resin, but also very good performances in polyurethane resin types.
UNIQ®FOAM 158 S has strong defoaming efficiency.

Special Features

- Quick deaeration and defoaming effect
- Silicone free
- No effect on inter coat adhesion and recoatability
- High temperature resistant

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredient	100 %
Density 20°C	0.83 g/cm3
Color	Max. 2
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Added in grinding stage or under high shear forces incorporation.

Packaging

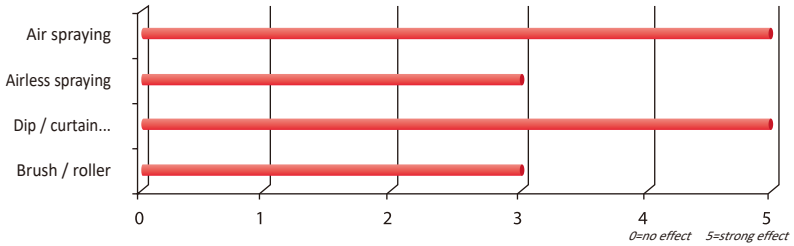
- 20 kg
- 160 kg

Shelf life

UNIQ®FOAM 158 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 170 S

Solution of non-silicone defoaming polymers



UNIQ®FOAM 170 S is a strong anti-foam and air-release agentespecially suitable for use in unsaturated polyesters, baking coatings, epoxies and acrylic/vinyl acetate combinations.The additive furthermore helps to improve the leveling.

Special Features

- Quick de-aeration and defoaming effect for thermosetting resin system
- Suitable for pigment loading coating systems
- does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density	0.83 g/cm³
Color	Max. 1
Appearance	Slightly hazy colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Added in grinding stage or under high shear forces incorporation.

Packaging

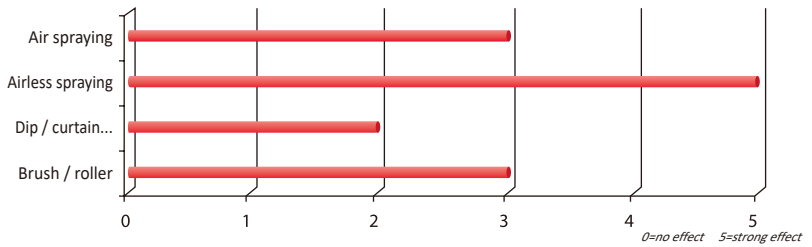
- 25 kg
- 170 kg

Shelf life

UNIQ®FOAM 170 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 175 S

Solution of non-silicone defoaming polymers



UNIQ®FOAM 175 S is especially effective in wood and furniture coatings based on glossy polyester, paraffin polyester, and in radiation curable polyester. The additive allows curtain coaters to maintain curtain stability even when only thin layers are applied. When using non-pigmented systems, a slight turbidity may be visible over dark wood. Good results were also found with epoxy systems.

Special Features

- Solvent borne and solvent free applications
- Suited for UV coating
- Anti-foam and deaeration additive
- Does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Industrial coatings	□

highly recommended ■
recommended □

Product Specification

Density 20°C	0.88 g/cm³
Color	Max. 1
Appearance	Clear slightly yellowish liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Due to its slight incompatibility, the influence upon the transparency of clear systems or other surface defects must be evaluated.

Packaging

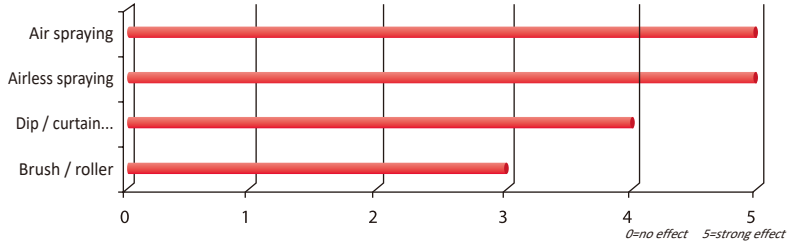
- 25 kg
- 170 kg

Shelf life

UNIQ®FOAM 175 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 180 W

Water based leveling and anti-popping agent



UNIQ®FOAM 180 W is a silicone-free surface additive for aqueous coatings to prevent surface defects such as cratering, scarring, bubbles, pinholes, orange peel and boiling marks and to improve leveling.

Special Features

- Water based applications
- Improve leveling
- Anti-foam and anti-poping in baking system
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20 °C	0.81 g/cm^3
Appearance	clear liquid

Addition levels

- Based on total formulation: 0.3 – 3.0 %

Added in grinding stage or under high shear forces incorporation.

Packaging

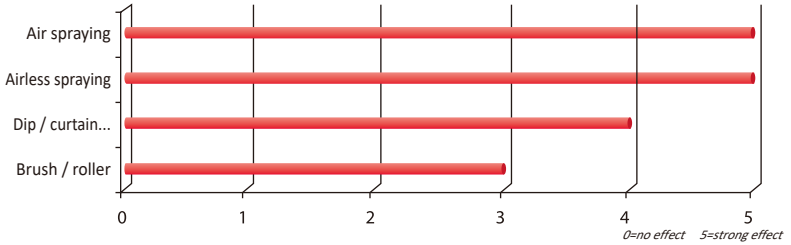
- 20 kg
- 150 kg

Shelf life

UNIQ®FOAM 180 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FOAM 182 W

Water based leveling and anti-popping agent



UNIQ®FOAM 182 W is a silicone-free surface additive for aqueous coatings to prevent surface defects such as cratering, scarring, bubbles, pinholes, orange peel and boiling marks and to improve leveling.

Special Features

- Water based applications
- Improve leveling
- Anti-foam and anti-poping in baking system
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20 °C	0.81 g/cm^3
Appearance	clear liquid

Addition levels

- Based on total formulation: 0.3 – 3.0 %

Added in grinding stage or under high shear forces incorporation.

Packaging

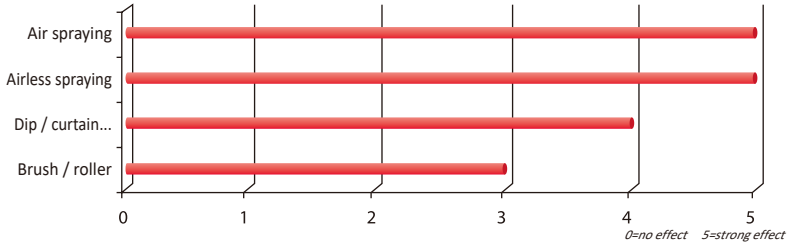
- 20 kg
- 150 kg

Shelf life

UNIQ®FOAM 182 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FOAM LP2507

Water based silicone free defoamer



UNIQ®FOAM LP2507 is a strong defoamer/anti-foam based on organic polymers, this product can be used for grinding and spraying conditions. Working well against macro-foam, but delivers also strong micro-foam destroying properties. It is well suited for all water based systems and pigment concentrates.

Special Features

- Water based applications
- Strong defoamer/anti-foam
- Long term persistent
- Silicone-free
- Heat stable

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20 °C	0.99 g/cm^3
Color	Max. 1
Appearance	clear liquid

Addition levels

- Based on total formulation: 0.3 – 3.0 %

Added in grinding stage or under high shear forces incorporation.

Packaging

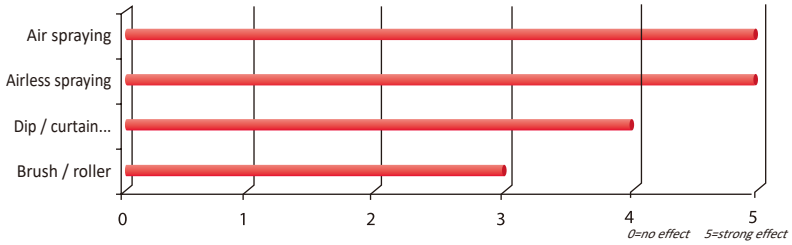
- 25 kg
- 200 kg

Shelf life

UNIQ®FOAM LP2507 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FOAM LP2537

Water based silicone free emulsion defoamer



UNIQ®FOAM LP2537 is a silicone-free surface emulsion defoamer for aqueous coatings for main application of architectural

Special Features

- Workable pH range 4.0-9.0
- Can be added in all stages
- Also suited for grinding processes
- Silicone free

Application

Architectural coatings	■
Wood and furniture coatings	□
Automotive and refinish coatings	
Can/coil coatings	
Industrial coatings	□

highly recommended ■
recommended □

Product Specification

pH	7.0 – 8.5
Density	1.02 g/cm^3
Appearance	white ivory liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Added in grinding stage or under high shear forces incorporation.

Packaging

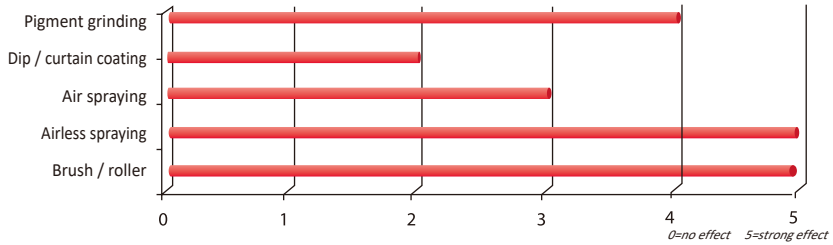
- 30 kg
- 200 kg
- 1000 kg

Shelf life

UNIQ®FOAM LP2537 should be stored in a cool dry place between 5 and 35 °C. When kept in an original unopened container, the shelf life is 2 years from the date of manufacture.

UNIQ®FOAM LP2599

Water based silicone free emulsion defoamer



UNIQ®FOAM LP2599 is a silicone-free defoamer for aqueous coatings for main application of architectural and industrial coatings

Special Features

- Workable pH range 4.0-9.0
- Can be added in all stages
- Also suited for grinding processes
- Silicone free
- Good against micro-foam

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	
Can/coil coatings	□
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

pH	7.0 – 8.5
Density	0.92 g/cm^3
Appearance	yellowish liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Optimum level of defoamer needs to be identified by some experiments.

Packaging

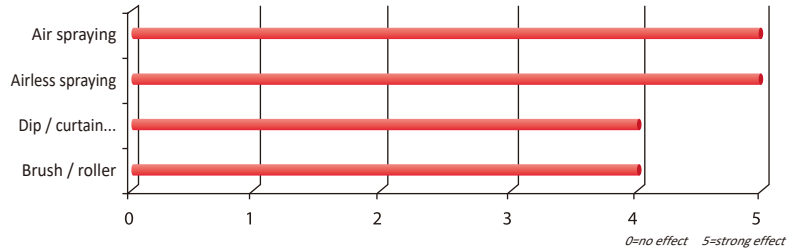
- 25 kg
- 180 kg

Shelf life

UNIQ®FOAM LP2599 should be stored in a cool dry place between 5 and 35 °C. When kept in an original unopened container, the shelf life is 2 years from the date of manufacture.

UNIQ®FOAM 235 S

Silicone defoamer with modification of fluorocarbon



UNIQ®FOAM 235 S is recommended for roller, brush and conventional spray application, very suitable also for systems ranging from low polar to high polar with strong working in against micro-foam.The defoamer is highly effective for solvent based and solvent free coating systems,which offers optimal defoaming at a very low percentage.

Special Features

- suited for medium viscosity for spray, brush and roller application
- Well suited for curtain coating applications
- micro foam destroying properties
- rather good compatibility

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Density 20 °C	0.81 g/cm^3
Refractive index	1.415
Color	Max. 1
Appearance	Clear transparent liquid

Addition levels

- Based on total formulation: 0.1 – 0.6 %

Added before grinding.

Packaging

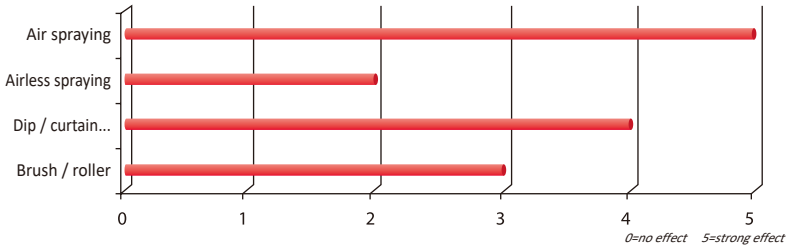
- 22 kg
- 150 kg

Shelf life

UNIQ®FOAM 235 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 238 S

Silicone defoamer Suitable for clear coating applications



UNIQ®FOAM 238 S is an air release agent to prevent foam and bubbles during the manufacture and application clear coatings for wood- and car refinish applications based on polyurethane resins. The product offers a very high clarity and will not cause haziness in the dry film.

Special Features

- Highly recommended for high gloss clear coating
- Excellent compatibility
- Effect to eliminate foam and pinholes from production and application
- High transparency
- Doesn't cause haziness

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20 °C	0.88 g/cm^3
Refractive index	1.490
Appearance	Clear colorless liquid

Addition levels

• Based on total formulation: 0.1 – 0.7 %
Added end of the preparation.

Packaging

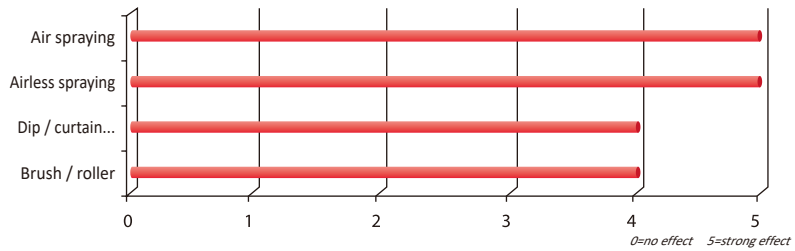
- 25 kg
- 170 kg

Shelf life

UNIQ®FOAM 238 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 246 S

Silicone defoamer with modification of fluorocarbon



UNIQ®FOAM 245 S is recommended for roller, brush and conventional spray application, very suitable also for systems ranging from low polar to high polar with strong working in against micro-foam.The defoamer is highly effective for solvent based and solvent free coating systems,which offers optimal defoaming at a very low percentage.

Special Features

- suited for medium viscosity for spray, brush and roller application
- Well suited for curtain coating applications
- micro foam destroying properties
- rather good compatibility

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Density 20 °C	0.80 g/cm^3
Refractive index	1.414
Color	Max. 1
Appearance	Clear transparent liquid

Addition levels

• Based on total formulation: 0.1 – 0.6 %
Added before grinding.

Packaging

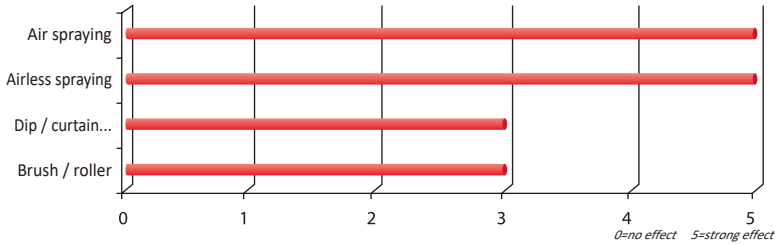
- 20 kg
- 150 kg

Shelf life

UNIQ®FOAM 245 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM 272 S

Solution of silicone defoaming polymers



UNIQ®FOAM 272 S is a strong anti-foam and air-release agentespecially suitable for use in unsaturated polyesters, epoxies and acrylic resin systems.The product is especially suitable for self-leveling epoxy systems where it will give very fast air-release and defoaming properties. The additive furthermore helps to improve the leveling.

Special Features

- Quick de-aeration and defoaming effect for pigmented solvent free epoxy flooring
- Does not interfere intercoat adhesion
- Improve leveling
- Heat stable

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	□
Can/coil coatings	□
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.91 g/cm^3
Color	Max. 3
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Added in grinding stage or under high shear forces incorporation.

Packaging

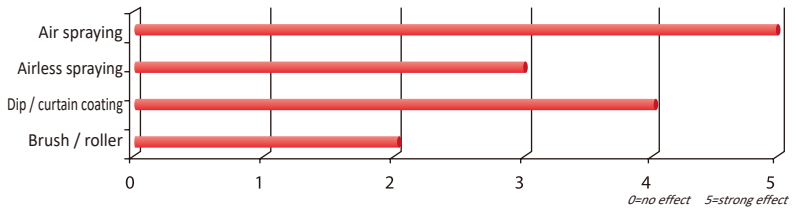
- 22 kg
- 170 kg

Shelf life

UNIQ®FOAM 272 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FOAM 280 W

Water based silicone defoamer



UNIQ®FOAM 280 W is a strong defoamer especially suitable for grinding pigment pastes. Very strong and effective in destroying the micro-foam as well the macro-foam what will result in an excellent grinding conditions to achieve more faster the particle size. It is long persistent and stable after storage. Low dosage is enough for the whole grinding process.

Special Features

- Water based applications
- Strong defoamer for grinding conditions
- Long term persistent
- Silicone based
- Heat stable

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density	1.01 g/cm^3
Appearance	Clear liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

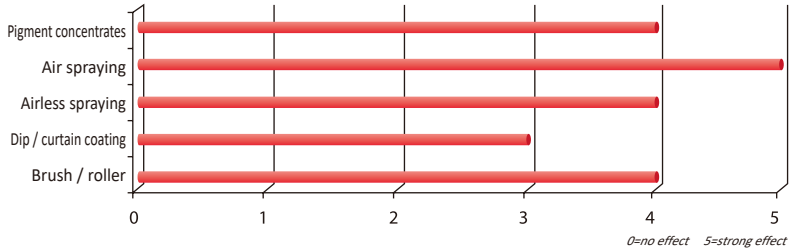
- 25 kg
- 190 kg

Shelf life

UNIQ®FOAM 280 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®FOAM 290 W

Water based silicone defoamer



UNIQ®FOAM 290 W is a strong defoamer based on organic silicon, this product can be used for grinding and spraying conditions. Working well against micro-foam, therefore also well suited for self-leveling water based epoxy flooring systems and pigment concentrates.

Special Features

- Water based applications
- Strong defoamer for grinding conditions
- Long term persistent
- Silicone based
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Can/coil coatings	□
Pigment concentrates	■

highly recommended ■
recommended □

Product Specification

Density 20°C	1.01 g/cm^3
Refractive index	1.450
Color	Max. 1
Appearance	Slightly turbid liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Most of time 0.3 % is sufficient, but for airless application higher dosage might be required.

Packaging

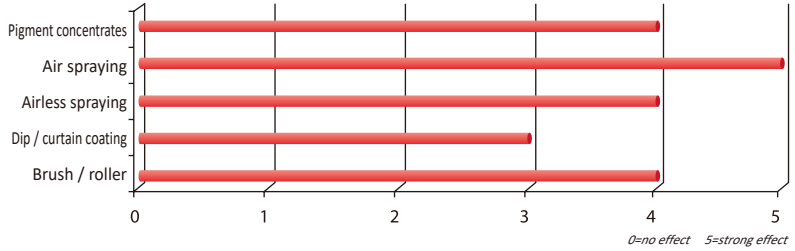
- 25 kg
- 190 kg

Shelf life

UNIQ®FOAM 290 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FOAM 292 W

Water based silicone defoamer



UNIQ®FOAM 292 W is a strong defoamer based on organic silicon, this product can be used for grinding and spraying conditions. Working well against micro-foam, therefore also well suited for self-leveling water based epoxy flooring systems.

Special Features

- Water based applications
- Strong defoamer for grinding conditions
- Long term persistent
- Silicone based
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Can/coil coatings	□
Pigment concentrates	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0,91 g/cm^3
Appearance	Slightly yellowish liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

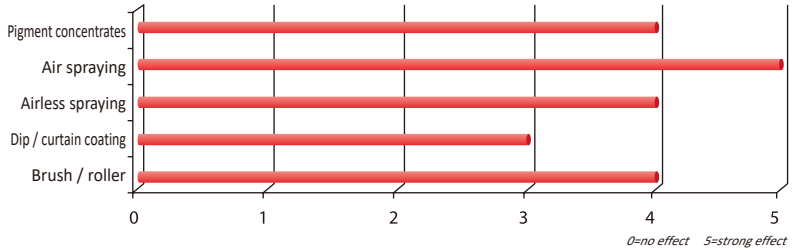
- 22 kg
- 170 kg

Shelf life

UNIQ®FOAM 292 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FOAM 295 W

Water based silicone defoamer



UNIQ®FOAM 295 W is a strong defoamer based on organic silicon, this product can be used for grinding and spraying conditions. Working well against micro-foam, therefore also well suited for self-leveling water based epoxy flooring systems and pigment concentrates.

Special Features

- Water based applications
- Strong defoamer for grinding conditions
- Long term persistent
- Silicone based
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Can/coil coatings	□
Pigment concentrates	■

highly recommended ■
recommended □

Product Specification

Density 20°C	1.01 g/cm^3
Refractive index	1.450
Color	Max. 1
Appearance	Slightly turbid liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Most of time 0.3 % is sufficient, but for airless application higher dosage might be required.

Packaging

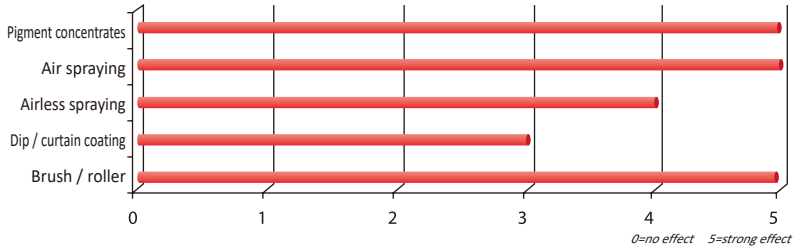
- 25 kg
- 190 kg

Shelf life

UNIQ®FOAM 295 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FOAM LP2500

Water based silicone defoamer



UNIQ®FOAM LP2500 is a strong defoamer based on organic silicon, this product can be used for grinding and spraying conditions. Working well against micro-foam, therefore also well suited for all water based systems and pigment paste.

Special Features

- Water based applications
- Strong defoamer for grinding conditions
- Long term persistent
- Silicone based
- Heat stable

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	□
Industrial coatings	□
Pigment concentrates	■

highly recommended ■
recommended □

Product Specification

Density 20 °C	0.97 g/cm^3
Appearance	slightly turbid liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

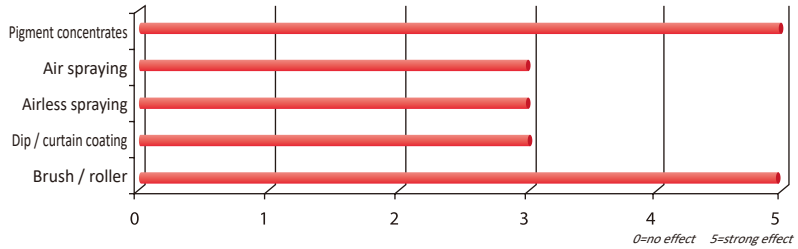
- 25 kg
- 200 kg

Shelf life

UNIQ®FOAM LP2500 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®FOAM LP2510

Water based silicone emulsion defoamer



UNIQ®FOAM LP2510 is an economical defoamer for architectural applications, good defoaming abilities, easy to incorporate

Special Features

- Workable pH range 2.0-12.0
- Good stability
- Good defoaming
- Silicone containing
- Easy to incorporate
- Antifoam and deaeration

Application

Architectural coatings	■
Wood and furniture coatings	□
Automotive and refinish coatings	□
Industrial coatings	□
Pigment concentrates	□

highly recommended ■
recommended □

Product Specification

Density 20 °C	1.02 g/cm^3
Active content	17%
pH	7.0
Appearance	white emulsion liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Optimum level of defoamer needs to be identified by some experiments.

Packaging

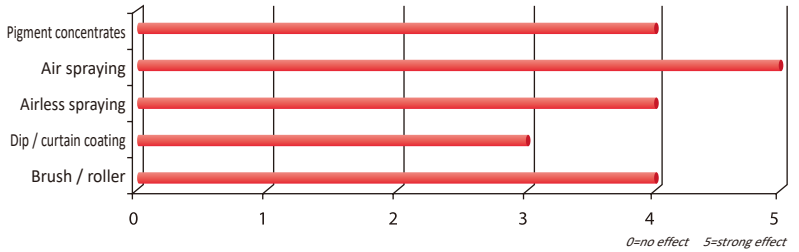
- 25 kg
- 200 kg
- 1000 kg

Shelf life

UNIQ®FOAM LP2510 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®FOAM LP2560

Water based silicone defoamer



UNIQ®FOAM LP2560 is a strong defoamer based on organic silicon, this product can be used for grinding and spraying conditions. Working well against micro-foam, therefore also well suited for all water based systems.

Special Features

- Water based applications
- Strong defoamer for grinding conditions
- Long term persistent
- Silicone based
- Heat stable

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	□
Can/coil coatings	□
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.99 g/cm^3
Appearance	White liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

- 25 kg
- 200 kg

Shelf life

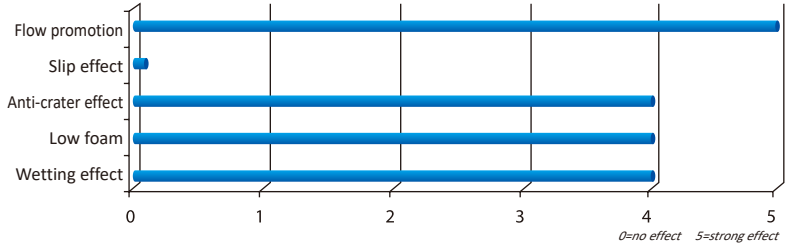
UNIQ®FOAM LP2560 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ® FLOW

for coating industrie

UNIQ® FLOW 350 W

Polymeric Fluorocarbon compound leveling agent



UNIQ® FLOW 350 W is a silicone free and can offer strong reduction of surface tension and improves wetting effect, gives strong anti-crater and is very low foaming. Meanwhile, it shows the good performance of fast wetting and leveling on difficult corners to achieve good film build up.
UNIQ® FLOW 350 W is based on a new chemistry technology developed by **UNIQ CHEM**.

Special Features

- Suitable for water-, solvent-borne and solvent free applications including UV
- Excellent leveling, long wave-effect
- Silicone free anti-crater agent
- Excellent substrate wetting
- Good defoaming properties
- pH independent
- No intercoat adhesion problems
- Heat stable, suitable for high baking systems

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.12 g/cm^3
Color	Max. 10
Appearance	Slight turbid brownish liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

UNIQ® FLOW 350 W is slight turbid, when mixed into the formulation it will become completely soluble and the turbidity will be disappear.

Packaging

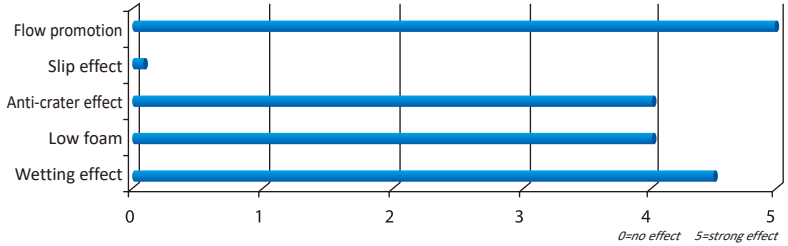
- 25 kg
- 210 kg

Shelf life

UNIQ® FLOW 350 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 352 W

Hyper-branched polymeric wetting and leveling agent



UNIQ®FLOW 352 W is a non-ionic hyper-branched polymeric wetting and leveling agent which is effective in a wide variety of emulsion resins. It has excellent substrate wetting performance and improves the paint's leveling. It doesn't stabilize foam, even shows good defoaming property. Due to good compatibility with all kind of resins **UNIQ®FLOW 352 W** doesn't show negative effects to coating performances such as gloss, anti-corrosion and intercoat adhesion.

Special Features

- Suited for water based system
- VOC free
- Silicon free
- Hyper-branched polymer
- High temperature resistant
- No effect on intercoat adhesion
- Shows excellent leveling
- Good anti-crater performance
- Good substrate wetting
- Good defoaming property
- High temperature resistant

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	0.96 g/cm^3
Appearance	Colorless transparent liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

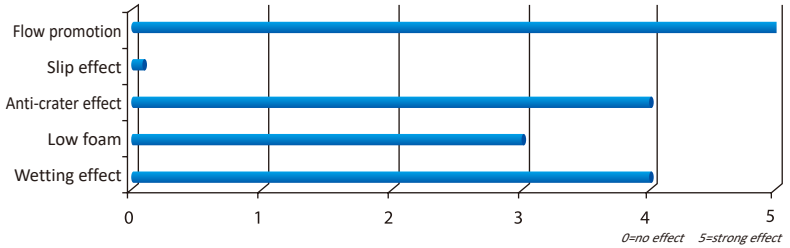
- 25 kg
- 180 kg

Shelf life

UNIQ®FLOW 352 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®FLOW 361 S

Polymeric Fluorocarbon compound leveling agent



UNIQ®FLOW 361 S is a silicone free and can offer strong reduction of surface tension, improves wetting effect andhas strong anti-crater performances. Meanwhile, it shows the good performance of fast wetting and leveling on difficult corners to achieve good film build up. The products is especially suitable for high performance coatings like automotive and refinish clear coatings.
UNIQ®FLOW 361 S the compatibility has been improved to gives excellent clarity in all resins.

Special Features

- Solvent based applications
- Excellent leveling, long wave
- Anti-crater agent
- Excellent substrate wetting
- Silicone free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20 °C	1.08 g/cm^3
Color	Max. 4
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.05 – 0.5 %

Packaging

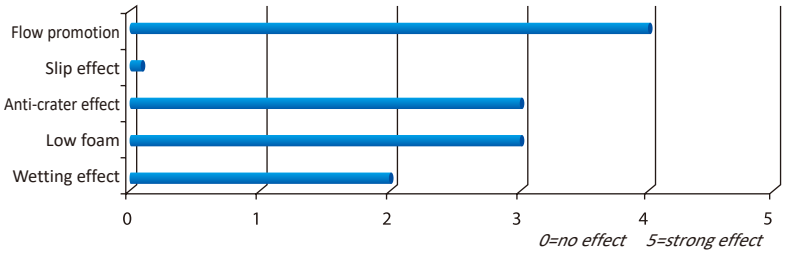
- 25 kg
- 200 kg

Shelf life

UNIQ®FLOW 361 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 372 S

Fluorocarbon modified polyacrylate leveling agent for solvent and water based system



UNIQ®FLOW 372 S is a silicone free fluor modified acrylic leveling agent to be used in solvent- and water-based coating systems. Especially in water based systems the product shows good defoaming performances. For water based systems it is advisable to adjust the pH to 8 – 8.5 to make the product fully water soluble.

Special Features

- Solvent and water based applications
- Excellent leveling, long wave-effect
- Prevents crater
- Helps substrate wetting
- Act as a defoamer and de-aeration aid
- Suitable for high gloss coating
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	60 %
Density 20 °C	0.96 g/cm^3
Solvent	Sec. butanol
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

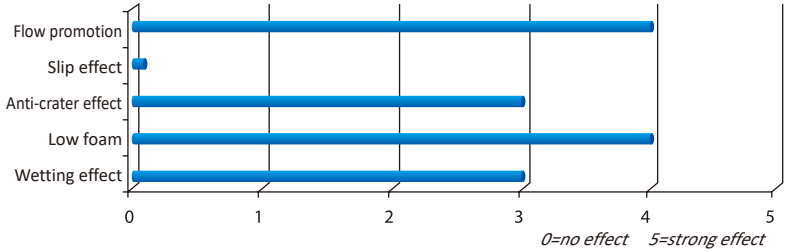
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 372 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 375 S

Fluorocarbon modified polyacrylate leveling agent for solvent based system



UNIQ®FLOW 375 S is a fluor modified acrylic leveling agent to be used in solvent based coating systems showing some defoaming performances. Due to the composition the compatibility needs to be checked for haze. For improved compatibility **UNIQ®FLOW 376 S** is recommended.

Special Features

- Solvent borne applications
- Excellent leveling, long wave-effect
- Prevents cratering
- Helps substrate wetting
- Acts as a defoamer and de-aeration aid
- Does not interfere intercoat adhesion
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	70 %
Density 20°C	0.99 g/cm^3
Solvent	Xylene
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

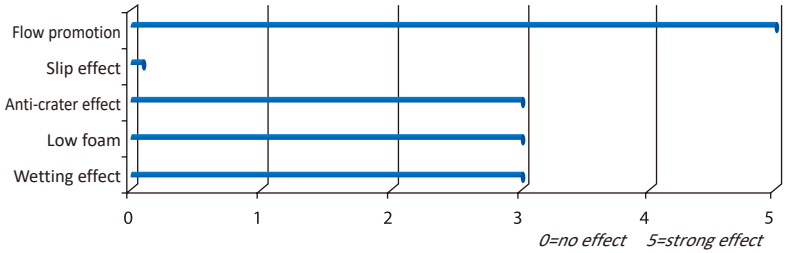
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 375 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 376 S

Fluorocarbon modified polyacrylate leveling agent for solvent based system



UNIQ®FLOW 376 S is a fluor modified acrylic leveling agent to be used in solvent based coating systems showing excellent compatibility with most of the resins.Can be used also in UPE primers for wood coatings remaining excellent clarity. Gives very fast leveling and with perfect appearances for clear coats.

Special Features

- Suitable for high gloss clear coating
- Excellent leveling, long wave-effect
- Prevents cratering
- Helps substrate wetting
- Acts as a defoamer and de-aeration aid
- Silicone-free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	70 %
Density 20 °C	1.02 g/cm^3
Solvent	PMA
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

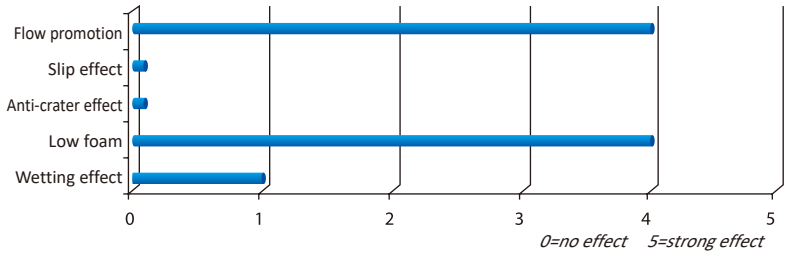
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 376 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 380 S

Polyacrylate based surface additive with air-release properties



UNIQ®FLOW 380 S is a cost effective acrylic leveling agent for solvent based coating systems showing good defoaming performances.

Special Features

- Solvent borne applications
- Improve levelling
- Acts as a defoamer and de-aeration aid
- Does not interfere intercoat adhesion
- Silicone free
- Heat stable

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20 °C	1.0 g/cm^3
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

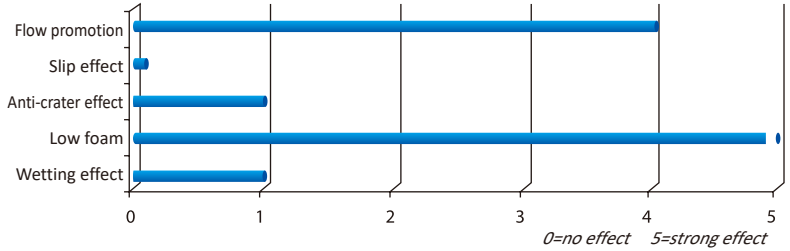
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 380 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 384 S

Polyacrylate based surface additive with air-release properties



UNIQ®FLOW 384 S is a cost effective acrylic leveling agent for solvent based and solvent free coating systems showing excellent defoaming and leveling performances. It is non-silicone and therefore will not cause intercoat adhesion problems. It is heat stable and therefore suitable for the baking system.
The compatibility needs to be checked, especially in clear coats.

Special Features

- Solvent borne and solvent free applications
- Improves levelling
- Acts as a defoamer and de-aeration aid
- Does not interfere intercoat adhesion
- Silicone free
- Heat stable

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density	1.00 g/cm³
Color	Max. 1
Appearance	Transparent liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Check compatibility especially in clear coats.

Packaging

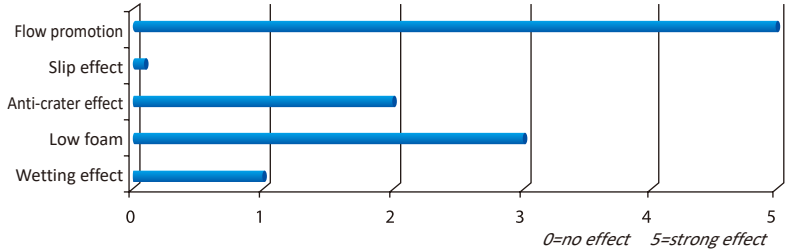
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 384 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 386 S

Polyacrylate based leveling agent for solvent based applications



UNIQ®FLOW 386 S is a cost effective acrylic leveling agent for solvent based coating systems showing excellent compatibility and good long wave leveling performances.In addition it increases the gloss.

Special Features

- Solvent based applications
- Improves leveling
- Excellent compatibility,
- Suitable for high gloss (clear) coating
- Does not interfere intercoat adhesion
- Silicone free

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	52 %
Solvent	PMA
Density 20 °C	1.0 g/cm³
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

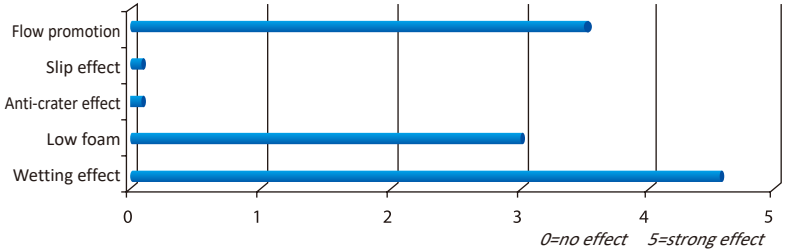
- 25 kg
- 180 kg

Shelf life

UNIQ®FLOW 386 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 387 U

Acrylate surface agent



UNIQ®FLOW 387 U is a polyether modified acrylate surface agent, can increase the surface energy of the cured coating and improves the adhesion, wetting and leveling of the following layer such as paint and printing ink. **UNIQ®FLOW 387 U** has no impact on the surface tension of the liquid coating and shows excellent compatibility when it is added to clear coats remaining high transparent.

Special Features

- Suited for water based, solvent based, UV curing and high solid binder systems
- Silicone and fluorine free
- Increase the surface energy of the cured coating
- Improves leveling
- Improves wetting of the cured coatings
- Low foam

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20 °C	1.07 g/cm^3
Color	Max. 1
Appearance	Light yellow transparent liquid

Addition levels

- Based on total formulation:

Water based systems	0.1 – 1.0 %
Solvent based systems	0.5 – 2.0%

Packaging

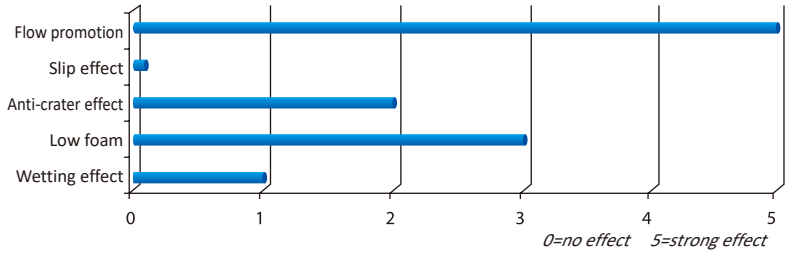
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 387 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 389 S

Polyacrylate based leveling agent for solvent based applications



UNIQ®FLOW 389 S is a cost effective acrylic leveling agent for solvent based coating systems showing excellent compatibility and good long wave leveling performances. In addition it increases the gloss.

Special Features

- Solvent based applications
- Improves leveling
- Excellent compatibility,
- Suitable for high gloss (clear) coating
- Does not interfere intercoat adhesion
- Silicone free

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20 °C	1.09 g/cm^3
Color	Max. 2
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

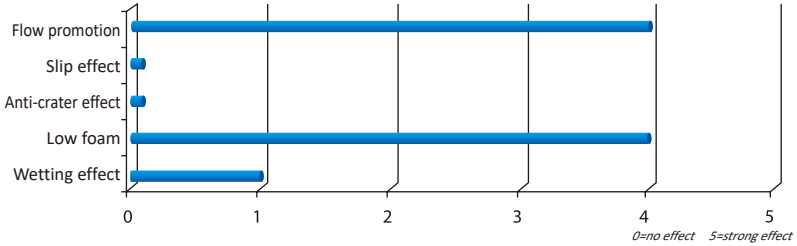
- 25 kg
- 200 kg

Shelf life

UNIQ®FLOW 389 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 390 S

Polyacrylate leveling agent



UNIQ®FLOW 390 S is a cost effective polyacrylate leveling agent for solvent based coating systems showing medium level of surface tension reduction and good defoaming performances. **UNIQ®FLOW 390 S** is a silicone free and fluorine free leveling agent, can be applied to solvent borne 1K, 2K and high baking paint systems due to its excellent heat stability performance.

Special Features

- Silicone free and fluorine free
- Good flow
- Showing defoaming performances
- No intercoat adhesion or recoatability issues
- High temperature resistant
- Suited for high baking systems

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20 °C	1.07 g/cm^3
Color	Max. 1
Appearance	Clear colorless transparent liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

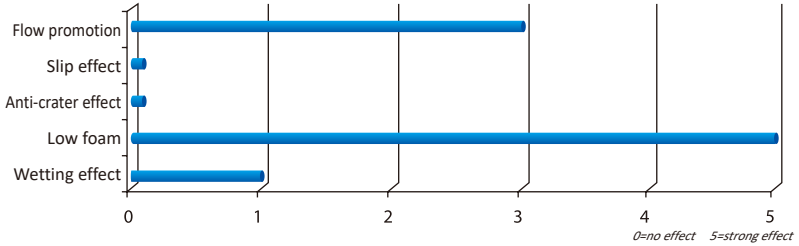
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 390 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 392 S

Acrylate leveling agent with anti-popping properties



UNIQ®FLOW 392 S is a polyacrylate surface active agent for solvent based applications especially suitable for baking systems. It promotes leveling, has defoaming effect (particularly for microfoam), and is effective for very short baking times. Suitable for roller application, conventional spraying application, and airless/airmix applications.

Special Features

- Anti-popping in solvent borne baking applications
- Improve leveling
- Excellent defoaming and degassing properties
- Does not interfere intercoat adhesion
- Silicone free
- Suitable for roller-, spraying- and airless/airmix applications

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	PMA
Density 20 °C	1.0 g/cm^3
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

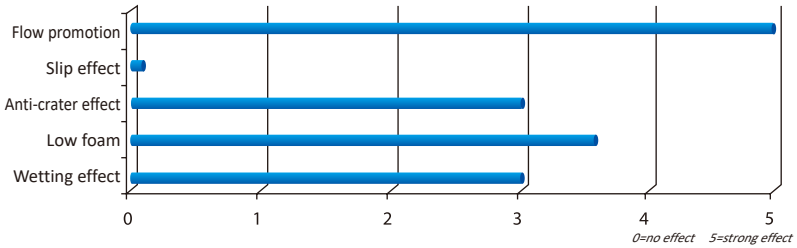
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 392 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 393 S

Modified polyester leveling agent



UNIQ®FLOW 393 S is a modified polyester leveling agents to be used in solvent based coating systems showing excellent compatibility with most of the resins. It shows fast wetting and leveling combined with strong defoaming performances. It will improve DOI and fullnesswith good perfromaces in automotive and industrial coatings.

Special Features

- Solvent based applications
- excellent flow and leveling
- Doesn't effect the recoatability
- good wetting and anti-crater properties
- broad compatible
- silicone free
- high temperature resistant

Application

Architectural coatings	□
Wood and furniture coatings	□
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	PMA
Density 20 °C	1.02 g/cm³
Color	Max. 2
Appearance	Clear colorless to slight yellowish liquid

Addition levels

- Based on total formulation: 0.1 – 1.5 %

Packaging

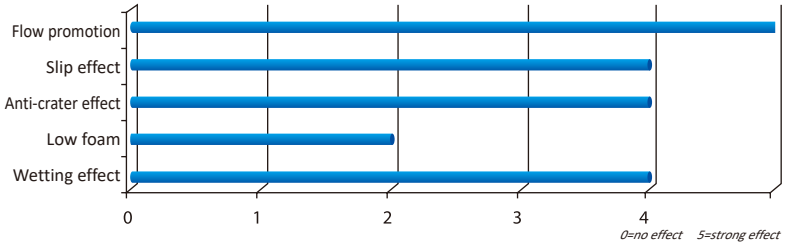
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 393 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 400 U

Organically modified polysiloxane



UNIQ®FLOW 400 U is silicone surface additive for solvent- and water based coating systems with a medium reduction of surface tension and a medium increase of surface slip.
UNIQ®FLOW 400 U increases slip and improves leveling, gloss and prevent the formation of Bénard cells. It also improves substrate wetting and anti-blocking properties.

Special Features

- Suitable for solvent and water borne
- Improve slip and hand feeling
- Improve substrate wetting
- Low foam
- improves scratch resistance
- minimal influence on intercoat adhesion

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Density 20°C	0.91 g/cm³
Solvent	Iso-Butanol
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

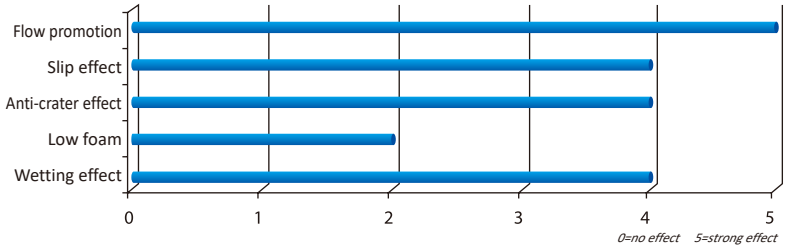
- 25 kg
- 180 kg

Shelf life

UNIQ®FLOW 400 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FLOW 415 S

Organically modified polysiloxane



UNIQ®FLOW 415 S is a highly effective silicone additive, provides a strong reduction of surface tension. Offers good wetting of critical substrates. In pigmented systems it can prevent the formation of Bénardcells and improve leveling. **UNIQ®FLOW 415 S** improves the acceptance of dust and spray mist and increases surface slip. It reduces air draft sensitivity in wood and furniture coatings.

Special Features

- Good substrate wetting
- Improve slip and hand feeling
- Low foaming
- Excellent clarity in clear coatings
- Good recoatability
- Improves scratch resistance
- Improves mar resistance

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	15 %
Density 20°C	0.90 g/cm^3
Solvent	Butyl acetate
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

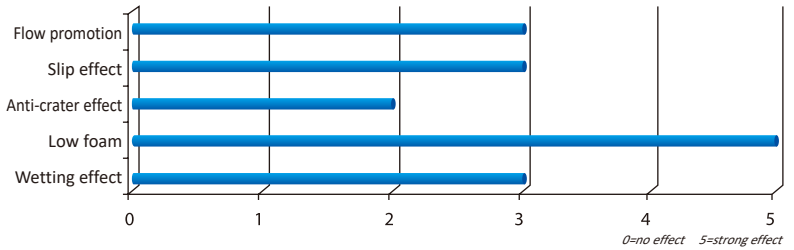
- 25 kg
- 180 kg

Shelf life

UNIQ®FLOW 415 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 430 S

Organically modified polysiloxane



UNIQ®FLOW 430 S is allyl/alkyl modified polysiloxane leveling agents with some strong defoaming performances, particularly for non-polar to medium polar systems. It helps to prevents problems with ghosting and telegraphing when it is used in the layer that will be recoated. **UNIQ®FLOW 430 S** also helps to improve the matting agent orientation at the surface to avoid clouding.

Special Features

- Excellent defoaming effect, especially against micro foam
- Suitable for baking system
- Minimal influence on intercoat adhesion
- Less suited for high gloss clear coatings
- Improves matting agents orientation

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20 °C	0.97 g/cm^3
Color	Max. 2
Appearance	Yellowish liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

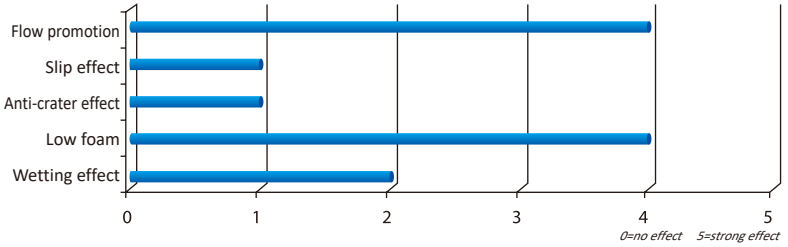
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 430 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®FLOW 437 S

Blend of high-boiling aromatic, ketone and ester solvents, including a highly compatible polysiloxane



UNIQ®FLOW 437 S prevents surface irregularities like craters, scars, blisters, pinholes and orange peel. It suppressesthe risk of solvent popping and improves leveling. It is recommended for use in solvent-borne, air-drying coatings and baking systems.

Special Features

- Excellent compatibility
- Prevents surface defects like cratering, scarring or blistering in air drying and stoving paints
- Prevents streaking during painting and spraying of chlorinated rubber and coatings based on other chlorinated polymers
- Prevents popping in stoving enamels
- Improve leveling
- no recoat problem

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Solvent	Hydrocarbon C9 aromatics/DIBK
Density 20 °C	0.86 g/cm^3
Flash point	42°C
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 1.0 – 5.0 %

Packaging

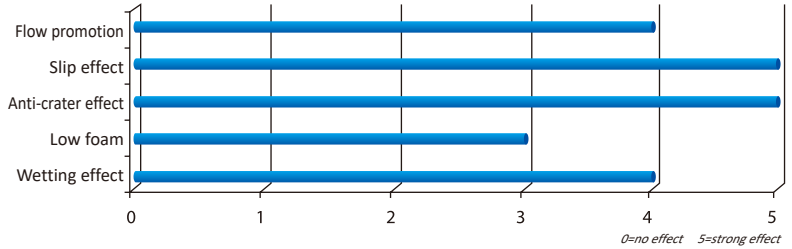
- 25 kg
- 170 kg

Shelf life

UNIQ®FLOW 437 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW 440 U

Organically modified polysiloxane



UNIQ®FLOW 440 U is modified polyether polysiloxane leveling agents. The product can offer strong reduction of surface tension and improves wetting effect and anti-crater effect of substrate. Meanwhile, it shows the good performance of fast leveling.

Special Features

- Suitable for solvent and water borne
- Anti-crater agent
- Good substrate wetting
- Low foam
- Improve anti floating and flooding
- minimal influence on intercoat adhesion

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Density 20 °C	0.98 g/cm^3
Solvent	Iso-Butanol
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 0.3 %

Packaging

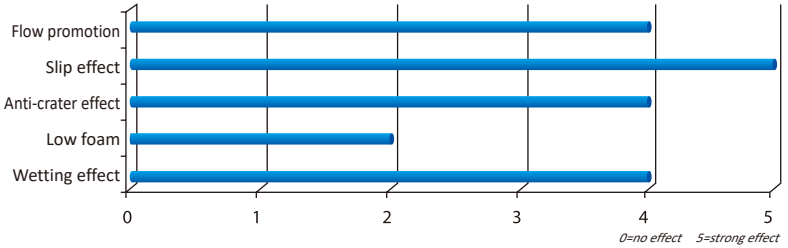
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 440 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®FLOW 470 U

Organically modified polysiloxane



UNIQ®FLOW 470 U is modified polyether polysiloxane leveling and wetting agent. It is particularly recommended for radiation-curable coatings. It improves the substrate wettingand the leveling. **UNIQ®FLOW 470 U** is particularly suitable for high-speed machineswithlow stabilization. Its good compatibility with standard bindersenables highly transparent coatings to be produced.

Special Features

- Used in waterborne, radiation-curing and solventborne and solvent free formulations
- Good substrate wetting
- Improve slip hand feeling
- Low foaming
- Good clarity
- Good recoatability
- Improves scratch resistance

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.02 g/cm^3
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

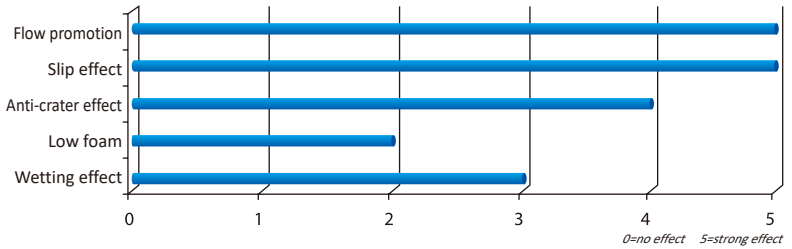
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 470 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FLOW 477 U

Organically modified polysiloxane



UNIQ®FLOW 477 U is modified polyether polysiloxane leveling agents. The product can offer strong reduction of surface tension and improves wetting effect and anti-crater effect of substrate. Meanwhile, it shows the good performance of fast leveling with excellent hand feeling and slip effect.

Special Features

- Used in waterborne, radiation-curing and solventborne and solvent free formulations
- Good substrate wetting
- Improve slip hand feeling
- Low foaming
- Good clarity
- Good recoatability
- Improves scratch resistance

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.04 g/cm^3
Color	Max. 2
Appearance	Clear liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

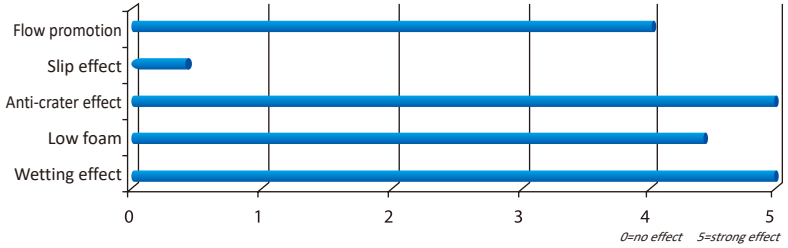
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 477 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FLOW 483 U

Organically modified polysiloxane



UNIQ®FLOW 486 U is a silicone type wetting and leveling agent, can be used in various water based, solvent based and UV coatings. Excellent substrate wetting efficiency, effectively preventing edge crawling, good anti-foam, defoaming performance. The product can be used to from primer to topcoat without effecting the intercoat adhesion.

Special Features

- Excellent anti crater
- Excellent substrate wetting
- Excellent preventing edge crawling
- Good anti-foam, defoaming efficiency
- No influence to intercoat adhesion

Application

Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.07 g/cm^3
Color	Max. 9
Appearance	Yellowish brown clear liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

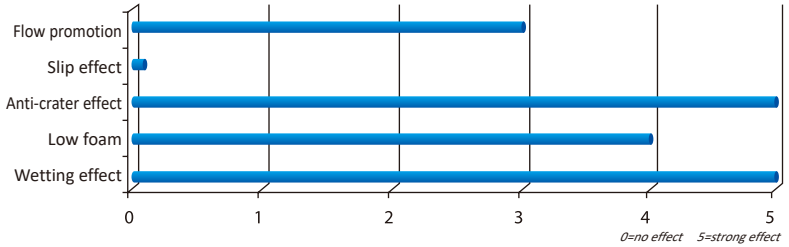
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 483 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FLOW 487 U

Organically modified polysiloxane



UNIQ®FLOW 487 U can be used in various water- solvent- borne and UV coatings to improve substrate wetting effect. The product can be used from primer to topcoat without effecting the intercoat adhesion.
In water-borne coatings it can be used in pH range from 4.0 – 9.0 and it is low foaming.
Although the product is silicone based, it will not give slip and will not improve scratch resistance.

Special Features

- Excellent anti crater
- Excellent substrate wetting
- Excellent compatibility with water
- No influence on intercoat adhesion
- Low foam stabilization
- pH independent

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.02 g/cm^3
Color	Max. 2
Appearance	Clear liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

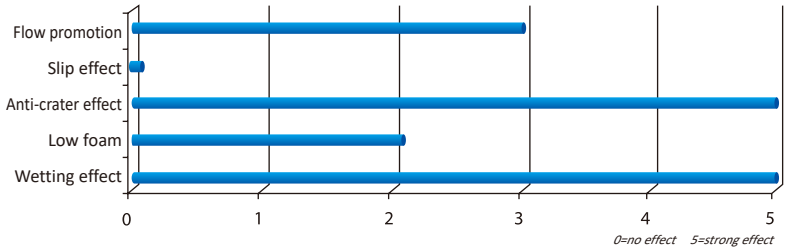
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 487 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FLOW 488 U

Organically modified polysiloxane



UNIQ®FLOW 488 U can be used in various water- solvent- borne and UV coatings to improve substrate wetting effect. The product can be used from primer to topcoat without effecting the intercoat adhesion.
In water-borne coatings it can be used in pH range from 4.0 – 9.0. It gives the best surface tension reduction properties. Although the product is silicone based, it will not give slip and will not improve scratch resistance.

Special Features

- Excellent anti crater
- Excellent substrate wetting
- Excellent compatibility with water
- No influence on intercoat adhesion
- pH independent

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.02 g/cm^3
Color	Max. 3
Appearance	Clear liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

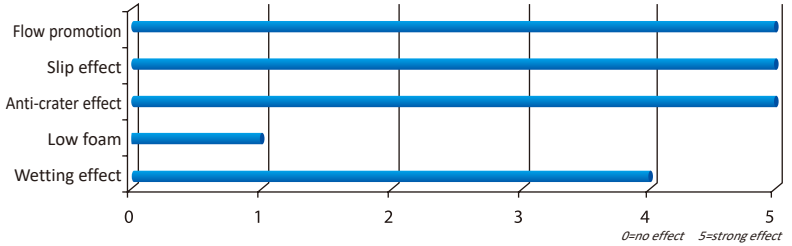
- 25 kg
- 180 kg

Shelf life

UNIQ®FLOW 488 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FLOW 493 U

Organically modified polyether polysiloxane with strong reduction of surface tension



UNIQ®FLOW 493 U is modified polyether polysiloxane leveling agents. The additive gives strong surface tension reduction properties in coatings. The substrate wetting is improved and therefore can also act as an anti-crater agent. **UNIQ®FLOW 493 U** gives strong surface slip and can help to increase the gloss.In aqueous systems it improves the anti-blocking properties.

Special Features

- Used in waterborne, radiation-curing and solventborne and solvent free formulations
- Outstanding substrate wetting
- Improve slip hand feeling
- Excellent clarity in clear coats
- Good recoatability
- Improves scratch resistance

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.04 g/cm^3
Color	Max. 3
Appearance	Clear liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

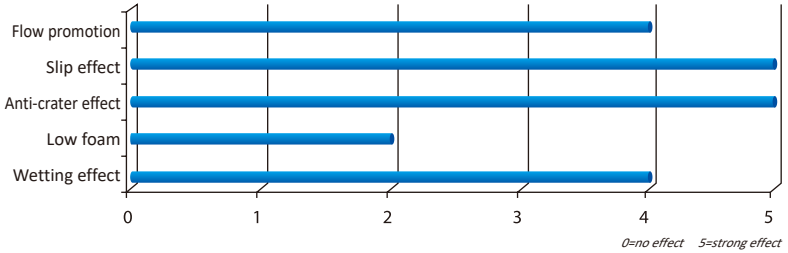
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 493 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FLOW 495 U

Organically modified polyether polysiloxane with strong reduction of surface tension



UNIQ®FLOW 495 U is modified polyether polysiloxane leveling agents. The additive gives strong surface tension reduction properties in coatings. The substrate wetting is improved and therefore can also act as an anti-crater agent. **UNIQ®FLOW 495 U** gives strong surface slip and can help to increase the gloss. In wood coating the product will give excellent hand-feeling.In aqueous systems it improves the anti-blocking properties.

Special Features

- Used in waterborne, radiation-curing and solventborne and solvent free formulations
- Outstanding substrate wetting
- Improve slip
- Excellent hand feeling
- Excellent clarity in clear coats
- Good recoatability
- Improves scratch resistance

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	
Protective coatings	■
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.04 g/cm^3
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Packaging

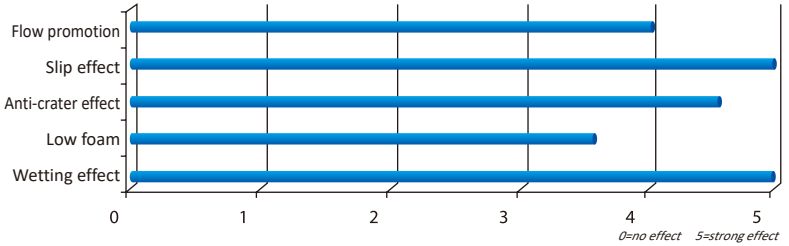
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 495 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®FLOW 498 U

Organically modified polysiloxane



UNIQ®FLOW 498 U is polysiloxane wetting and leveling agent suitable for solvent based, solvent free and water based systems. It increases slip, improves leveling and gloss, prevents the formation of Bernard cells, improves substrate wetting and provides anti-blocking properties.

Special Features

- Suited for solvent based, solvent free and water based system
- Excellent substrate wetting
- Improve slip
- Improve leveling and gloss
- Excellent anti-blocking

Application

Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	□
Protective coatings	□
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.04 g/cm^3
Color	Max. 4
Appearance	Slight yellowish liquid

Addition levels

- Based on total formulation: 0.02 – 0.3 %

Packaging

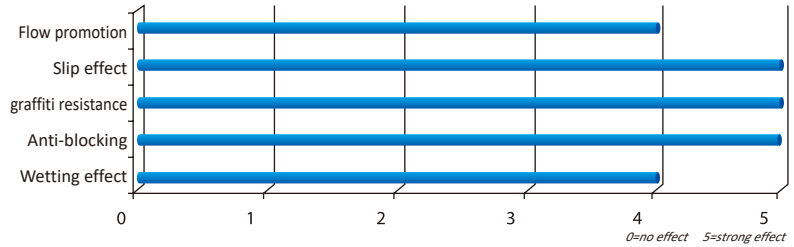
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW 498 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®FLOW 499 U

Silicone surface additive



UNIQ®FLOW 499 U is silicone surface additive. The additive can give excellent graffiti resistance of coatings after crosslinking because of the –OH group in it. **UNIQ®FLOW 499 U** gives strong surface slip and excellent hand feelings. At the same time, it improves the anti-blocking properties.

Special Features

- Suited for 2K PU and baking system
- Silicone surface additive
- Excellent graffiti resistance of coatings
- Improve the wetting abilities on the substrate
- Improve slip and give excellent hand feelings

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	□
Can/coil coatings	□
Protective coatings	□
Industrial coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	0.98 g/cm^3
Color	Max. 1
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.5 – 2.0 %

Packaging

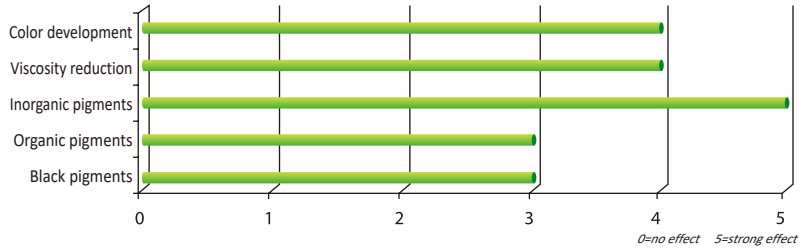
- 25 kg
- 180 kg

Shelf life

UNIQ®FLOW 499 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE 510 S

Polyurethane dispersant for solvent system



UNIQ®SPERSE 510 S is a wetting and dispersing additive for solvent based coating systems. The dispersant is especially suitable for inorganic pigments, extender pigments and matting agents. For matting agents and TiO2 it will help to avoid hard sediments. In addition the matting agent orientation will be improved what will help to achieve faster your gloss level. **UNIQ®SPERSE 510 S** is also well suited for co-grinding process.

Special Features

- Solvent based applications
- Help orientation of matting agents
- Protects formation of hard sedimentation
- Also suited for extender pigments
- Excellent for co-grinding
- Prevents flooding and floating
- Improves hiding power

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Industrial Coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50.0 %
Solvent	PMA/Hydrocarbons C9 aromatics/Butylacetate
Density 20°C	0.98 g/cm^3
Acid value	14.0 mg KOH/g
Amine value	6.0 mg KOH/g
Color	Max.6
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2–5 %
- Titanium dioxides: 1 – 3 %
- Organic pigments: 20 – 40 %
- Carbon blacks: 15 – 40 %
- Matting agents 5 - 10 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

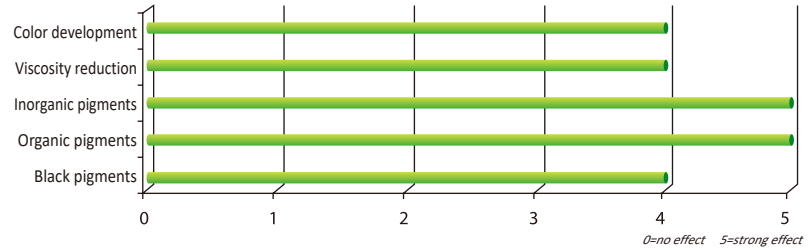
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 510 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 550 S

Polyurethane dispersant for solvent system



UNIQ®SPERSE 550 S is a wetting and dispersing additive for solvent based coating systems suited for the stabilization of inorganic, organic and carbon black pigments.It will help to reduce the viscosity and avoid flooding and floating. Suited for preparation of resin minimal pigment concentrates.

Special Features

- Solvent based applications
- Prevents flooding and floating
- Organic and Inorganic pigment
- Improves gloss and DOI
- Good viscosity reduction

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Industrial coatings	■
Pigment concentrates	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	45.0 %
Solvent	butylacetate/PMA
Density 20°C	1.0 g/cm^3
Amine value	14.0 mg KOH/g
Color	Max.10
Appearance	Light brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5 %
- Titanium dioxides: 1 – 3 %
- Organic pigments: 15 – 30 %
- Carbon blacks: 20 – 40 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

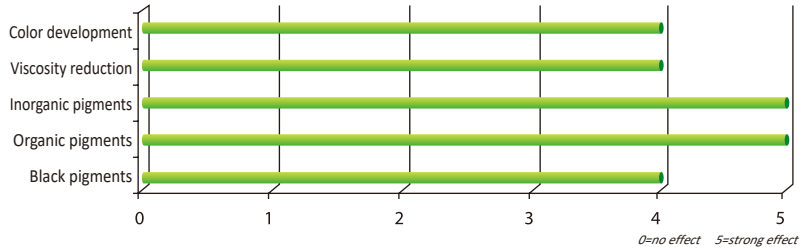
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 550 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 553 S

Polyurethane dispersant for solvent system



UNIQ®SPERSE 553 S is a wetting and dispersing additive for solvent based coating systems suited for the stabilization of inorganic, organic and carbon black pigments.It will help to reduce the viscosity and avoid flooding and floating. Suited for preparation of resin minimal pigment concentrates.

dispersant

Special Features

- Solvent based applications
- Prevents flooding and floating
- Organic and Inorganic pigment
- Improves gloss and DOI
- Good viscosity reduction

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Industrial coatings	■
Pigment concentrates	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	45.0 %
Solvent	butylacetate/PMA
Density 20°C	1.0 g/cm^3
Amine value	14.0 mg KOH/g
Color	Max.10
Appearance	Light brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5 %
- Titanium dioxides: 1 – 3 %
- Organic pigments: 15 – 30 %
- Carbon blacks: 20 – 40 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

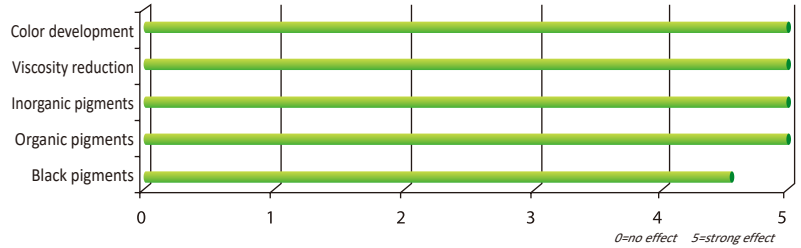
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 553 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 560 S

Polyurethane dispersant for solvent system



UNIQ®SPERSE 560 S is a wetting and dispersing additive for solvent based automotive and industrial coatingsand pigment concentrates. Especially in two-pack PU and baking systems with excellent reduction of millbase viscosity. Also very well compatible with CAB and therefore well suited for basecoat. Gives excellent transparency with difficult pigments.

dispersant

Special Features

- Solvent based applications
- Prevents flooding and floating
- Organic and Inorganic pigment
- Improves gloss and DOI
- Good viscosity reduction

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial Coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	30.0 %
Solvent	n-BA/PMA/xylene
Density 20°C	0.95 g/cm^3
Amine value	8.0 mg KOH/g
Color	Max. 6
Appearance	Yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5%
- Titanium dioxides: 1 – 3%
- Organic pigments: 15 – 40%
- Carbon blacks: 20 – 60%

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

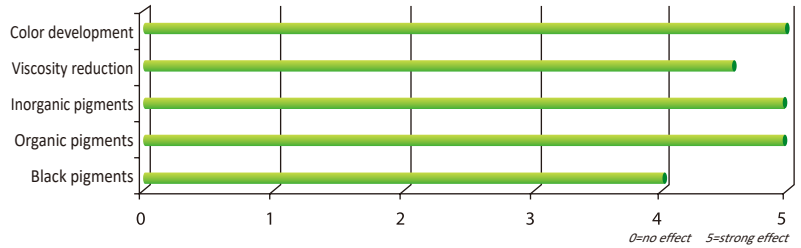
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 560 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®SPERSE 563 S

Polymer dispersant



UNIQ®SPERSE 563 S is a wetting and dispersing agent for solvent based automotive coating, industrial coating, composite's color paste and pigment concentrates. It is applied for dispersing organic and inorganic pigments, is suitable for 2kPU and high baking systems with excellent viscosity reduction, color development. It has excellent compatibility performance with multi-resin systems including CAB, promote property stability of final products, and has excellent anti-settling even though at the low viscosity conditions. Shows excellent transparency when dispersing multi-color pigments.

Special Features

- Solvent based applications
- Suitable for both organic and inorganic pigments
- Excellent anti-settling and anti-flooding and anti-floating
- Excellent compatibility
- Improves gloss and DOI
- Good viscosity reduction

Application

Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■
Pigment concentrates	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	30 %
Solvent	PMA/n-BA/Iso-Butanol
Density 20°C	1.01 g/cm^3
Amine value	9 mg KOH/g
Appearance	Yellow clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5 %
- Titanium dioxides: 1 – 3 %
- Organic pigments: 15 – 50 %
- Carbon blacks: 20 – 100 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

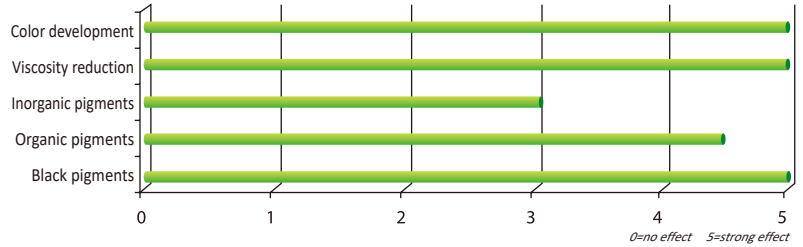
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 563 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®SPERSE 580 U

Structured Polymer



UNIQ®SPERSE 580 U is a wetting and dispersing additive for water based and solvent free applications. Suitable for industrial, automotive coating and resin free pigment concentrates. **UNIQ®SPERSE 580 U** is especially developed for the grinding of high channel black pigment, shows best jetness with blue undertone, and excellent dispersion stability and viscosity reduction. Also suitable for dispersing some organic pigments, shows excellent transparency and color development.

Special Features

- Water-borne and solvent free applications
- Excellent dispersant for high channel black pigment
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- Excellent jetness and blue undertone
- Improves color development and Chroma

Application

Architectural coatings	□
Wood and furniture coatings	□
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■
Pigment concentrates	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.07 g/cm^3
Amine value	52.0 mg KOH/g
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 12 %
- Titanium dioxides: 1 – 4 %
- Organic pigments: 15 – 50 %
- Carbon blacks: 20 – 100 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

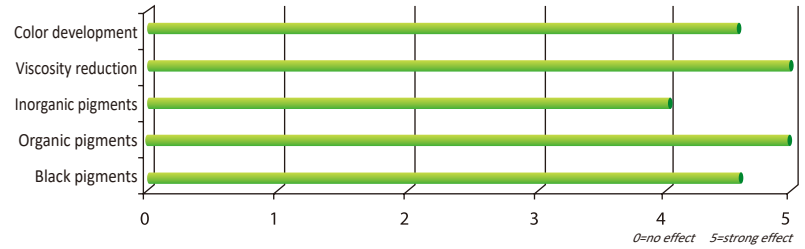
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 580 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 586 U

Structured Polymer



UNIQ®SPERSE 586 U is a wetting and dispersing additive for water base and solvent base, The dispersant suited for inorganic or organic pigments and resin free pigment concentrates. It shows good dispersibility and stability. In baking system it shows excellent high temperature resistance to yellowing. And good water-resistance in waterborne application.

Special Features

- Water borne and solvent borne, solvent free, UV applications
- Excellent dispersant for inorganic and organic pigments
- Suited for resin free pigment concentrates
- Outstanding high temperature and yellowing resistance
- Excellent water resistance performance
- Improve the gloss and color strength
- Prevent pigment settling

Application

Architectural coatings	□
Wood and furniture coatings	□
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■
Pigment concentrates	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.06 g/cm^3
Amine value	45.0 mg KOH/g
Acid value	3.0 mg KOH/g
Color	Max.8
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 12 %
- Titanium dioxides: 1 – 5 %
- Organic pigments: 15 – 50 %
- Carbon blacks: 20 – 100 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

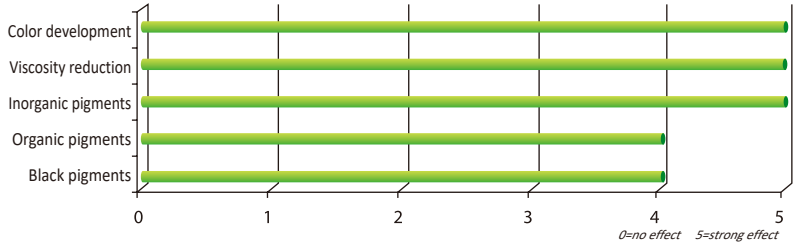
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 586 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 590 U

Polyester dispersant for solvent system



UNIQ®SPERSE 590 U is a new generation wetting and dispersing agent suitable for all application fields including preparation of pigment pastes. It shows excellent wetting and dispersing properties for both inorganic and organic pigments, especially suitable for grinding transparent iron oxide yellow/iron red pigment, exhibiting excellent transparency and color development. For TiO2 paste it shows excellent whiteness, good anti settling properties and resistant against yellowing at high temperature.

Special Features

- Excellent dispersant for inorganic and organic pigments
- No yellowing at high temperature
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- High whiteness/transparency and gloss
- Excellent anti-settling properties
- Excellent alcohols and ethers resistance
- Excellent color development
- Suited for high temperature baking systems

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Industrial coatings	■
Pigment concentrates	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.12 g/cm^3
Acid Value	26 mg KOH/g
Amine value	27 mg KOH/g
Appearance	Light brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5 %
- Titanium dioxides: 2 – 5 %
- Organic pigments: 15 – 40 %
- Carbon blacks: 20 – 80 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

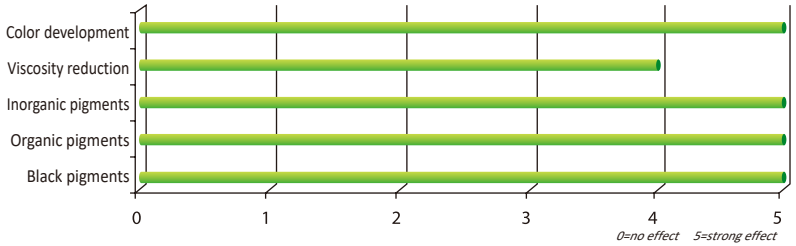
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 590 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 605 S

Polyester dispersant for solvent system



UNIQ®SPERSE 605 S is a wetting and dispersing additive for solvent based automotive and industrial coatingsand pigment concentrates. Especially in two-pack PU, baking systems and CAB with excellent reduction of millbase viscosity.Gives excellent transparency with difficult pigments and with high channel black pigments it will give the best jetness with blue undertone.

Special Features

- Improve tint strength and chrome for organic and inorganic pigment
- Reduces viscosity of the mill bases
- Excellent for black jetness
- Good compatibility with CAB
- Suited for high temperature reactions like coil and baking system

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial Coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	40.0 %
Solvent	n-BA
Density 20°C	0.96 g/cm^3
Acid Value	8.0 mg KOH/g
Amine value	19.0 mg KOH/g
Color	Max.13
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2–5 %
- Titanium dioxides: 1 – 3 %
- Organic pigments: 15 – 40 %
- Carbon blacks: 20 – 60 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

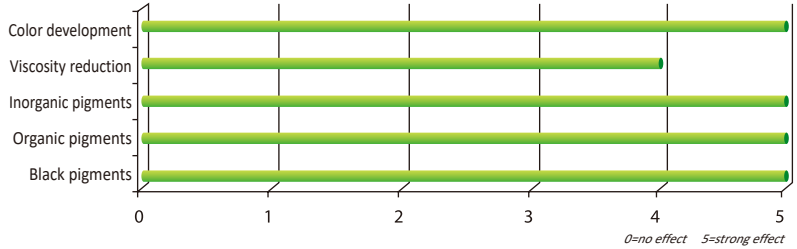
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 605 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 615 S

Polyester dispersant for solvent system



UNIQ®SPERSE 615 S is a wetting and dispersing additive for solvent based automotive and industrial coatingsand pigment concentrates. Especially in two-pack PU, baking systems and CAB with excellent reduction of millbase viscosity.Gives excellent transparency with difficult pigments.

Special Features

- Improve tint strength and chrome for organic and in organic pigment
- Reduces viscosity of the mill bases
- Excellent for black jetness
- Good compatibility with CAB
- Suited for high temperature reactions like coil and baking system

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	40.0 %
Solvent	n-BA
Density 20°C	0.96 g/cm^3
Acid Value	8.0 mg KOH/g
Amine value	19.0 mg KOH/g
Color	Max.13
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5 %
- Titanium dioxides: 1 – 3 %
- Organic pigments: 15 – 40 %
- Carbon blacks: 20 – 60 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

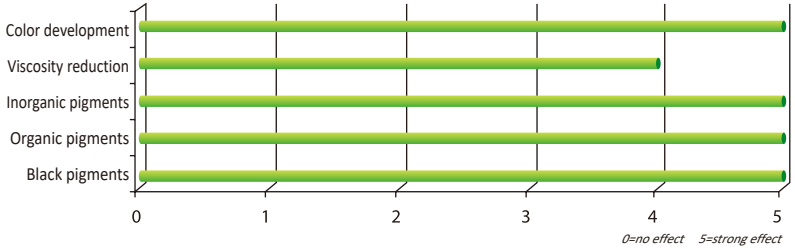
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 615 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 618 S

Polyester dispersant for solvent system



UNIQ®SPERSE 615 S is a wetting and dispersing additive for solvent based automotive and industrial coatingsand pigment concentrates. Especially in two-pack PU, baking systems and CAB with excellent reduction of millbase viscosity.Gives excellent transparency with difficult pigments.

dispersant

Special Features

- Improve tint strength and chrome for organic and in organic pigment
- Reduces viscosity of the mill bases
- Excellent for black jetness
- Good compatibility with CAB
- Suited for high temperature reactions like coil and baking system

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	40.0 %
Solvent	n-BA
Density 20°C	0.96 g/cm^3
Acid Value	8.0 mg KOH/g
Amine value	19.0 mg KOH/g
Color	Max.13
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5 %
- Titanium dioxides: 1 – 3 %
- Organic pigments: 15 – 40 %
- Carbon blacks: 20 – 60 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

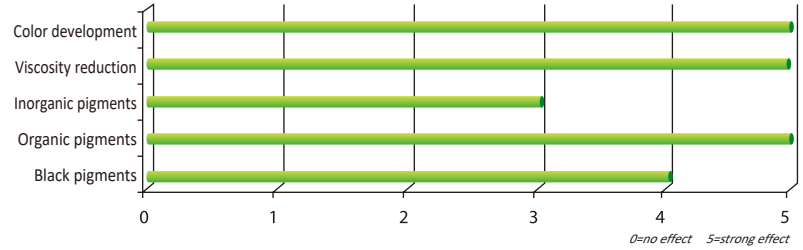
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 615 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 630 U

Structured Polymer



UNIQ®SPERSE 630 U is a wetting and dispersing additive mainly for water based applications. Suitable for resin free pigment concentrates. Especially developed for the grinding of organic pigment to give excellent transparency, color development, and high Chroma, improved the gloss, and shows good viscosity reduction.

dispersant

Special Features

- Water-borne applications
- Excellent dispersant for for high performance organic pigment.
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- High transparency and gloss
- Improves color development and Chroma

Application

Architectural coatings	□
Wood and furniture coatings	□
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.08 g/cm^3
Amine value	40.0 mg KOH/g
Color	Max.13
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 12 %
- Titanium dioxides: 1 – 4 %
- Organic pigments: 15 – 50 %
- Carbon blacks: 20 – 100 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

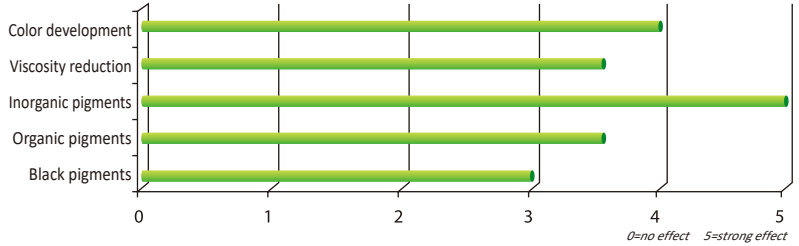
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 630 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE 650 U

Polymeric dispersant for solvent system



UNIQ®SPERSE 650 U is a wetting and dispersing additive based on new generation chemistry technology for solvent-, water based and solvent free applications. The dispersant is especially developed for the grinding of inorganic pigments, extender pigments and matting agents. Especially in water based systems it will prevent sedimentation of the inorganic pigments what can help you to eliminate or reduce the use of a rheology control agent.

Special Features

- Suitable for water-borne, solvent-borne and solvent-free application
- Wetting and dispersing agent especially suitable for inorganic, extender and matting agents pigments
- Suitable for color acceptance
- Reduce the viscosity of pigment paste and increase the pigment loading
- Improve color acceptance
- Improve the gloss and tinting strength

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.05 g/cm^3
Acid Value	14.0 mg KOH/g
Color	Max.13
Appearance	Reddish brown liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2–5 %
- Titanium dioxides: 1 – 3 %
- Organic pigments: 15 – 40 %
- Carbon blacks: 20 – 60 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

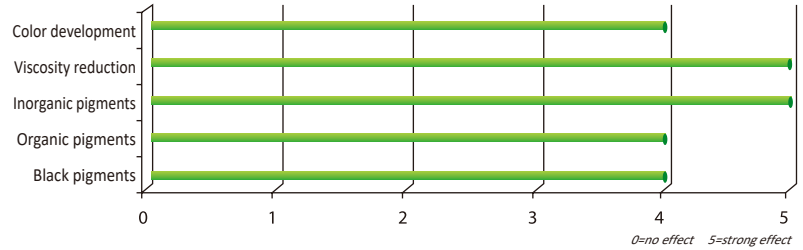
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 650 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 670 U

Structured Polymer



UNIQ®SPERSE 670 U is a new chemistry developed dispersing agents is suited for solvent-, water-based, UV and solvent-free coating system. The dispersant is very well suited for grinding transparent iron oxides. Also the dispersant is excellent suited for dispersing matting agents in water-based and solvent free systems like in UV to give excellent viscosity reduction, matting efficiency and storage stability without forming hard sediment.

Special Features

- Suitable for all types of solvent-, water-based, UV and solvent-free systems
- Excellent transparency and storage stability for transparent iron oxides
- Prevent settling of matting agents
- Excellent storage stability
- Improves the color and saturation of pigments

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Pigment concentrates	□
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.12 g/cm3
Acid Value	42 mg KOH/g
Amine value	70 mg KOH/g
Appearance	Yellow transparent liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 15 %
- Titanium dioxides: 1 - 5 %
- Organic pigments: 15 - 50 %
- Carbon blacks: 20 - 100 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

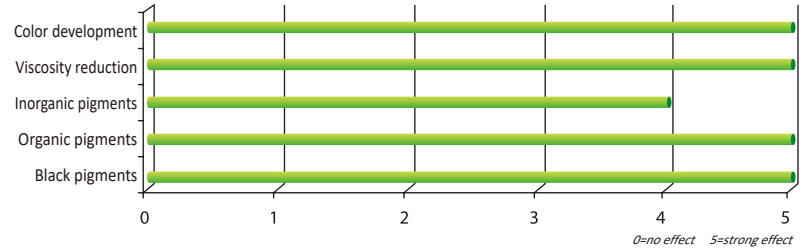
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 670 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 680 U

Structured Polymer



UNIQ®SPERSE 680 U is a wetting and dispersing additive for water-, solvent- and solvent free based applications. The dispersant is especially developed for grinding organic pigments, but gives also excellent performances and jetness for HCC carbon black. The dispersant is also suited for inorganic pigments and the dispersant can be used for the preparation of resin free pigment concentrates.

dispersant

Special Features

- Suitable for water-, solvent- and solvent-free application
- Wetting and dispersing agent suitable for all pigments
- Gives excellent jetness with HCC black pigments
- Strong viscosity reduction
- High transparancy and gloss
- Improves hiding power

Application

Architectural coatings	□
Wood and furniture coatings	□
Automotive and refinish coatings	■
Industrial coatings	■
Pigment concentrates	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.08 g/cm^3
Acid Value	9.0 mg KOH/g
Amine value	65.0 mg KOH/g
Color	Max. 8
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 5 %
- Titanium dioxides: 1 - 3 %
- Organic pigments: 15 - 40 %
- Carbon blacks: 20 - 80 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

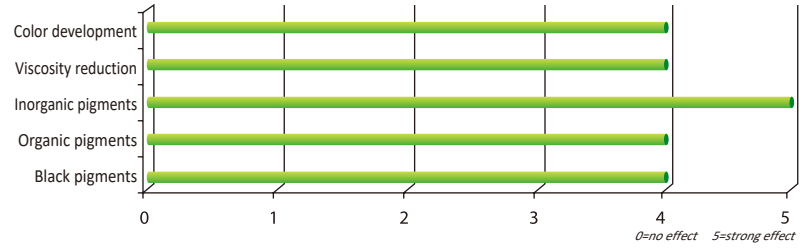
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 680 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 685 U

Structured Polymer



UNIQ®SPERSE 685 U is a wetting and dispersing additive based on new generation chemistry technology for solvent-, water based and solvent free applications. The dispersant is especially developed for the grinding of carbon black to give excellent jetness development. Also very well suited for organic yellow and organic red pigments.

dispersant

Special Features

- Suitable for water-borne, solvent-borne and solvent-free application
- Wetting and dispersing agent suitable for all pigments
- Gives excellent jetness with HCC black pigments
- Reduce the viscosity of pigment paste and increase the pigment loading

Application

Architectural coatings	
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.1 g/cm^3
Acid Value	12.0 mg KOH/g
Color	Max. 8
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 5 %
- Titanium dioxides: 1 - 3 %
- Organic pigments: 15 - 50 %
- Carbon blacks: 20 - 100 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

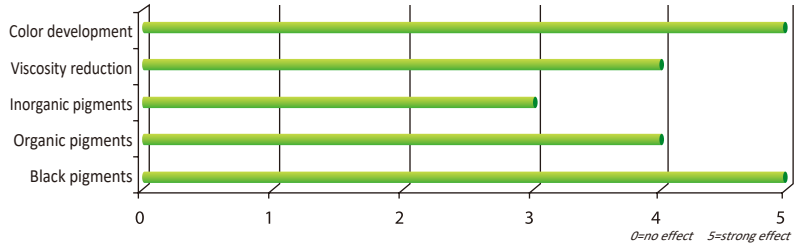
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 685 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 686 S

Polymeric dispersant



UNIQ®SPERSE 686 S is a wetting and dispersing agent for solvent based and solvent free systems. The dispersant is especially developed for grinding carbon black to give excellent jetness and color development. Also very well suited for inorganic and organic pigments and resin free pigment concentrates. Good compatibility with multiple resins, CAB and aromatic isocyanate curing agent.

Special Features

- Solvent based and solvent free applications
- Excellent dispersant for inorganic and organic pigments, especially for carbon black
- Suitable for resin free pigment concentrates
- Strong viscosity reduction
- High transparency and gloss
- Improves hiding power
- Good compatibility
- Suitable for high bake systems

Application

Architectural coatings	
Wood and furniture coatings	□
Automotive and refinish coatings	■
Can/coil coatings	■
pigment concentrates	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.03 g/cm^3
Acid Value	11 mg KOH/g
Amine value	58 mg KOH/g
Color	Max. 8
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

• Inorganic pigments:	2 - 5 %
• Titanium dioxides:	2 - 5 %
• Organic pigments:	15 - 40 %
• Carbon blacks:	20 - 100 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

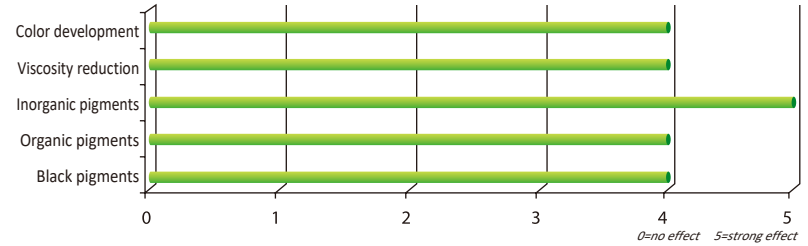
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 686 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture. At low temperature the product may become turbid, this will not affect the product performances.

UNIQ®SPERSE 688 W

Structured Polymer



UNIQ®SPERSE 688 W i is a wetting and dispersing additive for water based. The dispersant suited for inorganic or organic pigments and resin free pigment concentrates. **UNIQ®SPERSE 688 W** shows excellent water-resistance, dispersibility and viscosity reduction performance.

Special Features

- Water borne applications
- Excellent dispersant for inorganic and organic pigments
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- Excellent water resistance performance
- Improve the gloss and color strength

Application

Architectural coatings	□
Wood and furniture coatings	□
Automotive and refinish coatings	■
Can/coil coating	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	30 %
Density 20°C	1.03 g/cm^3
Amine value	22.0 mg KOH/g
Color	Max. 8
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

• Inorganic pigments:	2 - 20 %
• Titanium dioxides:	1 - 5 %
• Organic pigments:	15 - 50 %
• Carbon blacks:	20 - 100 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

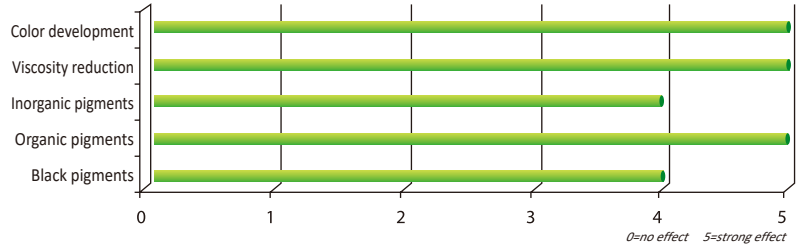
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 688 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE 690 W

Block polymer dispersant



UNIQ®SPERSE 690 W is a wetting and dispersing additive for aqueous coating systems, also suitable for resin free pigment concentrates, suitable for all pigments.

UNIQ®SPERSE 690 W stabilizes pigments by means of steric stabilization. Well stabilized pigments with small particle sizes will results in high gloss levels, improved color strength and hiding power, improved transparency and reduction of the viscosity. As a matter of fact higher pigment loading pigment concentrates can be achieved.

Special Features

- Water borne applications
- Excellent dispersant for inorganic and organic pigments
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- Prevents flooding and floating
- Improves hiding power
- Excellent early water resistance

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Pigment concentrates	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	40.0 %
Density 20°C	1.07 g/cm^3
Acid value	15.0 mg KOH/g
Amine value	15.0 mg KOH/g
Color	Max. 6
Appearance	Slight brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 5 %
- Titanium dioxides: 2 - 5 %
- Organic pigments: 10 - 40 %
- Carbon blacks: 20 - 100 %

The above recommended levels can be usd for orientation and needs to be optimized by testing.

Packaging

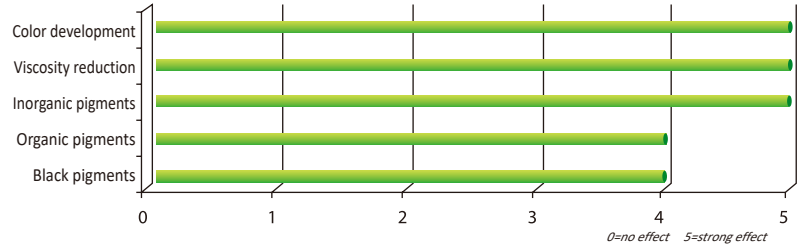
- 25 kg
- 200 kg
- 1000 kg

Shelf life

UNIQ®SPERSE 690 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE 692 W

Structured polymer dispersant



UNIQ®SPERSE 690 W is a wetting and dispersing additive based on a new generation chemistry suited for water based applications. The dispersant is suited for organic and inorganic pigments, espcially suited for transparent iron oxide yellow. It shows very good viscosity reduction, high transparancy and color development.

Special Features

- Water borne applications
- Excellent dispersant for inorganic and organic pigments, espcially suited for transparent iron oxide yellow
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- High transparency and gloss
- Improves the color development and chroma

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Pigment concentrates	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Active ingredients	40.0 %
Density 20°C	1.07 g/cm^3
Acid value	20.0 mg KOH/g
Amine value	20.0 mg KOH/g
Color	Max. 10
Appearance	Slight brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 5 %
- Titanium dioxides: 2 - 5 %
- Organic pigments: 10 - 40 %
- Carbon blacks: 20 - 80 %

The above recommended levels can be usd for orientation and needs to be optimized by testing.

Packaging

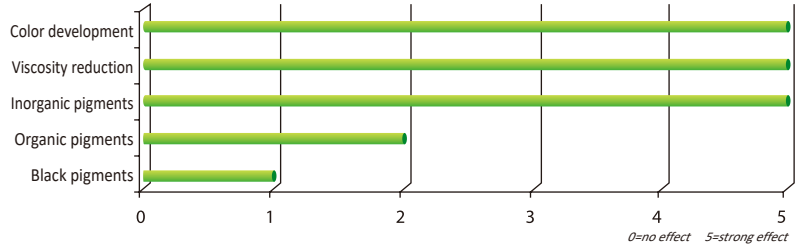
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 692 W should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE 710 S

Polyester phosphoric dispersant for solvent based system



UNIQ®SPERSE 710 S is a wetting and dispersing additive for solvent based coating systems. The dispersant is especially suitable for inorganic pigments, extender pigments. For TiO2 millbase viscosities will be strong reduced so higher pigment loading in the mill base process can be achieved.

dispersant

Special Features

- Solvent based applications
- Wetting and dispersing agent of TiO2 and inorganic pigment
- Reduce the viscosity of pigment paste and increase the pigment loading
- Increase the hiding power of TiO2
- Improve optical whiteness
- Improve the gloss and tinting strength

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50.0 %
Solvent	PMA/Hydrocarbons C9 Aromatics
Density 20°C	0.99 g/cm^3
Acid value	80.0 mg KOH/g
Color	Max.3
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 5 %
- Titanium dioxides: 1 - 3 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

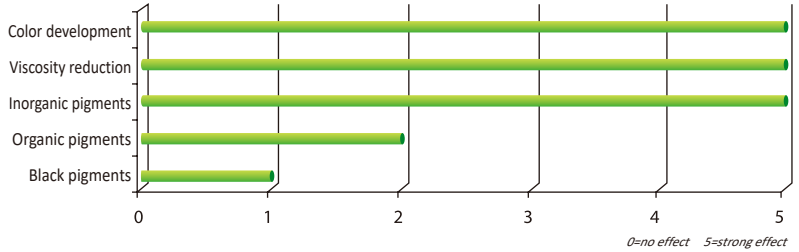
- 25 kg
- 180 kg

Shelf life

UNIQ®SPERSE 710 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 711 S

Polyester phosphoric dispersant for solvent based system



UNIQ®SPERSE 711 S is a wetting and dispersing additive for solvent based coating systems. The dispersant is especially suitable for inorganic pigments, extender pigments. For TiO_2 millbase viscosities will be strong reduced so higher pigment loading in the mill base process can be achieved.

dispersant

Special Features

- Solvent based applications
- Wetting and dispersing agent of TiO2 and inorganic pigment
- Reduce the viscosity of pigment paste and increase the pigment loading
- Increase the hiding power of TiO2
- Improve optical whiteness
- Improve the gloss and tinting strength

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.07 g/cm^3
Acid value	140.0 mg KOH/g
Color	Max. 5
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 5 %
- Titanium dioxides: 1 - 3 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

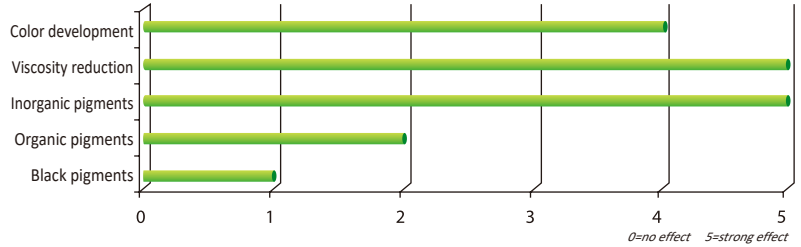
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 711 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 715 S

Wetting and dispersing agent for inorganic pigments



UNIQ®SPERSE 715 S is a wetting and dispersing additive for solvent based coating systems. The dispersant is especially suitable for inorganic pigments, extender and filler pigments. For TiO2 millbase viscosities will be strong reduced, higher pigment loading in the mill base process can be easily achieved.

dispersant

Special Features

- Solvent based applications
- Wetting and dispersing agent of TiO2 and inorganic- and filler pigment
- Reduce the viscosity of pigment paste and increase the pigment loading
- Increase the hiding power of TiO2
- Improve optical whiteness
- Improve the gloss and tinting strength

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Industrial coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.13 g/cm^3
Acid value	105 mg KOH/g
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 5 %
- Titanium dioxides: 1 - 3 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

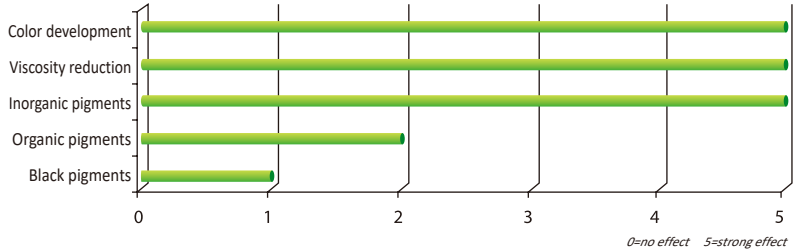
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 715 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 716 S

Dispersant for solvent based system



UNIQ®SPERSE 716 S is a wetting and dispersing additive for solvent based coating systems. The dispersant is especially suitable for inorganic pigments, extender pigments. For TiO_2 millbase viscosities will be strong reduced so higher pigment loading in the mill base process can be achieved.

dispersant

Special Features

- Solvent based applications
- Wetting and dispersing agent of TiO2 and inorganic pigment
- Reduce the viscosity of pigment paste and increase the pigment loading
- Increase the hiding power of TiO2
- Improve optical whiteness
- Improve the gloss and tinting strength

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	n-BA
Density 20°C	1.03 g/cm^3
Acid value	68 mg KOH/g
Color	Max. 3
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 5 %
- Titanium dioxides: 1 - 3 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

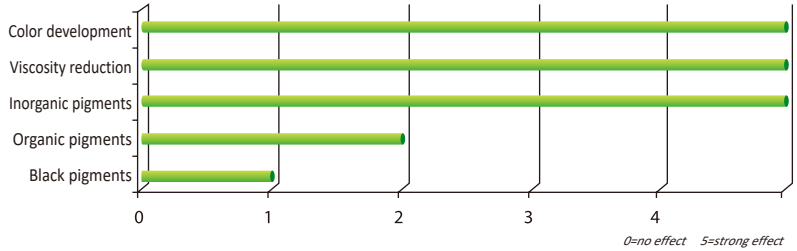
- 25 kg
- 180 kg

Shelf life

UNIQ®SPERSE 716 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 730 U

Polyester acrylic acid dispersant



UNIQ®SPERSE 730 U is a wetting and dispersing additive for solvent-, water based and solvent free applications. The dispersant is especially suitable for inorganic pigments, extender pigments. For TiO_2 millbase viscosities will be strong reduced so higher pigment loading in the mill base process can be achieved. When used in water based application it is advisable to achieve the best viscosity reduction properties and stability to adjust the pH to 8 - 8.5

Special Features

- Suitable for water-borne, solvent-borne and solvent-free application
- Wetting and dispersing agent especially of TiO2 and inorganic pigment
- Reduce the viscosity of pigment paste and increase the pigment loading
- Increase the hiding power of TiO2
- Improve the optical whiteness
- Improve the gloss and tinting strength

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.13 g/cm^3
Acid value	60.0 mg KOH/g
Color	Max. 10
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5 %
- Titanium dioxides: 1 – 3 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

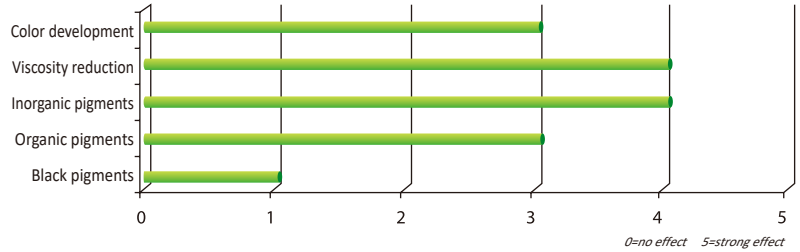
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 730 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 740 U

W&D agent



UNIQ®SPERSE 740 U is a wetting and dispersing additive for solvent-borne applications. It is very suitable for industrial, architectural and protection coatings. It can give excellent dispersing performance to inorganic, organic pigments or bentonite. Strong viscosities reduction so higher pigment and filler loading in the grinding process can be achieved. It can also improve the transparency and hiding power.

Special Features

- Wetting and dispersing agent for inorganic pigments, organic pigments and bentonite
- Reduce the viscosity
- Increase the pigment and filler loading
- Improve the transparency and hiding power
- Excellent wetting

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	0.99 g/cm^3
Acid value	60.0 mg KOH/g
Amine value	33.0 mg KOH/g
Color	Max. 8
Appearance	Brownish sticky liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 1 – 2 %
- TiO2: 0.5 – 1 %
- Organic pigments: 1 – 5 %
- Bentonite: 30 – 50 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

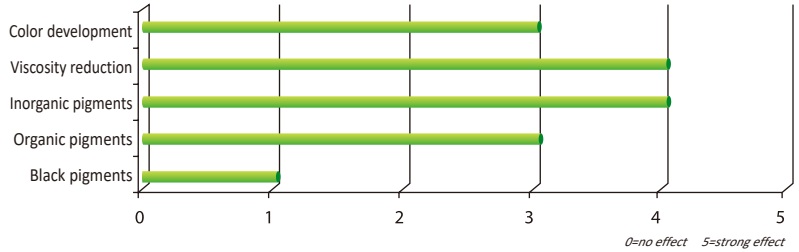
- 30 kg
- 190 kg

Shelf life

UNIQ®SPERSE 740 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 745 S

W&D agent



UNIQ®SPERSE 745 S is a wetting and dispersing additive for solvent-borne applications. It is very suitable for industrial, architectural and protection coatings. It can give excellent dispersing performance to inorganic, organic pigments or bentonite. Strong viscosities reduction so higher pigment and filler loading in the grinding process can be achieved. It can also improve the transparency and hiding power.

dispersant

Special Features

- Wetting and dispersing agent for inorganic pigments, organic pigments and bentonite
- Reduce the viscosity
- Increase the pigment and filler loading
- Improve the transparency and hiding power
- Excellent wetting

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50.0 %
Density 20°C	0.86 g/cm^3
Acid value	35.0 mg KOH/g
Amine value	20.0 mg KOH/g
Color	Max. 8
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 1 – 2 %
- TiO2: 0.5 – 1 %
- Organic pigments: 1 – 5 %
- Bentonite: 30 – 50 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

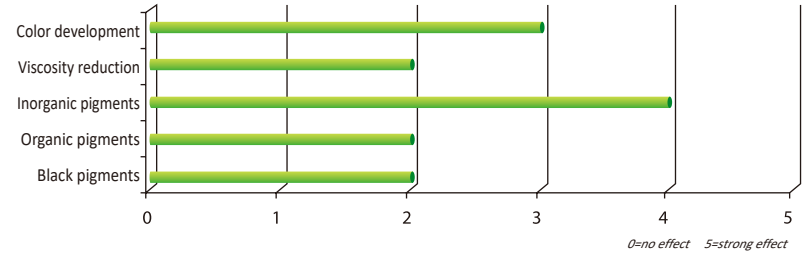
- 22 kg
- 170 kg

Shelf life

UNIQ®SPERSE 745 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 764 S

W&D agent to prevent flooding and floating of pigments



UNIQ®SPERSE 764 S is controlled flocculating wetting and dispersing additive for solvent-borne, medium-polarity to high-polarity coatings to prevent the flooding/floating of titanium dioxide in combination withcolored pigments.

dispersant

Special Features

- Solvent application
- Prevention of flooding and floating
- Reduce dispersion time
- Reduce tendency of Bernard cells
- Stabilization of the pigment dispersion
- Decrease pigment sedimentation
- Help orientation of matting agent and aluminum
- Silicone free

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50.0 %
Solvent	Hydrocarbons C9 aromatics/Xylene/MIBK
Density 20°C	0.95 g/cm^3
Acid value	140 mg KOH/g
Color	Max. 12
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 1.5 – 5 %
- Titanium dioxides: 0.2 – 2 %
- Organic pigments: 5 – 10 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

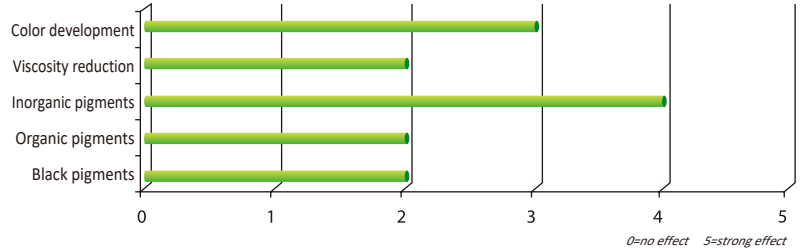
- 25 kg
- 180 kg

Shelf life

UNIQ®SPERSE 764 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 765 S

W&D agent with silicone to prevent flooding and floating of pigments



UNIQ®SPERSE 765 S is controlled flocculating wetting and dispersing additive for solvent-borne, medium-polarity to high-polarity coatings to prevent the flooding/floating of titanium dioxide in combination withcolored pigments. Contains silicone to improve flooding/floating behavior.

dispersant

Special Features

- Solvent application
- Prevention of flooding and floating
- Reduce dispersion time
- Reduce tendency of Bernard cells
- Stabilization of the pigment dispersion
- Decrease pigment sedimentation
- Help orientation of matting agent and aluminum

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50.0 %
Solvent	Hydrocarbons C9 aromatics/Xylene/MIBK
Density 20°C	0.95 g/cm^3
Acid value	125.0 mg KOH/g
Color	Max. 12
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 1.5 – 5 %
- Titanium dioxides: 0.2 – 2 %
- Organic pigments: 5 – 10 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

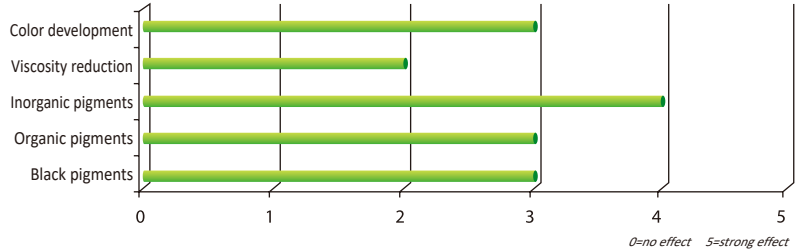
- 25 kg
- 180 kg

Shelf life

UNIQ®SPERSE 765 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 770 U

Low molecular weight dispersant for solvent based



UNIQ®SPERSE 770 U is wetting and dispersing additive for solvent-based coatings and pigment concentrates on the basis of alkyd resins. The additive is suitable for all pigments. Also well suited for Alkyd/melamine coai ng systems.

dispersant

Special Features

- Dispersant for organic and inorganic pigment, especially inorganic pigment
- Prevention of flooding and floating
- Reduce dispersion time
- Suitable for low polarity system like TPA and NC

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Baking coatings	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	0.95 g/cm^3
Amine value	80.0 mg KOH/g
Color	Max.13
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 0.2 - 5 %
- Titanium dioxides: 1 - 3 %
- Organic pigments: 2 - 5 %
- Bentonites 15 - 25 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

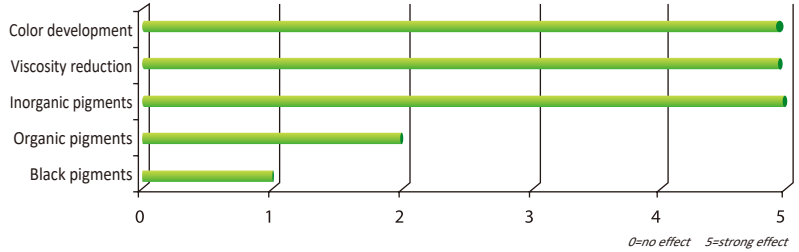
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 770 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 780 U

Low molecular weight dispersant for solvent based



UNIQ®SPERSE 780 U is a wetting and dispersing additive, suited for solvent-based, solvent-free and water-based applications for the stabilization of inorganic pigments, fillers and extender pigments. Specially when dispersing TiO2 it is showing excellent viscosity reduction what can result in an increased pigment loading. By the strong steric stabilization small particle sizes can be achieved, what can be found back in excellent gloss and improved colour strength.

Special Features

- Suited for TiO2 and inorganic pigments
- Excellent viscosity reduction
- Increased pigment loading
- Increase hiding power of TiO2
- Improved optical whiteness
- Improved gloss and tinting strength

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Baking coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.09 g/cm^3
Acid value	92 mg KOG/g
Amine value	80.0 mg KOH/g
Color	Max.13
Appearance	Yellow clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 - 10 %
- Titanium dioxides: 1 - 5 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

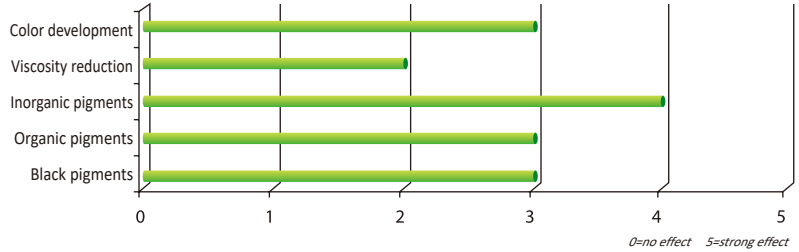
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 780 U should be stored in a cool dry place. At low temperature the product may become turbid, this will not affect the product performances. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE FA 625

Uniqversal dispersing agent



UNIQ®SPERSE FA 625 is wetting and dispersing additive for all kind of pigments in water- and solvent-based systems, especially for decorative coatings and preparation of universal pigment concentrates including compatibility for long oil alkyd resins. Furthermore the additive can give colour acceptance and

Special Features

- Dispersant for organic and inorganic pigment, especially inorganic pigment
- Prevention of flooding and floating
- Reduce dispersion time
- Suitable for low polarity system like TPA and NC

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	□
Baking coatings	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	0.95 g/cm^3
Amine value	80.0 mg KOH/g
Color	Max.13
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 0.2 - 5 %
- Titanium dioxides: 1 - 3 %
- Organic pigments: 2 - 5 %
- Bentonites 15 - 25 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

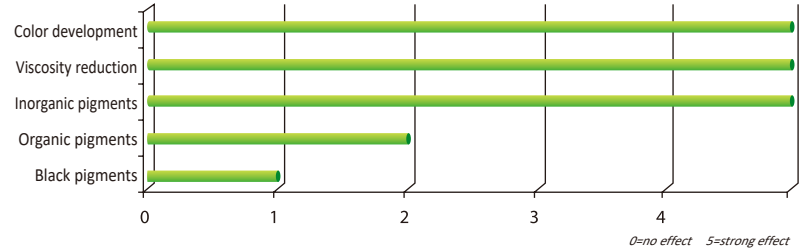
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 770 U should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE LP4540A

Ammonium salt of an acrylic acid dispersant



UNIQ®SPERSE LP4540A is a wetting and dispersing additive for aqueous coating systems to disperse inorganic pigments.
UNIQ®SPERSE LP4540A can be used as supplied. It will release some ammonia during the drying process, it will therefore influence a little the early water resistance. The pH of the final paint preparation the pH should be adjusted to 8-8.5 to achieve the maximum storage stability.

dispersant

Special Features

- Water borne applications
- Excellent dispersant for inorganic pigments
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- Prevents flooding and floating
- Improves hiding power

Application

Architectural coatings	■
Printing inks	■
Adhesives	■
Ceramics	■
Electronic Ceramics	■

highly recommended ■
recommended □

Product Specification

Active ingredients	40 %
Solvent	Water
Density 20°C	1.30 g/cm^3
Color	Max. 6
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):
- Inorganic pigments: 0.5 – 2.0 %
- Titanium dioxides: 0.5 – 2.0 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

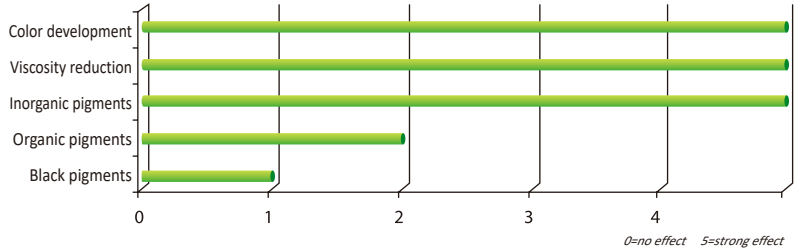
- 25 kg
- 250 kg
- 1200 kg

Shelf life

UNIQ®SPERSE LP4540A should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE LP4540N

Sodium salt of an acrylic acid dispersant



UNIQ®SPERSE LP4540A is a wetting and dispersing additive for aqueous coating systems to disperse inorganic pigments.
UNIQ®SPERSE LP4540A can be used as supplied. It will release some ammonia during the drying process, it will therefore influence a little the early water resistance. The pH of the final paint preparation the pH should be adjusted to 8-8.5 to achieve the maximum storage stability.

dispersant

Special Features

- Water borne applications
- Excellent dispersant for inorganic pigments
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- Prevents flooding and floating
- Improves hiding power

Application

Architectural coatings	■
Printing inks	■
Adhesives	■
Ceramics	■
Electronic Ceramics	■

highly recommended ■
recommended □

Product Specification

Active ingredients	40 %
Solvent	Water
Density 20°C	1.20 g/cm^3
Color	Max. 6
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):
- Inorganic pigments: 0.5 – 2.0 %
- Titanium dioxides: 0.5 – 2.0 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

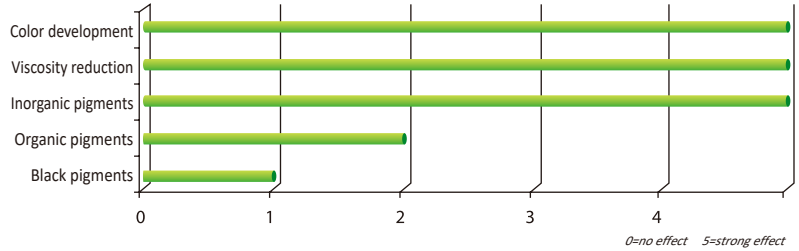
- 25 kg
- 250 kg
- 1200 kg

Shelf life

UNIQ®SPERSE LP4540A should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE LP4534

Hydrophobic Copolymer



UNIQ®SPERSE LP4534 is a wetting and dispersing additive for aqueous coating systems to disperse inorganic pigments. It offer good gloss, is hydrophobic and can offer excellent corrosion resistance.

dispersant

Special Features

- Water borne applications
- Excellent dispersant for inorganic pigments
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- Prevents flooding and floating
- Improves hiding power

Application

Architectural coatings	■
Printing inks	■
Adhesives	■
Ceramics	■
Electronic Ceramics	■

highly recommended ■
recommended □

Product Specification

Active ingredients	30 %
Solvent	Water
Density 20°C	1.10 g/cm^3
Color	Max. 6
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 0.5 – 2.0 %
- Titanium dioxides: 0.5 – 2.0 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

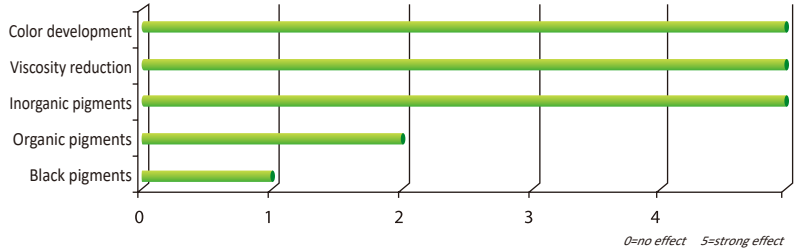
- 25 kg
- 200 kg
- 1200 kg

Shelf life

UNIQ®SPERSE LP4534 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®SPERSE LP4544

Hydrophobic Copolymer



UNIQ®SPERSE LP4544 is a wetting and dispersing additive for aqueous coating systems to disperse inorganic pigments. It offer good gloss, is hydrophobic and can offer excellent corrosion resistance.

dispersant

Special Features

- Water borne applications
- Excellent dispersant for inorganic pigments
- Suited for resin free pigment concentrates
- Strong viscosity reduction
- Prevents flooding and floating
- Improves hiding power

Application

Architectural coatings	■
Printing inks	■
Adhesives	■
Ceramics	■
Electronic Ceramics	■

highly recommended ■
recommended □

Product Specification

Active ingredients	40 %
Solvent	Water
Density 20°C	1.15 g/cm^3
Color	Max. 6
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 0.5 – 2.0 %
- Titanium dioxides: 0.5 – 2.0 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

- 25 kg
- 200 kg
- 1200 kg

Shelf life

UNIQ®SPERSE LP4544 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®LIGHT 923

Hindered Amine Light Stabilizer

General **UNIQ®LIGHT 923** is a new liquid hinder amine light stabilizer especially developed for coatings. It is based on an aminoether function which prevents possible interactions with acidic paint ingredients such as catalysts. The efficiency of **UNIQ®LIGHT 923** provides significantly extended life time to coatings by minimizing paint defects such as cracking and loss of gloss.
The performance of **UNIQ®LIGHT 923** can be significantly improved when used in combination with a UV absorbers such as **UNIQ®LIGHT 930** and **UNIQ®LIGHT 940**. These synergistic combinations give coatings superior protection against gloss reduction, cracking, blistering, delamination and colour change.
Possible interactions of **UNIQ®LIGHT 923** with paint ingredients such as acid catalysts should be carefully evaluated.

Special Features

- Liquid
- Suitable for solvent-, water based and UV coatings
- Suitable for clear and pigmented coatings
- Minimize paint defects like crack and loss of gloss

Application

Architectural coatings	■
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Dynamic viscosity	3000 mPas
Density 20°C	0.97 g/cm^3
Appearance	Slight yellowish liquid

Addition levels

OEM/Refinish coatings	1.0 – 3.0 %
Industrial coatings	0.5 – 2.0 %

Packaging

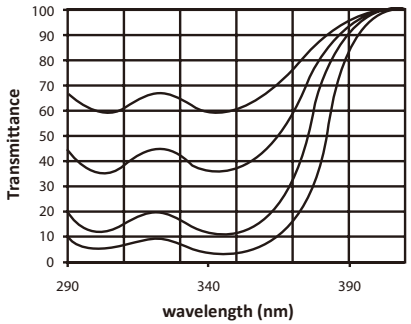
- 25 kg
- 190 kg

Shelf life

UNIQ®LIGHT 923 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®LIGHT 930

UV absorber



Explanation for 40 µm film:

Top line: 0.001% LS930, corresponds to 0.25%
Second line: 0.002% LS930, corresponds to 0.50%
Third line: 0.004% LS930, corresponds to 1.0%
Bottom line: 0.006% LS930, corresponds to 1.5%

General **UNIQ®LIGHT 930** is a liquid UV absorber of the hydroxyphenyl-benzotriazole class specifically developed for coatings. The product is miscible with all common solvents but also easily incorporated into water borne systems. In view of the high durability demands, its high temperature and extraction resistance makes it especially suitable for industrial and automotive coatings. Because of its broad UV absorption, **UNIQ®LIGHT 930** also provides efficient protection to light sensitive substrates such as wood and plastics.

Special Features

- Liquid
- Suitable for solvent- and water based
- Broad UV absorption
- Especially suitable for clear coatings

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Dynamic viscosity	7400 mPas
Density 20°C	1.17 g/cm^3
Appearance	Yellowish to slight amber viscous liquid

Addition levels

OEM/Refinish coatings	1.0 – 3.0 %
Industrial coatings	1.0 – 3.0 %
Water based coatings	1.0 – 3.0 %

Packaging

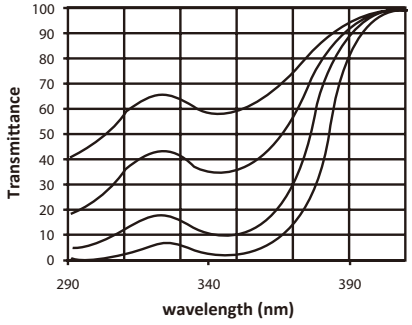
- 25 kg
- 200 kg

Shelf life

UNIQ®LIGHT 930 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®LIGHT 940

UV absorber



Explanation for 40 µm film:

Top line: 0.001% LS930, corresponds to 0.25%
Second line: 0.002% LS930, corresponds to 0.50%
Third line: 0.004% LS930, corresponds to 1.0%
Bottom line: 0.006% LS930, corresponds to 1.5%

General **UNIQ®LIGHT 940** is a liquid hydroxyphenyl-triazine (HPT) UV absorber designed to fulfill the high performance and durability needs of solventborne, UV-curing and water based systems. Its low color and stability make it an excellent choice for all coatings where low color characteristics are ideal for use in combination with the newest generation photoinitiators to provide durable UV clear coats.

Special Features

- Liquid
- Suitable for solvent-, UV curing and water based
- high photo-stability for long term performance
- low migration effect, high efficiency
- excellent heat stability

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Density 20°C	1.07 g/cm^3
Appearance	Slight Yellowish liquid

Addition levels

OEM/Refinish coatings	1.0 – 3.0 %
Industrial coatings	1.0 – 3.0 %
Water based coatings	1.0 – 3.0 %

Packaging

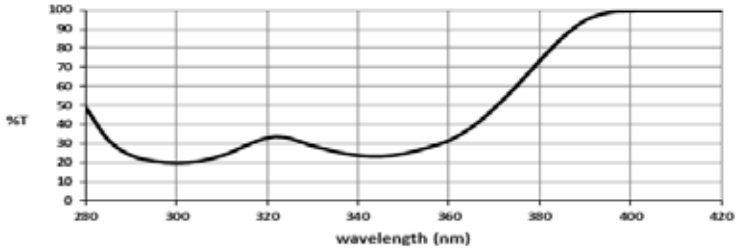
- 25 kg

Shelf life

UNIQ®LIGHT 940 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 1 years from the date of manufacture.

UNIQ®LIGHT 951

Blended Hals and UV absorber



General **UNIQ®LIGHT 951** is a compound light stabilizer developed specifically for industrial coating, which is the blend product of UV absorber and hindered amine light stabilizer. It can absorb wavelength at the range of 290nm to 370nm.With its excellent heat stability and high temperature resistance makes it suitable for high bake temperatures or extreme environmental conditions. Its broad UV absorption allows efficient protection of light sensitive base coats or substrates such as wood and plastics. It needs to be diluted with cosolvent when applied in waterborne system, adding under stirring conditions.

Special Features

- Blend Liquid
- Broad UV absorption
- Broad application range

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Dynamic viscosity	7000 mPas
Density 20°C	1.10 g/cm^3
Appearance	Slight yellowish liquid

Addition levels

OEM/Refinish coatings	2.0 – 5.0 %
Industrial coatings	1.0 – 3.0 %
Wood Coatings	2.0 – 5.0%

Packaging

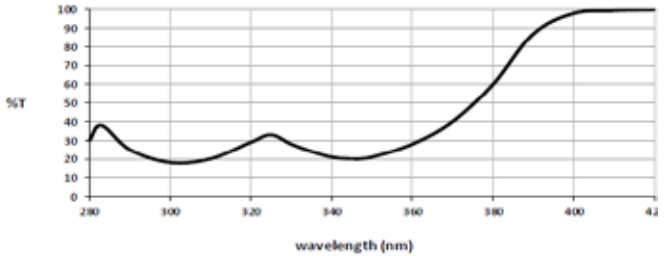
- 25 kg
- 190 kg

Shelf life

UNIQ®LIGHT 951 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®LIGHT 960

Blend Light Stabilizer in solventborne and waterborne system



General **UNIQ®LIGHT 960** is a compound light stabilizer developed specifically for industrial coating, which is the blend product of UV absorber and hindered amine light stabilizer. It can absorb wavelength at the range of 280nm to 370nm.With its excellent heat stability and high temperature resistance makes it suitable for high bake temperatures or extreme environmental conditions. Its broad UV absorption allows efficient protection of light sensitive base coats or substrates such as wood and plastics. It needs to be diluted with cosolvent when applied in waterborne system, adding under stirring conditions.

Special Features

- Blend Liquid
- Broad UV absorption
- High temperature resistance

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Dynamic viscosity	10000 mPas
Density 20°C	0.98 g/cm^3
Appearance	Slight yellowish liquid

Addition levels

OEM/Refinish coatings	2.0 – 5.0 %
Industrial coatings	1.0 – 3.0 %
Wood Coatings	1.0 – 3.0%

Packaging

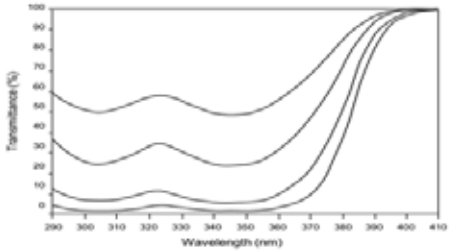
- 25 kg
- 190 kg

Shelf life

UNIQ®LIGHT 960 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®LIGHT 984

UV absorber in solvent borne and waterborne system



UNIQ®LIGHT 984 is a liquid UV absorber of the hydroxyphenyl-benzotrazole class developed for automotive coatings. It can absorb wavelength at the range of 290nm to 370nm. With its high molecular weight makes it suitable for the durability requirements in automotive coating which provides better high temperature resistance and long term stability than UNIQ®LIGHT 930 . The performance can be significantly improved when used in combination with UNIQ®LIGHT 992/ UNIQ®LIGHT 923 in clear coat. It needs to be diluted with cosolvent when applied in waterborne system, adding under stirring conditions.

Special Features

- Liquid UV absorber
- Broad UV absorption
- Suitable for high temperature baking systems
- Recommended for automotive coatings

Application

Architectural coatings	□
Wood and furniture coatings	□
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Dynamic viscosity	3200 mPas
Density 20°C	1.07 g/cm^3
Appearance	Slight yellowish liquid

Addition levels

OEM/Refinish coatings	1.0 – 3.0 %
Industrial coatings	1.0 – 2.0 %
Wood Coatings	1.0 – 2.0%

Packaging

- 25 kg
- 190 kg

Shelf life

UNIQ®LIGHT 984 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 2 years from the date of manufacture.

UNIQ®LIGHT 992

Hindered Amine Light Stabilizer

General **UNIQ®LIGHT 992** is a liquid hinder amine light stabilizer especially developed for coatings. It is an almost pure mixture of the two active ingredients. It is this combination that keeps the product liquid, unlike the pure diester which tends to solidify, even at room temperature. The efficiency of **UNIQ®LIGHT 992** provides significantly extended life time to coatings by minimizing paint defects such as cracking and loss of gloss.

The performance of **UNIQ®LIGHT 992** can be significantly improved when used in combination with a UV absorbers such as **UNIQ®LIGHT 930** and **UNIQ®LIGHT 940**. These synergistic combinations give coatings superior protection against gloss reduction, cracking, blistering, delamination and colour change.

Possible interactions of **UNIQ®LIGHT 992** with paint ingredients such as acid catalysts should be carefully evaluated.

Special Features

- Liquid
- Suitable for solvent-, water based and UV coatings
- Suitable for clear and pigmented coatings
- Minimize paint defects like crack and loss of gloss

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
Protective coatings	■

highly recommended ■
recommended □

Product Specification

Dynamic viscosity	400 mPas
Appearance	Slightly yellow liquid

Addition levels

• OEM/Refinish coatings	1.0 – 3.0 %
• Industrial coatings	0.5 – 2.0 %
• UV coatings	0.5 – 3.0 %

Packaging

- 25 kg
- 190 kg

Shelf life

UNIQ®LIGHT 992 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

Specialties

UNIQ®VIS is our brand for some special products, like rheology control agents and conductivity agents.

UNIQ®VIS 810 S

Rheology additive

UNIQ®VIS 810 S is a liquid rheology additive, suitable for medium polarity solvent based and solvent free coating systems as well ambient-curing resin systems. The additive creates highly thixotropic flow behavior and consequently improves the anti-sagging and anti-settling properties.

Incorporation and processing instruction

The additive should be added to the coating while stirring using moderate shear forces to ensure a homogeneous and quick distribution. It is not necessary to specifically control the temperature. The additive can be added into the millbase and is also suitable for adjusting the viscosity afterwards by incorporating it as a post-additive. If the additive is suitable for the system, its rheological effectiveness builds up, dependent upon time and polarity, and can generally be evaluated 2 to 4 hours after incorporation

Special note

If used with driers (siccatives), discoloration may occur due to the formation of metal complexes. The rheological effectiveness should then be tested.

Special Features

- Medium-polar solvent-based and solvent free applications
- Improve anti-sagging
- Excellent anti-sagging
- No influence on leveling

Application

Epoxy Systems	■
PU systems	■
Acrylic Resin systems	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	NMP
Density 20°C	1.15 g/cm^3
Color	max 12
Appearance	Yellowish liquid

Addition levels

Coating:

0.2-1% anti-settling
0.5-2% anti-sagging

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

- 25 kg
- 180 kg

Shelf life

UNIQ®VIS 810 Moisture sensitive. Store dry. Slight turbidity of the material that occurs during storage has no influence on the rheological effectiveness. The specified storage stability upon dispatch applies when the product is handled correctly and stored in unopened original containers.

UNIQ®VIS 812 S

Rheology agent

UNIQ®VIS 817S is a liquid rheology agent for solvent based coating systems to increase the rheological efficiency of pyrogenic fumed silica. Incorporation of the fumed silica is made easier, seperation or prevented and thixotropic behavior increased or stabilised.

Special Features

- Recommended for solvent based and solvent free applications, including UV
- Increase the rheological efficiency of pyrogenic fumed silicas
- Increase anti-sagging
- Improve leveling and air release

Application

Epoxy system	■
PU System	■
Acrylic System	■
PE system	■
UV coating	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvents	PMA
Density 20°C	1.06 g/cm^3
Color	Max. 16
Appearance	Brownish clear liquid

Addition levels

Dosage based on total pyrogenic fumed silica:
20 - 40%

Packaging

- 25 kg
- 180 kg

Shelf life

UNIQ®VIS 812 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®VIS 817 S

Rheology agent

UNIQ®VIS 817S is a liquid rheology agent for coating systems to increase the rheological efficiency of pyrogenic fumed silica. Dispersing of the fumed silica is made easier, faster, better stabilized and will help to prevent separation or sedimentation. **UNIQ®VIS 817S** provides good rheology performance to paint system, can increase anti-floating & flooding properties.

Special Features

- Recommended for solvent based and solvent free applications, including UV
- Increase the rheological efficiency of pyrogenic fumed silicas
- Excellent thickening efficiency
- Gives improved anti-sagging and anti-settling properties
- Anti-floating and flooding properties

Application

Epoxy system	■
PU System	■
Acrylic System	■
PE system	■
UV coating	■

highly recommended ■
recommended □

Product Specification

Active ingredients	52 %
Solvents	Xylene/Alkylbenze/ Isobutanol
Density 20°C	0.93 g/cm^3
Appearance	Yellowish liquid

Addition levels

Dosage based on total pyrogenic fumed silica:
20 - 40%

Packaging

- 25 kg
- 180 kg

Shelf life

UNIQ®VIS 817 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®VIS 820 W

Rheology additive

UNIQ®VIS 820 W is a liquid rheology additive ,suitable for water soluble, dispersion, emulsion and other resin systems .The additive creates highly thixotropic flow behavior and consequently improves the anti-sagging and anti-settling properties. The additive can also be added later, suitable for water, water and alcohol ether, alcohol solvent mixture system

Incorporation and processing instruction

The additive should be added to the coating while stirring using moderate shear forces to ensure a homogeneous and quick distribution. It is not necessary to specifically control the temperature. The additive can be added into the millbase and is also suitable for adjusting the viscosity afterwards by incorporating it as a post-additive. If the additive is suitable for the system, its rheological effectiveness builds up, dependent upon time and polarity, and can generally be evaluated 2 to 4 hours after incorporation

Special note

If used with driers (siccatives), discoloration may occur due to the formation of metal complexes. The rheological effectiveness should then be tested.

Special Features

- Water based applications
- Improve anti-sagging
- Excellent anti-sagging
- no influence on leveling

Application

Epoxy Systems	■
PU systems	■
Acrylic Resin systems	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	NMP
Density 20°C	1.15 g/cm^3
Color	max 12
Appearance	Yellowish liquid

Addition levels

Coating:

0.2-1% anti-settling
0.5-2% anti-sagging

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

- 25 kg
- 180 kg

Shelf life

UNIQ®VIS 820 W Moisture sensitive. Store dry. Slight turbidity of the material that occurs during storage has no influence on the rheological effectiveness. The specified storage stability upon dispatch applies when the product is handled correctly and stored in unopened original containers.

UNIQ®VIS LP8048

Rheology additive

UNIQ®VIS LP8048 is a liquid rheology additive ,suitable for water soluble, dispersion, emulsion and other resin systems .The additive creates highly thixotropic flow behavior and consequently improves the anti-sagging and anti-settling properties. The additive can also be added later, suitable for water, water and alcohol ether, alcohol solvent mixture system

Incorporation and processing instruction

The additive should be added to the coating while stirring using moderate shear forces to ensure a homogeneous and quick distribution. It is not necessary to specifically control the temperature. The additive can be added into the millbase and is also suitable for adjusting the viscosity afterwards by incorporating it as a post-additive. If the additive is suitable for the system, its rheological effectiveness builds up, dependent upon time and polarity, and can generally be evaluated 2 to 4 hours after incorporation

Special note

If used with driers (siccatives), discoloration may occur due to the formation of metal complexes. The rheological effectiveness should then be tested.

Special Features

- Water based applications
- Improve anti-sagging
- Excellent anti-sagging
- no influence on leveling

Application

Epoxy Systems	■
PU systems	■
Acrylic Resin systems	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	NBP
Density 20°C	1.15 g/cm^3
Color	max 12
Appearance	Yellowish liquid

Addition levels

Coating:

0.2-1% anti-settling
0.5-2% anti-sagging

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

- 25 kg
- 180 kg

Shelf life

UNIQ®VIS LP8048 Moisture sensitive. Store dry. Slight turbidity of the material that occurs during storage has no influence on the rheological effectiveness. The specified storage stability upon dispatch applies when the product is handled correctly and stored in unopened original containers.

UNIQ®VIS LP8050

Rheology additive

UNIQ®VIS LP8050 is a liquid rheology additive, suitable for medium polarity solvent based and solvent free coating systems as well ambient-curing resin systems. The additive creates highly thixotropic flow behavior and consequently improves the anti-sagging and anti-settling properties.

Incorporation and processing instruction

The additive should be added to the coating while stirring using moderate shear forces to ensure a homogeneous and quick distribution. It is not necessary to specifically control the temperature. The additive can be added into the millbase and is also suitable for adjusting the viscosity afterwards by incorporating it as a post-additive. If the additive is suitable for the system, its rheological effectiveness builds up, dependent upon time and polarity, and can generally be evaluated 2 to 4 hours after incorporation

Special note

If used with driers (siccatives), discoloration may occur due to the formation of metal complexes. The rheological effectiveness should then be tested.

Special Features

- Medium-polar solvent-based and solvent free applications
- Improve anti-sagging
- Excellent anti-sagging
- No influence on leveling

Application

Epoxy Systems	■
PU systems	■
Acrylic Resin systems	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	NBP
Density 20°C	1.12 g/cm^3
Color	max 12
Appearance	Yellowish liquid

Addition levels

Coating:

0.2-1% anti-settling
0.5-2% anti-sagging

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

- 25 kg
- 180 kg

Shelf life

UNIQ®VIS LP8050 Moisture sensitive. Store dry. Slight turbidity of the material that occurs during storage has no influence on the rheological effectiveness. The specified storage stability upon dispatch applies when the product is handled correctly and stored in unopened original containers.

UNIQ®VIS 886 S

Additive to increase the conductivity of electrostatically sprayed solvent coating

UNIQ®VIS 886 S is predominately recommended to solvent base system, can increase coating conductivity. No halogen, with excellent conducting performance by reducing electric resistance of coating and has good compatibility with wide range of binder systems, suited to be applied in low polarity to high polarity systems, good property stability at low temperature.No negative effect to coating properties including interlayer adhesion, yellowing, viscosity stability.

Special Features

- Solvent borne applications
- Increase the conductivity of the paints (reduce the electrical resistance)
- Stable even at low temperature
- Maintain film properties like adhesion, does not cause yellowing and stabilizes viscosity

Application

Architectural coatings	□
Wood and furniture coatings	■
Automotive and refinish coatings	■
Can/coil coatings	■
General industrial coatings	■
Protective coatings	□

highly recommended ■
recommended □

Product Specification

Active ingredients	60 %
Solvent	isobutanol/ethanol
Density 20°C	0.983 g/cm^3
Appearance	Light yellowish clear liquid

Addition levels

Coatings and inks

SIn non-polar systems containing petroleum only solvents, it is recommended to premix with butanol in a 1:1 or 1:2 ratio to improve solubility and distribution, thereby improving conductivity.

Total formulation 0.1 -2 %

Can be added at the final stage of production

Packaging

- 25 kg
- 190 kg

Shelf life

UNIQ®VIS 886 S should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

Additives for Ink Industrie

UNIQ® SPERSE

UNIQ®SPERSE 9012

Block Polymeric Dispersant

UNIQ®SPERSE 9012 is a 40% active polymeric dispersant which will improve pigment dispersion and stability in water based coatings and inks.

Special Features

- Suitable for resin-free & resin containing dispersions
- Good viscosity reduction and improved pigment concentration
- Improved production efficiency
- Improved pigment wetting
- Higher gloss and color strength

Application

Water based ink	■
Water based digital ink	■

Product Specification

Active ingredients	40.0 %
Density 20°C	1.07 g/cm^3
Acid value	9.0 mg KOH/g
Amine value	16.0 mg KOH/g
Color	Max.6
Appearance	Slight brownish clear liquid

Addition levels

UNIQ®SPERSE 9012 should be dissolved in mill base diluent before the addition of pigment.

For inks the dosage level required could be considerably higher and dosages of 2 mg active dispersant on weight of pigment should be considered. This is simply the surface area divided by 5.

The general dosage is as:
% AOWP=10-30.

Packaging

- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 9012 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE 9330

Polymeric Dispersant

UNIQ®SPERSE 9330 is an active polymeric dispersant which will improve pigment dispersion and stability in water based, solvent based and UV based inks.

Special Features

- Universal application
- Suitable for TiO2, inorganic pigments and fillers dispersion
- Good viscosity reduction, increased pigment loading and improve production effect
- Improved whiteness of TiO2 paste, good opacity.
- Excellent gloss effect.

Application

Water based ink	■
Solvent based ink	■
UV ink	■

Product Specification

Active ingredients	100 %
Density 20°C	1.13 g/cm^3
Acid value	60.0 mg KOH/g
Color	Max.10
Appearance	Clear liquid, slight yellowish to brownish

Addition levels

UNIQ®SPERSE 9330 should be dissolved in mill base diluent before the addition of pigment.

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 2 – 5 %
- Titanium dioxides: 1 – 3 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 9330 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 9335

Block Polymeric Dispersant

UNIQ®SPERSE 9335 is a 35% active polymeric dispersant which will improve pigment dispersion and stability in water based coatings and inks.

Special Features

- Highly pigmented dispersion
- Improved particle size reduction
- Improvement in particle size stability
- Excellent viscosity stability
- Improved gloss and color strength
- Good transparency and less haze

Application

Water based ink	■
Water based digital ink	■

Product Specification

Active ingredients	35.0 %
Density 20°C	1.05 g/cm^3
Amine value	17.0 mg KOH/g
Appearance	Light brownish clear liquid

Addition levels

UNIQ®SPERSE 9335 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment

Packaging

- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 9335 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE 9350

Polymeric Dispersant

UNIQ®SPERSE 9350 is a 45% active polymeric dispersant which will improve pigment dispersion and stability in water based coatings and inks.

Special Features

- Highly pigmented dispersion
- Improved particle size reduction
- Improvement in particle size stability
- Excellent viscosity stability
- Improved gloss and color strength
- Good transparency and less haze

Application

Water based ink	■
Water based digital ink	■

Product Specification

Active ingredients	45.0 %
Solvents	PMA/n-BA
Density 20°C	1.0 g/cm^3
Amine value	14.0 mg KOH/g
Appearance	Light yellowish clear liquid

Addition levels

UNIQ®SPERSE 9350 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 2 mg active dispersant on weight of pigment should be considered.

This is simply the surface area divided by 5.

Packaging

- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 9350 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 9370

Polymeric Dispersant

UNIQ®SPERSE 9370 is an active polymeric dispersant which will improve pigment dispersion and stability in solvent based inks.

Special Features

- Wide resin and solvent compatibility
- Improved production efficiency
- Improved pigment wetting
- Prevention of flooding and floating

Application

Solvent based ink	■

Product Specification

Active ingredients	100 %
Density 20°C	0.95 g/cm^3
Amine value	80.0 mg KOH/g
Color	Max.13
Appearance	Brownish liquid

Addition levels

UNIQ®SPERSE 9370 should be dissolved in mill base diluent before the addition of pigment.

For inks the dosage level required could be considerably higher and dosages of 2mg active dispersant on weight of pigment should be considered. This is simply the surface area divided by 5.

Packaging

- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 9370 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 9380

Polymeric Dispersant

UNIQ®SPERSE 9380 is an active polymeric dispersant which will improve pigment dispersion and stability in solvent based inks.

Special Features

- Wide resin and solvent compatibility
- Improved production efficiency
- Improved pigment wetting
- Prevention of flooding and floating

Application

Printing inks	■
Digital inks	■

Product Specification

Active ingredients	100 %
Density 20°C	1.09 g/cm^3
Acid value	10.0 mg KOH/g
Amine value	65.0 mg KOH/g
Appearance	Light Brownish clear liquid

Addition levels

UNIQ®SPERSE 9380 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10 mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66=% active dispersant on weight of pigment

Packaging

- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE 9380 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE 9450

Polymeric Dispersant

UNIQ®SPERSE 9450 is an active polymeric dispersant which will improve pigment dispersion and stability in water based, solvent based and UV based inks.

Special Features

- Excellent performance in universal colorants
- Suitable for all pigments in resin free application
- Good viscosity reduction, increased pigment loading and improve production effect
- Improved gloss and tinting strength
- improved silica orientation, good in matt effect

Application

Water based ink	■
Solvent based ink	■
UV ink	■

Product Specification

Active ingredients	100 %
Density 20°C	1.05 g/cm^3
Acid Value	14.0 mg KOH/g
Amine value	3.0 mg KOH/g
Color	Max.13
Appearance	Amber to brown viscous liquid

Addition levels

UNIQ®SPERSE 9450 should be dissolved in mill base diluent before the addition of pigment.

For inks the dosage level required could be considerably higher and dosages of 2 mg active dispersant on weight of pigment should be considered. This is simply the surface area divided by 5.

Packaging

- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE 9450 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ® JET

UNIQ® JET 9053

Polymeric dispersant

UNIQ® JET 9053 is a polymeric dispersant which will improve pigment dispersion and stability in solvent based and UV based inks.

Special Features

- Suitable for resin containing and resin free pigment dispersion
- Excellent pigment wetting property
- Efficient viscosity reduction, improved pigment loading
- Good pigment paste stability
- Improved color strength and high gloss

Application

Solvent based ink	■
Water based ink	■
UV ink	■

Product Specification

Active ingredients	100 %
Density 20°C	1.1 g/cm^3
Acid Value	12.0 mg KOH/g
Color	Max.8
Appearance	Brownish clear liquid

Addition levels

UNIQ® JET 9053 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment

Packaging

- 25 kg
- 200 kg

Shelf life

UNIQ® JET 9053 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ® JET 9506

Polymeric dispersant

UNIQ® JET 9506 is a 30% active polymeric dispersant in MPA/Butyl Acetate solvent which will improve pigment dispersion and stability in solvent based and UV based digital inks.

Special Features

- Highly pigmented dispersion
- Improved particle size reduction
- Improvements in particle size stability
- Excellent viscosity stability
- Effective in organic pigments, inorganic pigments and carbon black dispersion
- Improved gloss and color strength
- Good transparency and less haze

Application

Solvent based ink	■
Solvent based digital ink	■

Product Specification

Solvent	PMA/Butyl Acetate
Active ingredients	30 %
Density 20°C	0.95 g/cm^3
Amine value	8.0 mg KOH/g
Color	Max.10
Appearance	Light color liquid

Addition levels

UNIQ® JET 9506 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment

Packaging

- 25 kg
- 190 kg

Shelf life

UNIQ® JET 9506 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ® JET 9510

Polymeric dispersant

UNIQ® JET 9510 is a polymeric dispersant which will improve pigment dispersion and stability in solvent based and UV based digital inks.

Special Features

- Highly pigmented dispersion
- Improved particle size reduction
- Improvements in particle size stability
- Excellent viscosity stability
- Improved gloss and color strength
- Good transparency and less haze

Application

Solvent based digital ink	■
Solvent based ink	■
UV ink	
UV digital ink	■
offset ink	■

Product Specification

Active ingredients	100 %
Amine value	17 mg KOH/g
Color	Max.10
Appearance	Brownish waxy solid

Addition levels

UNIQ® JET 9510 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment.

Packaging

- 25 kg

Shelf life

UNIQ® JET 9510 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ® JET 9520

Polymeric dispersant

UNIQ® JET 9520 is a polymeric dispersant which will improve pigment dispersion and stability in solvent based and UV based digital inks.

Special Features

- Highly pigmented dispersion
- Excellent compatibility
- Improved particle size reduction
- Improvements in particle size stability
- Excellent viscosity stability
- Improved gloss and color strength
- Good transparency and less haze

Application

Solvent based digital ink	■
Solvent based ink	■
UV ink	
UV digital ink	■
offset ink	■

Product Specification

Active ingredients	100 %
Amine value	12 mg KOH/g
Color	Max.10
Appearance	Brownish waxy solid

Addition levels

UNIQ® JET 9520 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment.

Packaging

- 25 kg

Shelf life

UNIQ® JET 9520 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ® JET 9528

Polymeric dispersant

UNIQ® JET 9528 is a polymeric dispersant which will improve pigment dispersion and stability in solvent based and UV based digital inks.

Special Features

- Highly pigmented dispersion
- Excellent compatibility
- Improved particle size reduction
- Improvements in particle size stability
- Excellent viscosity stability
- Improved gloss and color strength
- Good transparency and less haze

Application

Solvent based digital ink	■
UV ink	
UV digital ink	■
offset ink	■

Product Specification

Active ingredients	100 %
Density 20°C	1.06 g/cm^3
Amine value	53 mg KOH/g
Acid value	16 mg KOH/g
Color	Max. 10
Appearance	Brown liquid

Addition levels

UNIQ® JET 9528 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment.

Packaging

- 25 kg

Shelf life

UNIQ® JET 9528 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ® JET 9529

Polymeric dispersant

UNIQ® JET 9529 is a polymeric dispersant which will improve pigment dispersion and stability in solvent based and UV based digital inks.

Special Features

- Highly pigmented dispersion
- Excellent compatibility
- Improved particle size reduction
- Improvements in particle size stability
- Excellent viscosity stability
- Improved gloss and color strength
- Good transparency and less haze

Application

Solvent based digital ink	■
UV ink	
UV digital ink	■
offset ink	■

Product Specification

Active ingredients	100 %
Density 20°C	1.06 g/cm^3
Amine value	48 mg KOH/g
Acid value	10 mg KOH/g
Color	Max. 10
Appearance	Brown liquid

Addition levels

UNIQ® JET 9529 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment.

Packaging

- 25 kg

Shelf life

UNIQ® JET 9529 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ® JET 9550

Polymeric dispersant

UNIQ® JET 9550 is a polymeric dispersant which will improve pigment dispersion and stability in solvent based and UV based digital inks.

Special Features

- Highly pigmented dispersion
- Improved particle size reduction
- Improvements in particle size stability
- Excellent viscosity stability
- Improved gloss and color strength
- Good transparency and less haze

Application

Solvent based digital ink	■
UV ink	
UV digital ink	■
offset ink	■

Product Specification

Active ingredients	100 %
Density 20°C	1.1 g/cm^3
Amine value	75 mg KOH/g
Acid value	11mg KOH/g
Appearance	Light brownish liquid

Addition levels

UNIQ® JET 9550 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment.

Packaging

- 25 kg

Shelf life

UNIQ® JET 9550 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ® JET 9560

Polymeric dispersant

UNIQ® JET 9560 is a polymeric dispersant which will improve pigment dispersion and stability in solvent-, water-based and UV digital inks.

Special Features

- Excellent dispersant for inorganic and organic pigments, espcially for high performance organic pigments
- Improvements in particle size stability
- Excellent viscosity stability
- Improved gloss and color strength
- Good transparency and gloss
- Suited for resin free pigment concentrates

Application

Solvent based digital ink	■
Water based digital ink	■
UV ink	
UV digital ink	■
offset ink	■

Product Specification

Active ingredients	100 %
Density 20°C	1.06 g/cm^3
Amine value	50 mg KOH/g
Appearance	Brownish liquid

Addition levels

UNIQ® JET 9560 should be dissolved in mill base diluent before the addition of pigment.

For digital inks the dosage level required could be considerably higher and dosages of 4-10mg active dispersant on weight of pigment should be considered.

For 6 mg dosage, the surface area divided by 1.66= % active dispersant on weight of pigment

Packaging

- 25 kg

Shelf life

UNIQ® JET 9560 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

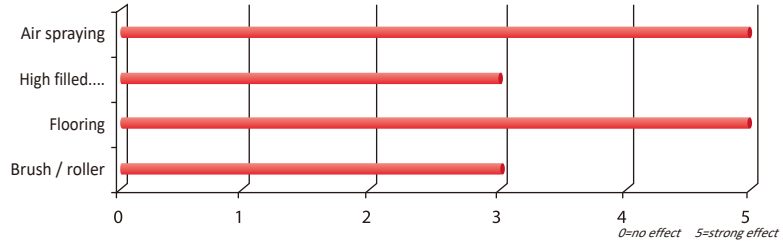
UNIQ® FOAM

Additives for Plastic industrie

- PVC Plastisols
- Putty
- SMC/BMC
- Composites
- Liquid masterbatches

UNIQ®FOAM P-535

Solution of silicone free defoaming polymers



UNIQ®FOAM P-509 is a strong anti-foam and air-release agent especially suitable for ambient-curing plastic systems. Especially suitable for unsaturated polyesters and epoxy based systems.

Special Features

- Quick de-aeration and defoaming effect
- Foam reduction during production
- Suitable for pigment loaded systems
- Silicone-free
- Heat stable

Application

Ambient curing plastic	
UPE	■
Epoxy	■

highly recommended ■
recommended □

Product Specification

Density 20°C	1.05 g/cm³
Color	Max. 3
Appearance	Clear colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Ensure good distribution to avoid surface defects.

Although the product may be slightly turbid, this cannot be observed anymore in the final dry film.

Packaging

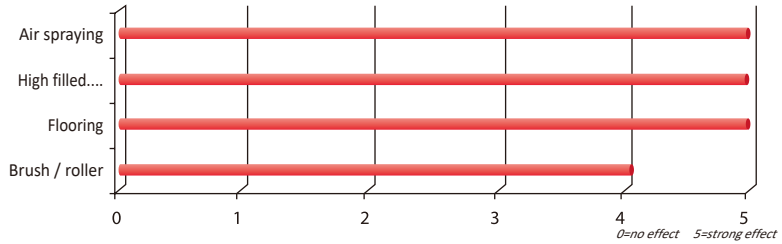
- 25 kg
- 200 kg

Shelf life

UNIQ®FOAM P-509 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM P-555

Solution of Silicone free polymers



UNIQ®FOAM P-555 is a strong anti-foam and air-release agent especially suitable for ambient-curing plastic systems, adhesives and sealants. Especially suitable for unsaturated polyesters.

Special Features

- Quick de-aeration and defoaming effect for pigmented and non pigmented solvent free coating system
- Does not interfere intercoat adhesion
- Excellent film appearances
- Silicone-free
- Heat stable

Application

Pultrusion of plastic systems	
UPE	■
Acrylates	■
Vinyl esters	■
Ambient curing systems	■
PVC Plastisols	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.91 g/cm³
Color	Max. 1
Appearance	Slight hazy colorless liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Can be added in any stage of the formulation.

Although the product may be slightly turbid, this cannot be observed anymore in the final dry film.

Packaging

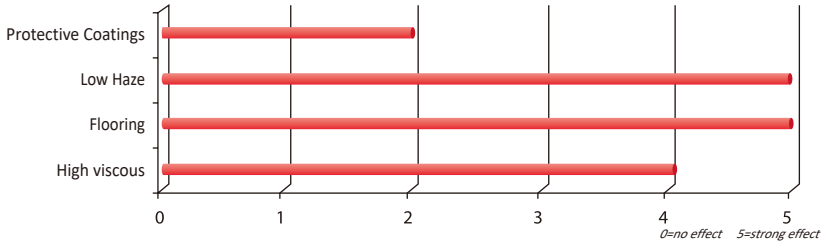
- 22 kg
- 170 kg

Shelf life

UNIQ®FOAM P-555 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM P-571

Silicone free defoamer of solution polymers



UNIQ®FOAM P-571 is a strong anti-foam and air-release agent especially suitable for ambient-curing plastic systems, adhesives and sealants and coating industry. Especially suitable for epoxy based systems, UPE and PVC plastisols.

Special Features

- Quick de-aeration and defoaming effect
- Silicone free
- Foam reduction during manufactering
- Suited for pigmented systems
- Can cause turbidity in clear systems

Application

Pultrusion of plastic systems	
UPE	■
Epoxy	■
PU	■
Ambient curing systems	■
PVC Plastisols	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.81 g/cm^3
Appearance	Colorless clear liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Can be added in any stage of the formulation.

Although the product may be slightly turbid, this cannot be observed anymore in the final dry film.

Packaging

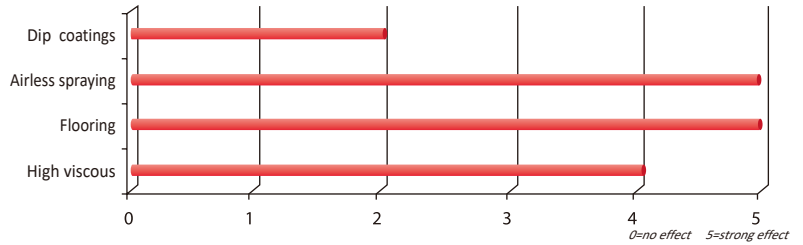
- 22 kg
- 170 kg

Shelf life

UNIQ®FOAM P-571 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM P-590

Solution of non-silicone defoaming polymers



UNIQ®FOAM P-575 is a strong anti-foam and air-release agent especially suitable for ambient-curing plastic systems, adhesives and sealants and coating industry, especially for epoxy and PU based resin systems. The additive furthermore helps to improve the leveling and avoids pinholing or popping.

Special Features

- Quick de-aeration and defoaming effect
- Foam reduction during manufactering
- Suited for pigmented systems
- Can cause turbidity in clear systems
- Silicone free
- Heat stable

Application

Adhesives and sealants	
Epoxy based	■
PU based	■
Ambient curing plastic	
Epoxy based	■
PU based	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.96 g/cm^3
Color	Max. 3
Appearance	Slight hazy liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Can be added in any stage of the formulation.

Although the product may be slightly turbid, this cannot be observed anymore in the final dry film.

Packaging

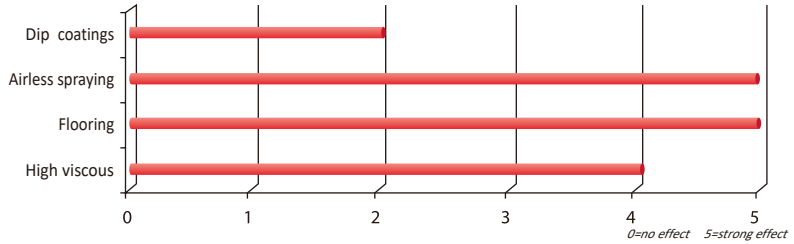
- 22 kg
- 170 kg

Shelf life

UNIQ®FOAM P-575 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM P-595

Solution of non-silicone defoaming polymers



UNIQ®FOAM P-595 is a strong anti-foam and air-release agent especially suitable for ambient-curing plastic systems, adhesives and sealants and coating industry, especially for epoxy and PU based resin systems. The additive furthermore helps to improve the leveling and avoids pinholing or popping.

Special Features

- Quick de-aeration and defoaming effect
- Suited for pigmented and non pigmented systems
- Silicone free
- Heat stable

Application

Adhesives and sealants	
Epoxy based	■
PU based	■
Ambient curing plastic	
Epoxy based	■
PU based	■

highly recommended ■
recommended □

Product Specification

Density 20°C	0.83 g/cm³
Color	Max. 1
Appearance	Slight hazy liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Can be added in any stage of the formulation.

Although the product may be slightly turbid, this cannot be observed anymore in the final dry film.

Packaging

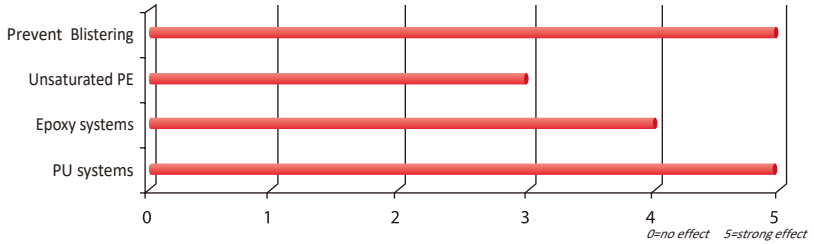
- 22 kg
- 170 kg

Shelf life

UNIQ®FOAM P-595 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FOAM P-599

Solution of non-silicone defoaming polymers



UNIQ®FOAM P-599 is a strong anti-foam and air-release agent especially suitable for unsaturated polyester resins, ambient-curing plastic systems, adhesives and sealants, especially suited for polyurethane based resin systems. The additive furthermore helps to avoids pinholing or popping.

Special Features

- Quick de-aeration and defoaming effect
- Does not interfere the intercoat adhesion
- Silicone free
- Heat stable

Application

Unsaturated polyester resin	□
Adhesives and sealants	
Epoxy based	■
PU based	■
Ambient curing plastic	
Epoxy based	■
PU based	■

highly recommended ■
recommended □

Product Specification

Active content	100%
Density 20°C	0.82 g/cm³
Appearance	Colorless clear liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

Added in grinding stage or under high shear forces incorporation.

Packaging

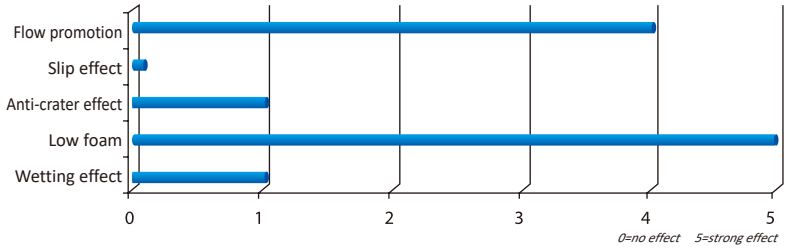
- 20 kg
- 150 kg

Shelf life

UNIQ®FOAM P-599 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW P-304

Polymeric leveling agent with defoaming performance



UNIQ®FLOW P-304 is a cost effective acrylic leveling agent for solvent based and solvent free systems. It's very suitable for gel coats that are base on unsaturated polyesters, epoxides and polyurethanes. The product shows excellent defocaming and leveling performances. It is non-silicone and therefore will not cause intercoat adhesion problems.

The additive is preferably used in combination with air release agent like **UNIQ®FOAM P-555.**

Special Features

- Solvent borne and solvent free applications
- Improves levelling
- Acts as a defoamer and de-aeration aid
- Does not interfere intercoat adhesion
- Silicone free
- Heat stable

Application

Ambient curing systems	
UPE	■
Epoxy	■
PU	■
Adhesives and sealants	
UPE	■
Epoxy	■
PU	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density	1.00 g/cm^3
Color	Max. 1
Appearance	Transparent viscous liquid

Addition levels

- Based on total formulation: 0.1 – 1.0 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

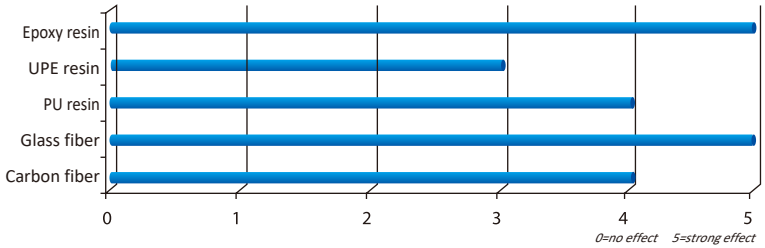
- 25 kg
- 190 kg

Shelf life

UNIQ®FLOW P-304 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®FLOW P-990

Fiber wetting additive



UNIQ®FLOW P-990 is a product developed for fiber reinforced materials. It is recommended for unsaturated polyester/vinyl resin, epoxy and polyurethane resin systems. The additive can effectively improve the wetting of glass fiber or carbon fiber, reduce bubble entrainment, avoid dry point and reduce the defective rate of finished products

Special Features

- Suitable for unsaturated polyester/vinyl resin, epoxy and polyurethane resin systems
- Improve the wetting of fibers
- Reduce bubble entrainment, avoid dry point

Application

Low emission SMC/BMC X	■
LP and Class A formulations X	■
Fiber wetting	■
Pultrusion	■
Filament winding	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density	0.89 g/cm^3
Epoxy equivalent	240 - 310 g/eq%
Appearance	Clear liquid

Addition levels

Adding proportion of total formula based on the purchase form of additives:

- Glass fiber: 0.5 – 2 %
- Carbon fiber: 1 – 3 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

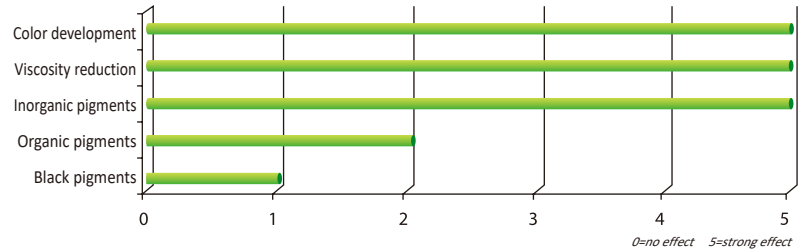
- 22 kg
- 170 kg

Shelf life

UNIQ®FLOW P-990 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 3 years from the date of manufacture.

UNIQ®SPERSE P-115

Wetting and dispersing additive for filled unsaturated polyesters



UNIQ®SPERSE P-114 is a wetting and dispersing additive for filled unsaturated polyester eg calcium carbonate and ATH. Strong viscosities reduction so higher pigment and filler loading in the grinding process can be achieved.
In BMC the **UNIQ®SPERSE P-114** is used as viscosity stabilizer

Special Features

- Wetting and dispersing agent for TiO2, inorganic pigments and fillers
- Reduce the viscosity
- increase the pigment and filler loading

Application

LP and Class A formulations	■
LS formulations	■
Pultrusion	■
Epoxy systems	■
Viscosity stabilization BMC	■

highly recommended ■
recommended □

Product Specification

Active ingredients	51 %
Density 20°C	1.01 g/cm^3
Acid Value	64 mg KOH/g
Solvent	PMA/Hydrocarbons C9 aromatics
Appearance	Light yellowish transparent liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Fillers/pigments: 0.5 - 1%
- BMC: 0.25 - 1%

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

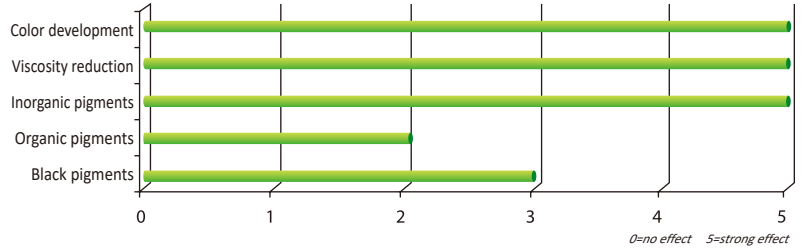
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE P-114 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-120

Wetting and dispersing additive for filled unsaturated polyesters



UNIQ®SPERSE P-120 is a wetting and dispersing additive for filled unsaturated polyester, acrylic and epoxy resins to reduce the viscosity and prevent settling. Strong viscosities reduction so higher pigment and filler loading in the grinding process can be achieved. For fiber-reinforced spray up and hand lay-up resins.

Special Features

- Solvent based applications
- Wetting and dispersing agent for TiO2, inorganic pigments and fillers
- Reduce the viscosity
- increase the pigment and filler loading
- Excellent wetting

Application

Ambient curing systems	
UPE	■
Acrylic	■
Epoxy	■
Adhesives and sealants	
Epoxy	■
Acrylic	■
PU	■

highly recommended ■
recommended □

Product Specification

Active ingredients	80 %
Solvent	BG
Density 20°C	0.97 g/cm^3
Acid value	39 mg KOH/g
Amine value	31 mg KOH/g
Color	Max.11
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Fillers/pigments: 0.5 – 1.5%

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

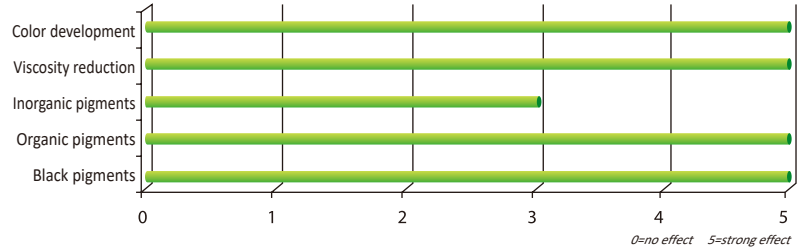
- 22 kg
- 180 kg

Shelf life

UNIQ®SPERSE P-120 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-134

Polymeric wetting and dispersing additive



UNIQ®SPERSE P-134 is a solvent-free wetting and dispersing additive, very suitable for solvent-borne and solvent-free adhesives, PVC plastisol, ambient curing resin systems, and for the production of color master batches for thermoplastics. Particularly recommended for carbon black pigments. And it can also prevents separation and improves the fiber wetting in SMC/BMC formulations.

Special Features

- Solvent-borne and solve-free applications
- Wetting and dispersing agent for organic pigments, especially for carbon black
- Reduce the viscosity
- Increase the pigment loading
- High gloss
- Good transparency for transparent pigments and good hiding power for opaque pigments

Application

Adhesives	■
PVC Plastisols	■
SMC/BMC	■
Pultrusion	■
Ambient curing systems	■
Thermoplastics	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.05 g/cm^3
Acid value	15 mg KOH/g
Amine value	35 mg KOH/g
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Titanium dioxides: 1 - 3%
- Inorganic pigments: 5 - 10%
- Organic pigments: 10 - 25%
- Carbon black: 15 - 50%

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

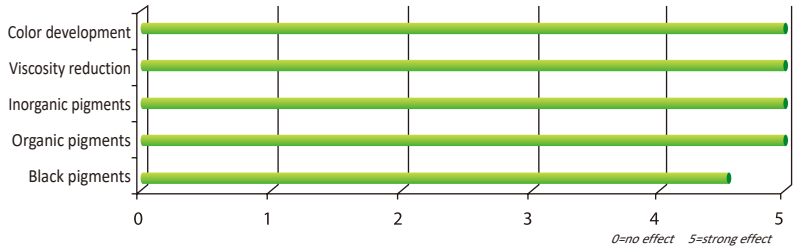
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE P-134 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-135

Polymeric wetting and dispersing additive



UNIQ®SPERSE P-135 is a solvent-free wetting and dispersing additive, very suitable for solvent-borne and solvent-free adhesives, PVC plastisol, ambient curing resin systems, and for the production of liquid color masterbatches for thermoplastics. Particularly recommended for organic pigments and carbon black. And it's also suitable for epoxy flooring and gel coats system. It gives excellent anti floating and flooding performance

Special Features

- Solvent-borne and solve-free applications
- Suited for organic and inorganic pigments, especially for carbon black
- Strong viscosity reduction
- High transparency and gloss
- Improve the color strength
- Excellent anti floating and flooding performance

Application

Adhesives	■
PVC Plastisols	■
Pultrusion	■
Ambient curing systems	■
Thermoplastics	■
Epoxy flooring	■
Gel coats	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.08 g/cm^3
Acid value	10.0 mg KOH/g
Amine value	66.0 mg KOH/g
Appearance	Light brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Titanium dioxides: 2 - 5%
- Inorganic pigments: 2 - 5%
- Organic pigments: 15 - 50%
- Carbon black: 20 - 80%

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

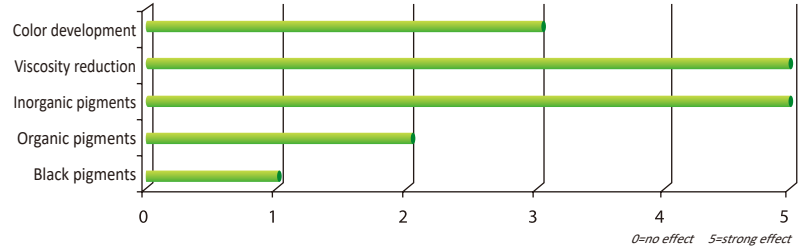
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE P-135 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-141

Wetting and dispersing additive



UNIQ®SPERSE P-141 is a wetting and dispersing additive for amine-accelerated UP, EP and, PUR systems and adhesives to reduce the viscosity in mineral-filled systems. Strong viscosities reduction so higher pigment and filler loading in the grinding process can be achieved. Due to its OH- functionality, this additive is incorporated into the polymer matrix and is therefore suitable for systems in which fogging and emissions are critical.

Special Features

- Wetting and dispersing agent for TiO2, inorganic pigments and fillers
- Reduce the viscosity
- increase the pigment and filler loading
- Excellent wetting

Application

Ambient curing systems	
UPE	■
Acrylic	■
Epoxy	■
PU	■
Adhesives and sealants	
Epoxy	■
Acrylic	■
PU	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	EPH
Density 20°C	1.12 g/cm^3
Acid value	66 mg KOH/g
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Fillers/pigments: 0.5 – 2.0%

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

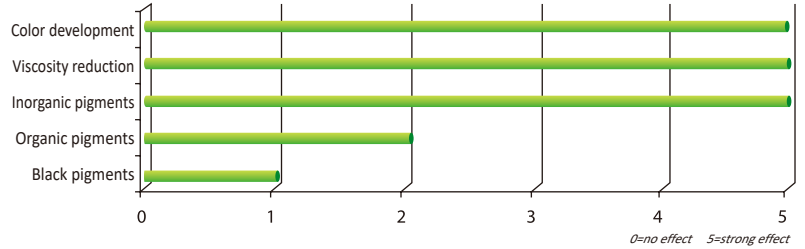
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE P-141 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-144

Wetting and dispersing additive for filled unsaturated polyesters



UNIQ®SPERSE P-144 is a wetting and dispersing additive for filled unsaturated polyester, acrylic and epoxy resins to reduce the viscosity and prevent settling. Strong viscosities reduction so higher pigment and filler loading in the grinding process can be achieved. For fiber-reinforced spray up and hand lay-up resins.

Special Features

- Solvent based applications
- Wetting and dispersing agent for TiO2, inorganic pigments and fillers
- Reduce the viscosity
- increase the pigment and filler loading
- excellent wetting

Application

Ambient curing systems	
UPE	■
Acrylic	■
Epoxy	■
Adhesives and sealants	
Epoxy	■
Acrylic	■
PU	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Density 20°C	0.86 g/cm^3
Acid value	35 mg KOH/g
Amine value	20 mg KOH/g
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Fillers/pigments: 0.5 – 2.0%

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

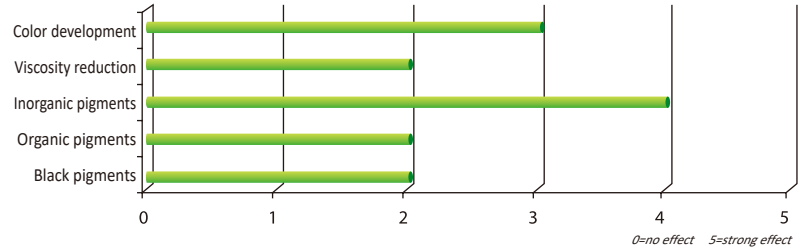
- 22 kg
- 170 kg

Shelf life

UNIQ®SPERSE P-144 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-160

W&D agent with silicone to prevent flooding and floating of pigments



UNIQ®SPERSE P-160 is a wetting and dispersing additive in unsaturated resin systems and adhesives. The additive prevents the flooding/floating and settling of pigments and fillers in epoxy and VE/UP-based laminates. Reduction in the flooding/floating of colored pigments in gel coats.

dispersant

Special Features

- Prevention of flooding and floating
- Reduce dispersion time
- Reduce tendency of Bernard cells
- Stabilization of the pigment dispersion
- Decrease pigment sedimentation

Application

Ambient curing systems	
Vinyl / UPE	■
Epoxy	■
Adhesives and sealants	
Vinyl / UPE	■
Epoxy	■
Pultrusion	
Vinyl/UPE	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	Hydrocarbons C9 aromatics/Xylene/MIBK
Density 20°C	0.95 g/cm^3
Acid value	125 mg KOH/g
Color	Max. 12
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 0.5 – 3 %
- Titanium dioxides: 0.2 – 2 %
- Organic pigments: 2 – 5 %
- Fillers: 0.5 – 2 %

The above recommended levels can be used for orientation and needs to be optimized by testing.

Packaging

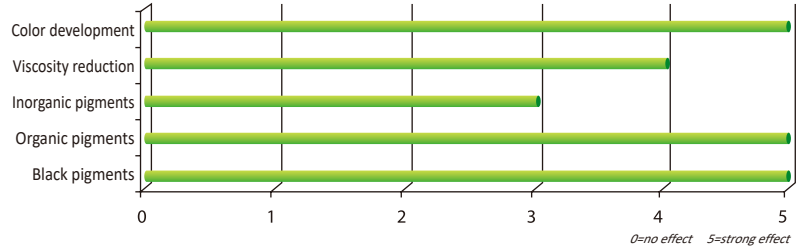
- 25 kg
- 180 kg

Shelf life

UNIQ®SPERSE P-160 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-172

Polymeric dispersant



UNIQ®SPERSE P-172 is a wetting and dispersing additive for inorganic pigments, organic pigments and carbon black in adhesive, plastisols, ambient curing resin systems, and for the production of color pastes for thermoplastics. It is also very suitable for SMC/BMC and pultrusion to homogenize and stabilize the system, and to increase the color homogeneity in molding compounds; and it can give good fiber wetting and anti-separation performance.

dispersant

Special Features

- Solvent-based applications
- Wetting and dispersing agent for organic and inorganic pigments and carbon black
- Improve the color strength
- Anti-seperation performance
- PFiber wetting

Application

Adhesives	■
PVC Plastisols	■
SMC/BMC	■
Pultrusion	■
Ambient curing systems	■
Thermoplastics	■

highly recommended ■
recommended □

Product Specification

Active ingredients	30 %
Solvents	n-BA/PMA/Xylene
Density 20°C	1.01 g/cm^3
Amine value	9 mg KOH/g
Color	Max.6
Appearance	Light yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Titanium dioxides: 1 - 3%
- Inorganic pigments: 2 - 5%
- Organic pigments: 15 - 30%
- Carbon black: 20 - 50%

- Prevent phase seperation 0.5 - 1.0%

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

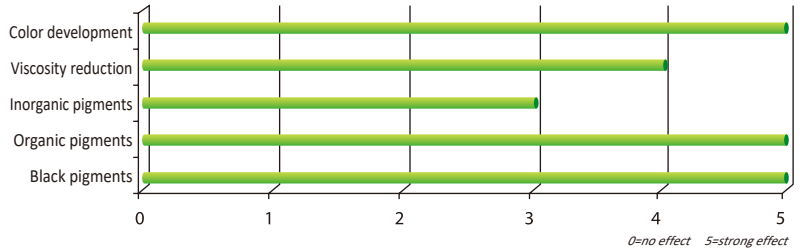
- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE P-172 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-185

Polymeric dispersant



UNIQ®SPERSE P-185 is a solvent-free wetting and dispersing additive, very suitable for solvent-borne and solvent-free adhesives, PVC plastisols, ambient curing resin systems, and for the production of color masterbatches for thermoplastics. Particularly recommended for organic pigments, inorganic pigments and carbon black. And it's also suitable for epoxy flooring system.

Special Features

- Solvent-borne and solve-free applications
- Wetting and dispersing agent for organic and inorganic pigments, especially for carbon black
- Improve the color strength
- Increase the pigment loading
- Protect color floatation
- High gloss

Application

Adhesives	■
PVC Plastisols	■
SMC/BMC	■
Pultrusion	■
Ambient curing systems	■
Thermoplastics	■
Epoxy flooring	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.10 g/cm^3
Acid value	12 mg KOH/g
Amine value	5 mg KOH/g
Color	Max.8
Appearance	Brownish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Titanium dioxides: 1 - 3%
- Inorganic pigments: 2 - 5%
- Organic pigments: 15 - 50%
- Carbon black: 20 - 80%

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

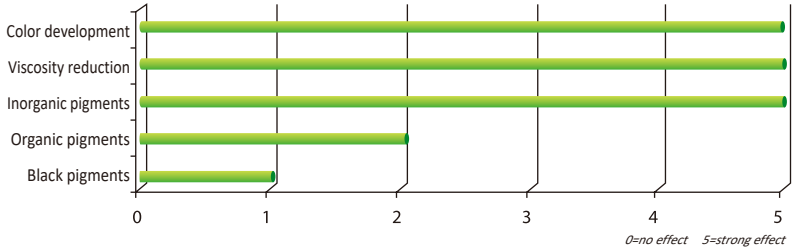
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE P-185 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-193

Wetting and dispersing additive for filled unsaturated polyesters



UNIQ®SPERSE P-193 is a wetting and dispersing additive for filled unsaturated polyester, epoxy systems, PVS plastisols and thermoplastic applications. The dispersant is especially suitable for inorganic pigments and filler pigments. Strong viscosities reduction so higher pigment and filler loading in the grinding process can be achieved.

Special Features

- Wetting and dispersing agent for TiO2, inorganic pigments and fillers
- Reduce the viscosity
- increase the pigment and filler loading

Application

Low emission SMC/BMC X	■
LP and Class A formulations X	■
LS formulations X	■
Pultrusion X	■
Viscosity stabilizer	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.13 g/cm^3
Acid value	106 mg KOH/g
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Fillers: 0.5 - 1%
- Titanium dioxides: 1 - 2%

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

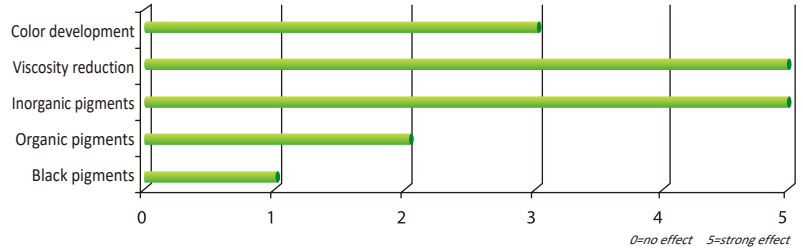
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE P-193 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-195

Wetting and dispersing additive



UNIQ®SPERSE P-195 is a wetting and dispersing additive for filled unsaturated polyester. The dispersant is especially suitable for inorganic pigments and filler pigments. Strong viscosities reduction so higher pigment and filler loading in the grinding process can be achieved.

Special Features

- Wetting and dispersing agent for TiO2, inorganic pigments and fillers
- Reduce the viscosity
- increase the pigment and filler loading

Application

Low emission SMC/BMC X	■
LP and Class A formulations X	■
LS formulations X	■
Pultrusion X	■
Viscosity stabilizer	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	1.21 g/cm^3
Acid value	230 mg KOH/g
Color	Max. 5
Appearance	Slight yellowish clear liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Fillers: 0.5 - 1%
- Titanium dioxides: 1 - 2%

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

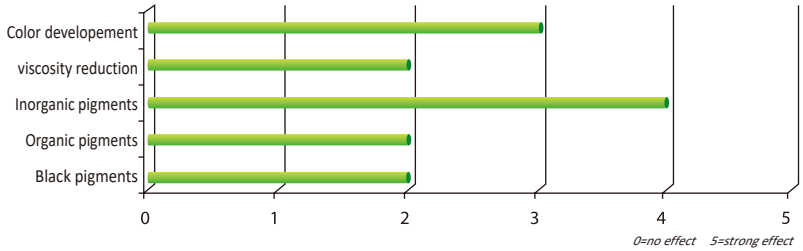
- 25 kg
- 200 kg

Shelf life

UNIQ®SPERSE P-195 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-904

Pyrogenic silica rheological effectiveness additive



UNIQ®SPERSE P-904 is a wetting and dispersing additive in unsaturated resin systems and adhesives. It's no silicone dispersant. The additive prevents the flooding/floating and settling of pigments and fillers in epoxy and VE/UP-based laminates. Reduction in the flooding/floating of colored pigments in gel coats. And it can reinforce the rheological effectiveness of pyrogenic silica to increase and stabilize the thixotropic behavior.

Special Features

- Prevention of flooding and floating
- Reduce dispersion time
- Reduce tendency of Bernard cells
- Stabilization of the pigment dispersion
- Decrease pigment sedimentation
- Reinforce the rheological effectiveness of pyrogenic silica

Application

Ambient curing systems	
Vinyl / UPE	■
Epoxy	■
Adhesives and sealants	
Vinyl / UPE	■
Epoxy	■
Pultrusion	
Vinyl / UPE	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvents	Hydrocarbons C9 aromatics/Xylene/MIBK
Density 20°C	0.95 g/cm3
Acid value	140 mg KOH/g
Color	Max.12
Appearance	Brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Inorganic pigments: 1 – 2.5 %
- Titanium dioxides: 0.5 – 2 %
- Organic pigments: 1 – 3 %
- Fillers: 1 – 2 %
- Fumed silica: 5 – 40 %

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

- 25 kg
- 190 kg

Shelf life

UNIQ®SPERSE P-904 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

UNIQ®SPERSE P-1450

Processing additive with mold release properties

UNIQ®SPERSE P-191 is a processing additive with mold release properties for low-shrink SMC and BMC. The zinc stearate that is usually used as a mold release agent is completely replaced by the additive, which can simplify raw material handling. The most important property is the anti-separation of the LS-SMC/BMC compounds and thus cobwebbing is reduced. Scrap rate is lowered due to reduced shrinkage and less warping. At the same time, the additive gives higher gloss, lower haze and improves color homogeneity. You can gain generally higher surface appearance of the finished parts. If the finished parts are to be painted or bonded, no sanding is required, as UNIQ®SPERSE P-1450 is firmly anchored in the cured resin and does not migrate to the surface. Due to the low dosage of the additive, it is virtually cost neutral.

dispersant

Special Features

- Processing additive for low-shrink SMC and BMC
- Excellent mold release properties
- Anti-separation of the compounds, reducing the cobwebbing
- Decreasing the haze
- Improving the gloss

Application

SMC (LS)	■
BMC /DMC	□
UPE resin	■
Epoxy systems	■

highly recommended ■
recommended □

Product Specification

Active ingredients	100 %
Density 20°C	0.93 g/cm^3
Acid value	113 mg KOH/g
Color	Max. 7
Appearance	Yellowish to brownish liquid

Addition levels

Amount of solid additive based on pigment (SOP):

- Total resin: 2 - 2.5%
- Highly filled system: 2 - 4%

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

- 22 kg
- 170 kg

Shelf life

UNIQ®SPERSE P-1450 should be stored in a cool dry place. When kept in an original unopened container, it will keep up to 5 years from the date of manufacture.

Specialties

UNIQ®VIS is our brand for some special products, like rheology control agents and conductivity agents.

UNIQ®VIS P-910

Rheology additive

UNIQ®VIS P-910 is a liquid rheology additive, suitable for medium polarity solvent based and solvent free coating systems as well ambient-curing resin systems. The additive creates highly thixotropic flow behavior and consequently improves the anti-sagging and anti-settling properties.

Incorporation and processing instruction

The additive should be added to the coating while stirring using moderate shear forces to ensure a homogeneous and quick distribution. It is not necessary to specifically control the temperature. The additive can be added into the millbase and is also suitable for adjusting the viscosity afterwards by incorporating it as a post-additive. If the additive is suitable for the system, its rheological effectiveness builds up, dependent upon time and polarity, and can generally be evaluated 2 to 4 hours after incorporation

Special note

If used with driers (siccatives), discoloration may occur due to the formation of metal complexes. The rheological effectiveness should then be tested.

Special Features

- Medium-polar solvent-based and solvent free applications
- Improve anti-sagging
- Excellent anti-sagging
- No influence on leveling

Application

Epoxy Systems	■
PU systems	■
Acrylic Resin systems	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	NMP
Density 20°C	1.15 g/cm^3
Color	max 12
Appearance	Yellowish liquid

Addition levels

Coating:

0.2-1% anti-settling
0.5-2% anti-sagging

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

- 25 kg
- 180 kg

Shelf life

UNIQ®VIS P-910 Moisture sensitive. Store dry. Slight turbidity of the material that occurs during storage has no influence on the rheological effectiveness. The specified storage stability upon dispatch applies when the product is handled correctly and stored in unopened original containers.

UNIQ®VIS P-920

Rheology additive

UNIQ®VIS P-920 is a liquid rheology additive, suitable for medium polarity solvent based and solvent free coating systems as well ambient-curing resin systems. The additive creates highly thixotropic flow behavior and consequently improves the anti-sagging and anti-settling properties.

Incorporation and processing instruction

The additive should be added to the coating while stirring using moderate shear forces to ensure a homogeneous and quick distribution. It is not necessary to specifically control the temperature. The additive can be added into the millbase and is also suitable for adjusting the viscosity afterwards by incorporating it as a post-additive. If the additive is suitable for the system, its rheological effectiveness builds up, dependent upon time and polarity, and can generally be evaluated 2 to 4 hours after incorporation

Special note

If used with driers (siccatives), discoloration may occur due to the formation of metal complexes. The rheological effectiveness should then be tested.

Special Features

- Medium-polar solvent-based and solvent free applications
- Improve anti-sagging
- Excellent anti-sagging
- No influence on leveling

Application

Epoxy Systems	■
PU systems	■
Acrylic Resin systems	■

highly recommended ■
recommended □

Product Specification

Active ingredients	50 %
Solvent	NBP
Density 20°C	1.12 g/cm^3
Color	max 12
Appearance	Yellowish liquid

Addition levels

Coating:

0.2-1% anti-settling
0.5-2% anti-sagging

The above recommended levels can be used for orientation and needs to be optimized by testing

Packaging

- 25 kg
- 180 kg

Shelf life

UNIQ®VIS P-920 Moisture sensitive. Store dry. Slight turbidity of the material that occurs during storage has no influence on the rheological effectiveness. The specified storage stability upon dispatch applies when the product is handled correctly and stored in unopened original containers.

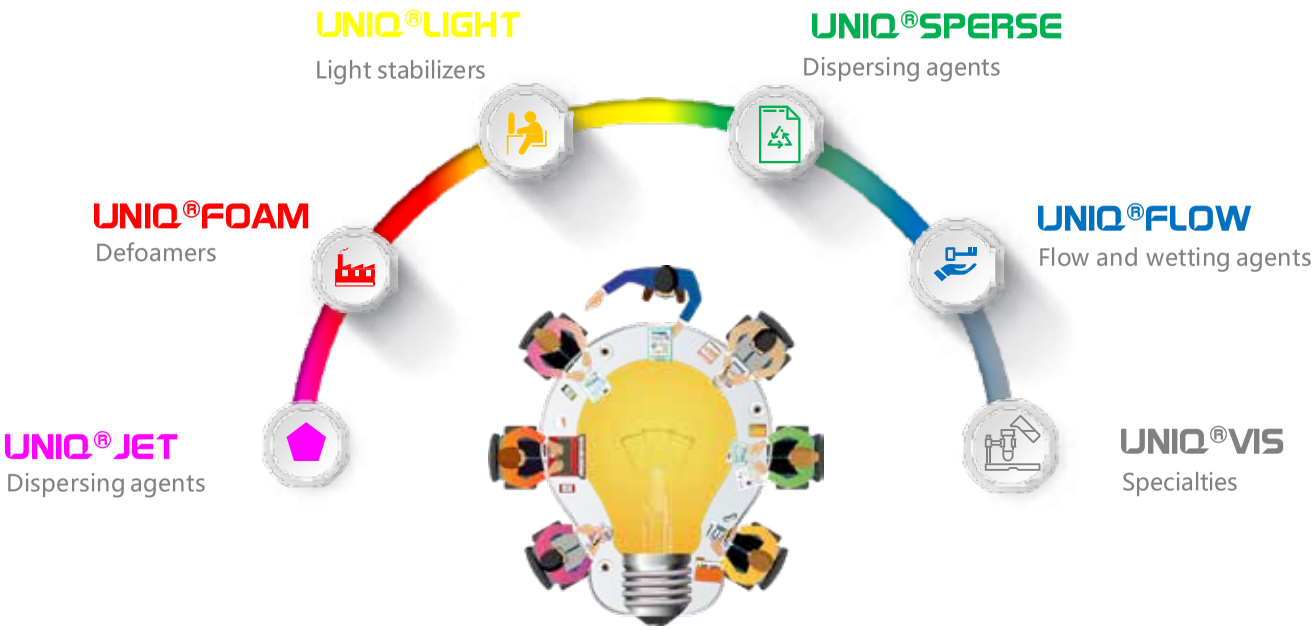
Overview

Overview

name	abbreviation	Evaporation Rate		Surface Tension		Viscosity,cp		Weight/Volume @20℃		Flash Point	Freezing Point	Boiling Range @760 Torr,	Autoignition Temperature	Solubility @20℃ Wt%		Azeotrope		Vapor Pressure			Refractive Index		Electrical Resistance,e	Dilution Ratiob		Blush Resistance	Hansen溶Solubility Parametersf				Formula	Gram Molecular Weight	TLV PPM 1999	toxicity	CAS NO.
		nBAC=100	ETHER=1	Dyne/Cm	℃	8%RS1/2-SNC @25℃	8%CAB-381-0.5@25℃	Lb/Gal	Kg/L	℃	℃	℃	℃	In Water	Water In	BP℃	Wt% Waterd	Torr	℃	Kpa @55℃	Value	℃	Megohms	Toluene	VM&P Naphtha	RH% 80°F	Total	Nonpolar	Polar	Hydrogen Bonding				rat oral LD50mg/kg	
TETRAHDROFURAN		630.0	1.9	26.4	25	18	13	7.41	0.89	-14.444	-108.333	65-67	321	Complete	Complete	63.8	4.6	143.0	20	-	1.407	20	2	2.8	1.0	50	9.5	8.2	2.8	3.9	OCH2CH2CH2CH2	72.10	200		109-99-9
ACETONE		630.0	1.9	22.3	20	7	8	6.60	0.79	-20	-94.444	55.5-57.1	538	Complete	Complete	None	-	185.0	20	97.6	1.359	20	＜0.01	4.6	0.5	20	9.8	7.6	5.1	3.4	CH3COCH3	58.08	500		67-64-1
METHYL ACETATE		600.0	1.9	25.8	20	14	14	7.78	0.93	-15	-97.778	55.8-58.2	501	22.0	7.3	-	-	178.3	20	94.4	1.360	20	0.4	2.9	0.9	20	9.2	7.6	3.5	3.7	CH3COOCH3	74.09	200		79-20-9
METHYL ACETATE-HIGH PURITY		620.0	1.9	25.2	20	11	14	7.78	0.93	-15.556	-97.778	55.8-58.2	501	22.7	8.8	56.1	5.0	179.5	20	94.3	1.359	20	4	2.9	0.9	-	9.2	7.6	3.5	3.7	CH3COOCH3	74.09	200		79-20-9
ETHYL ACETATE(85~88%)		420.0	2.9	24.2	20	17	15	7.36	0.88	-2.778	-83.333	71-79	466	7.4	3.1	70.4	8.5	75.0	20	-	1.369	20	0.3	3.3	1.2	39	-	-	-	-	CH3COOC2H5	88.11	-		-
ETHYL ACETATE(99%)	Eac	410.0	3.0	23.9	20	20	15	7.51	0.90	-4.444	-83.333	75.5-78.5	485	7.4	3.3	70.4	8.5	86.0	20	45.9	1.372	20	20	3.1	1.1	39	8.8	7.7	2.6	3.5	CH3COOC2H5	88.11	400		141-78-6
METHYL ETHYL KETONE		380.0	3.2	24.6	20	10	12	6.67	0.80	-8.889	-86.667	79.6	474	27.1	12.5	73.4	11.0	70.2	20	-	1.379	20	0.2	4.3	0.9	45	9.1	7.6	4.4	2.5	CH3COCH2H5	72.11	200		78-93-3
ISOPROPYL ACETATE		300.0	4.0	22.1	20	22	17	7.26	0.87	1.667	-72.778	85-91	479	2.9	1.8	76.6	10.6	47.5	20	30.7	1.377	20	＞20	3.0	1.2	62	8.6	7.3	2.2	4.0	CH3COOCH(CH3)2	102.13	250		108-21-4
METHYL n-PROPYL KETONE		230.0	5.3	26.6	20	14	13	6.74	0.81	7.778	-86.111	101-105	449	3.1	4.2	83.3	19.5	27.8	20	19.2	1.390	20	0.3	3.9	1.0	70	8.9	7.8	3.7	2.3	CH3COC3H7	86.13	200		107-87-9
n-PROPYL ACETATE		230.0	5.3	24.3	20	22	18	7.39	0.89	12.778	-92.222	99-103	457	2.3	2.6	82.4	14.0	23.0	20	18.9	1.385	20	＞20	3.2	1.5	65	8.6	7.5	2.1	3.7	CH3COOC3H7	102.14	200		109-60-4
METHYL ISOBUTYL KETONE		160.0	7.6	23.6	20	19	15	6.67	0.80	15.556	-83.889	114-117	449	2.0	1.0	87.9	24.3	15.0	20	11.7	1.396	20	0.4	3.5	1.0	78	8.1	7.5	3.0	2.0	CH3COCH2CH(CH3)2	100.16	50		108-10-1
ISOBUTYL ACETATE		140.0	8.6	23.7	20	32	28	7.25	0.87	20.556	-98.889	112-119	427	0.7	1.6	87.4	16.5	12.5	20	10.7	1.390	20	＞20	2.7	1.1	80	8.2	7.4	1.8	3.1	CH3COOCH2CH(CH3)2	116.20	150		110-19-0
2-NITROPROPANE		110.0	11.0	29.9	20	60	27	5.23	0.99	27.778	-91.111	119-122	428	1.7	0.6	88.6	29.4	18.0	20	-	1.394	20	＜0.1	1.2	0.4	82	10.1	7.9	5.9	2.0	CH3CHNO2CH3	89.09	10		79-46-9
n-BUTYL ACETATE	nBAc	100.0	12.1	25.1	20	30	28	7.35	0.88	27.222	-73.889	122-129	407	0.7	1.6	90.2	28.7	10.00	20	7.4	1.394	20	＞20	2.7	1.2	83	8.5	7.7	1.8	3.1	CH3COOC4H9	116.16	150		123-86-4
propenediol/propylene glycol	PG			47.4					1.03		-32	210		Complete	Complete																C3H8O2	76.09		28	
Propylene glycol mono-methyl ether	PM	70.0	17.3	28.3	25	80	49	7.69	0.92	32.222	-95	120	-	Complete	Complete	-	-	8.00	20	8.1	1.404	20	0.4	5.2	0.9	56	10.0	7.6	3.1	5.7	CH3OCH2CH(CH3)OH	90.12	100		107-98-2
METHYL ISOAMYL KETONE		50.0	24.2	25.8	20	25	20	6.76	0.81	35.556	-73.889	141-148	424	0.5	1.2	94.7	44.0	4.50	20	3.7	1.408	20	0.6	4.1	1.2	89	8.3	7.6	2.8	2.0	CH3COC2H4CH(CH3)2	114.19	50		110-12-3
METHYL AMYL ACETATE		50.0	24.2	22.6	20	54	0	7.14	0.86	35.556	n	146-150	-	0.1	0.6	94.8	36.7	3.80	20	-	1.401	20	＞20	1.7	1.0	92	-	-	-	-	CH3COOCH(CH3)C4H9	144.21	50		108-84-9
n-BUTYL PROPIONATE		50.0	24.2	25.3	20	28	30	7.30	0.87	36.111	-75	145-149	427	0.4	0.7	-	-	3.00	20	3.3	1.404	20	＞20	1.8	1.1	-	8.5	-	-	-	C2H5COOC4H9	130.19	-		590-01-2
Propylene glycol mono-methyl ether acetate	PMA/MPA	40.0	30.2	26.4	20	64	43	8.06	0.97	45.556	-87	140-150	354	20.0	5.9	-	-	3.70	20	3.0	1.400	20	5	2.6	0.8	92	9.4	7.6	2.7	4.8	CH3COOCH(CH3)CH2OCH3	132.20	-		108-65-6
AMYL ACETATE (PRIMARY)		40.0	30.2	28.5	20	40	31	7.29	0.87	41.111	-100	146	-	0.2	0.9	95.2	41.0	4.00	20	-	1.401	20	16	2.3	1.3	92	-	-	-	-	CH3COOC5H11	130.19	100		628-63-7
METHYL n-AMYL KETONE		40.0	30.2	26.1	20	25	20	6.80	0.82	38.889	-32.778	147-153	393	0.5	1.3	95.0	48.0	2.14	20	2.8	1.408	20	0.4	3.9	1.2	93	8.6	7.9	2.8	2.0	CH3COC5H11	114.19	50		110-43-0
ISOBUTYL ISOBUTYRATE		40.0	30.2	23.2	20	100	Insi	7.13	0.86	40	-80	145-152	432	＜0.1	＜0.2	95.5	39.4	3.20	20	3.3	1.399	20	＞20	1.5	0.8	92	8.1	7.4	14.0	2.9	(CH3)2CHCOOCH-2CH(CH3)2	144.22	-		97-85-8
ETHYLENE GLYCOL ETHYL ETHER		30.0	40.3	29.3	20	73	53	7.75	0.93	43.333	-93.889	134-136	238	Complete	Complete	98.2	87.0	3.80	20	-	1.408	20	＜0.1	5.0	1.1	59	11.5	7.9	4.5	7.0	C2H5OC2H4OH	90.12	5		110-80-5
CYCLOHEXANONE	CYC	23.0	40.3	27.7	20	74	77	7.89	0.95	43.889	-46.667	155.7	420	2.3	8.0	95.0	61.6	3.40	20	-	1.451	20	＜0.1	5.7	1.1	92	9.6	8.7	3.1	2.5	CH2(CH2)2CO	98.14	25		108-94-1
ethylene glycol	MEG/EG	0.0		46.5					1.11	-17.778	-17.778	197		Complete	Complete																C2H6O2	62.00		5.8	
ethylene glycol mono-ethyl ether/cellsolve		20.0		28.2					0.93	-17.778	-56.667	135																			C4H10O2	90.12		3	
ethylene glycol mono-ethyl ether acetate/cellsolve acetate	CAC	20.0	60.5	28.2	20	66	45	8.11	0.98	54.444	-61.111	150-160	382	23.8	6.5	97.4	45.0	1.70	20	-	1.403	20	4	2.5	0.9	94	9.7	7.8	2.3	5.2	CH3COOC2H4OC2H5	132.16	5		111-15-9
DIISOBUTYL KETONE		20.0	60.5	24.6	20	46	Ins	6.76	0.81	48.889	-41.667	163-176	396	0.05	0.7	97.0	51.9	1.40	20	1.4	1.415	20	0.4	1.5	0.8	95	8.0	7.6	1.8	2.0	(CH3)2CHCH2COCH-2CH(CH3)2	142.23	25		108-83-8
DIMETHYL FORMAMIDE		20.0	60.5	35.2	25	17	33	7.92	0.95	57.778	-61.111	153	445	Complete	Complete	-	-	3.70	20	-	1.428	25	-	-	-	-	12.1	8.5	6.7	5.5	CHCON(CH3)2	73.09	10		25174
ethylene glycol mono-methyl ether/Methyl cellosolve/2-methoxyethanol		20-50	60.5	27.9	25	86	Ins	7.59	0.91	48.889	-90	149.5-153.5	235	Complete	Complete	98.5	73.0	1.30	20	2.2	1.414	20	0.1	4.0	2.0	90	11.1	7.9	4.2	6.6	C3H7OC2H4OH	104.15	-		2807-30-9
ethylene glycol mono-methyl ether acetate		31.0		31.8					1	-17.778	-56.667	143		Complete	Complete																C5H10O3	118.13		3.39	
MIXED HEXYL ACETATE ESTERS		17.00	71.2	25.0	20	48	48	7.30	0.87	56.667	-51.111	164-176	294	0.02	0.66	-	-	1.40	20	-	1.410	20	＞20	1.8	1.3	-	8.4	7.7	1.4	2.9	Mixture	144.00	-		88230-35-7
DIACETONE ALCOHOL		12.00	100.8	28.9	20	128	100	7.82	0.94	52.222	-43.889	145.2-172	603	Complete	Complete	99.6	87.0	0.81	20	-	1.423	20	＜0.1	3.0	0.5	94	10.2	7.7	4.0	5.3	(CH3)2C(OH)CH2COCH3	116.16	50		123-42-2
EASTMAN EEP(ETHYL 3-ETHOXYPROPIONATE)		12.00	100.8	27.0	23	80	54	7.91	0.95	57.778	-50	165-172	377	2.90	2.2	97.0	63.0	1.50	25	1.2	1.407	20	20	1.8	0.6	96	9.1	7.9	1.6	4.3	C2H5O2C3H4OC2H5	146.19	-		763-69-9
ethylene glycol butyl ether/butly cellosolve	BG/BCS	9.00	136.0	26.6	20	101	Ins	7.51	0.90	61.667	-58.889	169-172.5	238	Complete	Complete	98.8	79.2	0.60	20	0.97	1.419	20	＜0.2	3.4	2.1	96	10.2	7.8	2.5	6.0	C4H9OC2H4OH	118.17	20	2.5	111-76-2
propylene glycol n-butyl ether/Propanediol butyl ether/Butoxy propanol	PnB/BP	30.0	40.3	24.2	25	88	Ins	7.25k	0.87	45	-56.111	151	-	14.5	20.1	95.0	78.0	4.70	25	-	1.412	25	-	-	-	-	9.6	7.5	3.0	5.3	C4H9OCH2CH(CH3)OH	132.20	-		57018-52-7
PROPYLENE GLYCOL PROPYL ETHER		20.0	60.5	27.0	25	95	Ins	7.38	0.88	48.333	-80	149.8	-	Complete	Complete	-	-	1.70	20	-	1.412	20	＜0.1	-	1.1	-	9.5	7.7	3.4	4.5	C3H7OCH2CH(CH3)OH	118.18	-		1569-01-3
PROPYLENE GLYCOL BUTYL ETHER		8.00	151.3	27.4	25	124	Ins	7.37	0.88	58.889	-100	170.2	-	6.40	15.5	-	-	0.60	20	-	1.417	20	0.4	1.9	0.9	96	9.0	7.5	2.2	4.5	C4H9OCH2CH(CH3)OH	132.20	-		5131-66-8
n-METHYL-2-PYRROLIDONE		4.00	302.5	40.7	25	48	110	8.56k	1.03k	95.556	-24.389	202	287	Complete	Complete	-	-	0.29	20	-	1.469	25	-	-	-	-	11.2	8.8	6.0	3.5	C5H9NO	99.10	-		872-50-4
2-ETHYLHEXYL ACETATE		4.00	403.4	25.8	20	90	Ins	7.27	0.87	71.111	-92.778	199-205	268	0.03	0.6	99.0	73.5	0.40	20	0.36	1.420	20	＞20	1.4	0.9	94	8.2	7.7	1.4	2.5	CH3COOCH2CH(C2H5)C4H9	172.27	-		103-09-3

name	abbreviation	Evaporation Rate		Surface Tension		Viscosity,cp		Weight/Volume @20℃		Flash Point	Freezing Point	Boiling Range @760 Torr,	Autoignition Temperature	Solubility @20℃ Wt%		Azeotrope		Vapor Pressure			Refractive Index		Electrical Resistance,e	Dilution Ratiob		Blush Resistance	Hansen溶Solubility Parametersf				Formula	Gram Molecular Weight	TLV PPM 1999	toxicity	CAS NO.
		nBAC=100	ETHER=1	Dyne/Cm	℃	8%RS1/2-SNC @25℃	8%CAB-381-0.5@25℃	Lb/Gal	Kg/L	℉	℉	℉	℉	In Water	Water In	BP℃ ℃	Wt% Waterd	Torr	℃	Kpa @55℃c	Value	℃	Megohms	Toluene	VM&P Naphtha	RH% 80℉	Total	Nonpolar	Polar	Hydrogen Bonding				rat oral LD50℃g/kg℃	
MIXED OCTYL ACETATE ESTERS		3.00	403.4	26.0	20	-	-	7.30	0.87	77.222	-51.111	186-215	298	0.02	0.35	-	-	0.75	20	-	1.420	20	>20	1.7	1.2	-	-	-	-	-	Mixture	172.00	-		108419-32-5
ethylene glycol butyl ether acetate	EBA	3.00	403.4	30.3	20	88	65	7.84	0.94	71.111	-64.444	186-194	340	1.1	1.6	98.8	71.9	0.29	20	0.77	1.414	20	>20	1.8	1.2	95	8.9	7.5	2.2	4.3	CH3COOC2H4OC4H9	160.21	-		112-07-2
Dipropylene Glycol Methyl Ether	DPM	2.00	605.1	28.8	25	225	130	7.91	0.95	79.444	-80	188.3	-	Complete	Complete	-	-	0.55	25	-	1.421	25	0.2	4.2	0.8	90	9.8	7.6	2.8	5.5	CH3O[CH2CH(CH3)O]2H	148.20	100		34590-94-8
	DPnP																																	
dipropylene glycol mono-n-butyl ether	DPnB/DBGE	1.0		29					0.91			222																		C10H22O3	190.00			
EASTMAN C-11 KETONE		2.00	605.1	27.5	24	65	lns	7.02	0.84	84.444	-11.667	200-240	238	0.2	0.9	-	-	-	-	0.17	1.436	20	1.5	2.3	1.0	96	8.2	7.9	1.0	2.0	Mixture	-	-		-
ISOPHORONE		2.00	605.1	32.3	20	110	110	7.67	0.92	81.667	-8.333	210-218	460	1.2	4.3	99.5	83.9	0.18	20	-	1.478	20	<0.1	6.2	1.2	97	9.7	8.1	4.0	3.6	OCHC:C(CH3)CH-2C(CH3)2CH2	138.20	C5r		78-59-1
ETHYLENE GLYCOL DIACETATE		2.00	605.1	33.7	20	220	160	9.22	1.11	88.333	-41.667	187-193	482	16.4	7.6	99.7	84.6	0.20	20	0.18	1.416	20	5	1.4	-	96	9.5	7.9	2.3	4.8	(CH3COOCH2)2	146.15	-		111-55-7
	DM	2.00	605.1	34.8	25	174	160	8.51	1.02	88.333	-85	191-198	193	Complete	Complete	-	-	0.20	20	1.4	1.427	20	<0.2	2.3	lmmm	76	10.7	7.9	3.8	6.2	CH3(OC2H4)2OH	120.15	-		111-77-3
	DE	2.00	605.1	32.2	20	180	140	8.25	0.99	90.556	-90	198-204	205	Complete	Complete	None	-	0.12	20	0.49	1.426	20	<0.2	1.9	lmmm	76	10.7	7.9	3.8	6.2	C2H5(OC2H4)2OH	134.17	-		111-90-0
	DP	1.00	1210.2	32.3	20	190	lns	8.05	0.96	93.333	-90	210-220	204	Complete	Complete	-	-	0.05	20	0.11	1.429	20	0.1	4.6	1.6	-	10.2	7.8	3.5	5.5	C3H7(OC2H4)2OH	148.20	-		6881-94-3
ETHYLENE GLYCOL HEXYL ETHER		1.00	1210.2	-	-	120	lns	7.40	0.89	81.667	-50	208.1	-	1.0	18.8	99.7	91.0	<1.0	20	-	1.429	20	0.3	2.4	1.5	96	-	-	-	-	C6H13OC2H4OH	146.23	-		112-25-4
EASTMAN DE ACETATE		0.800	1512.7	31.7	25	162	110	8.42	1.01	107.222	-25	214-221	360	Complete	Complete	99.2	76.0	0.05	20	0.16	1.422	20	3	2.2	0.6	92	9.4	7.9	2.5	4.5	CH3COO(C2H4O)2C2H5	176.21	-		112-15-2
DIBASIC ESTERS		0.700	1728.9	35.6	20	200	143	9.09	1.09	100	-20	196-225	370	5.3	3.1	-	-	0.20	20	-	1.422	23	0.5	-	-	-	9.2	7.9	2.3	4.1	CH3COO(CH2)nCOOCH-3[n=2,3,&4]	159.00	-		-
diethylene glycol monobutyl ether	BDG	0.300	4034.0	30.0	20	205	lns	7.94	0.96	111.111	-76.111	227-235	205	Complete	Complete	None	-	0.02	20	0.04	1.432	20	<0.3	3.9	1.9	85	10.0	7.8	3.4	5.2	C4H9(OC2H4)2OH	162.23	-	6.56	112-34-5
	EEH	0.300	4034.0	27.6	20	lns	lns	7.42	0.89	97.778	-45.556	224-275	-	0.2	6.2	-	-	0.08	20	0.06	1.436	20	1.5	-	-	-	8.4	7.8	2.0	2.5	C4H9CH(C2H5)CH2O-C2H4OH	-	-		-
diethylene glycol monobutyl ether acetate		0.200	6051.0	30.0	20	140	140	8.16	0.98	105	-32.222	235-250	349	6.5	3.7	99.8	92.0	0.04	20	0.02	1.424	20	>20	1.8	0.9	96	9.0	7.8	2.0	4.0	CH3COO(C2H4O)2C4H9	204.27	-		124-17-4
PROPYLENE GLYCOL PHENYL ETHER		0.200	6051.0	38.1	25	1100	1100	8.80	1.05k	115.556	12.778	242.7	-	-	-	-	-	<0.01	25	-	-	-	-	-	-	-	10.5	8.5	2.6	5.6	C6H5OC3H60H	152.20	-		770-35-4
TEXANOL ESTER-ALCOHOL		0.200	6051.0	28.9	20	lns	lns	7.90	0.95	120	-50	255-260.5	393	<0.1	0.9	-	-	0.01	20	0.02	1.442	20	>20	-	-	-	9.3	7.4	3.0	4.8	(CH3)2CHCOOCH-2C(CH3)2CHOHCH(CH3)2	216.30	-		25265-77-4
MIXED TRIDECYL ACETATE ESTERS		0.100	12100	28.0	20	-	-	7.30	0.88	127.222	-51.111	240-285	302	0.0	0.2	-	-	0.03	20	-	1.438	20	>20	-	-	-	8.0	7.7	1.2	2.0	Mixture	242.00	-		108419-35-8
METHYL ALCOHOL		350.0	3.5	22.6	20	-	-	6.60	0.79	10	n	64-65	463	Completeq	Completeq	None	-	100.0	21.2	69.0	1.329	20	<0.1	2.2	0.5	-	14.5	7.4	6.0	10.9	CH3OH	32.04	200		67-56-1
TECSOL INDUS.AND PROPRIETARY SOLVENTS		170-190	-	22.4	20	-	-	6.57-6.83	0.79-0.82	10	-113.889	74-82	419	Complete	Complete	78.1	4.0	-	-	37.6p	1.361	20	<0.1	-	-	-	13.0	7.7	4.3	9.5	C2H5OH	46.07	-		-
ISOPROPYL ALCOHOL (99%)		205.0	7.1	21.3	20	-	-	6.54	0.78	12.778	-88.333	80.8-83.8	360	Complete	Complete	80.3	12.6	32.8	20	30.8	1.378	20	<0.2	-	-	-	11.5	7.7	3.0	8.0	(CH3)2CHOH	60.10	400		67-63-0
n-PROPYL ALCOHOL		100.0	12.1	23.8	20	-	-	6.71	0.80	23.333	-127.222	96-98	413	Complete	Complete	87.0	28.3	14.5	20	15.7	1.386	20	<0.2	-	-	-	12.0	7.8	3.3	8.5	C3H7OH	60.10	200		71-23-8
SECONDARY BUTYL ALCOHOL		90.0	13.4	24.0	20	-	-	6.73	0.81	22.222	--	98-101	406	20.6	30.7	87.0	26.8	12.0	20	-	1.397	20	<0.2	-	-	-	10.8	7.7	2.8	7.1	CH3CH2CHOHCH3	74.12	100		78-92-2
ISOBUTYL ALCOHOL	iBA	60.0	20.2	22.8	20	-	-	6.68	0.80	29.444	-107.778	106-109	416	9.5	14.3	89.8	33.0	9.0	20	9.5	1.396	20	<0.2	-	-	-	11.1	7.4	2.8	7.8	CH3CH(CH3)CH2OH	74.12	50		78-83-1
n-BUTYL ALCOHOL	Nba	50.0	24.2	24.6	20	-	-	6.75	0.81	36.111	-89.444	116-119	355	7.9	20.8	92.7	42.5	5.5	20	6.1	1.399	20	<0.2	-	-	-	11.3	7.8	2.8	7.7	C4H9OH	74.12	C50r		71-36-3
METHYL ISOBUTYL CARBINOL		30.0	40.3	22.8	20	-	-	6.69	0.8	39.444	-90	130-133	-	1.6	6.3	94.3	43.3	2.2	20	-	1.411	20	0.2	-	-	-	9.7	7.5	1.6	6.0	CH3CHOHCH2CH(CH3)2	102.18	25		108-11-2
AMYL ALCOHOL		30.0	40.3	23.8	20	-	-	6.67	0.81	n	-90	127-137	-	1.7	9.2	95.8	54.4	2.9	20	-	1.401	20	0.2	-	-	-	-	-	-	-	C5H11OH	88.15	-		-
CYCLOHEXANOL		5.00	242.0	35.1	20	-	-	7.87	0.94	n	--	160-162	300	0.1	11.8	97.8	80.0	0.9	20	-	1.466	20	0.4	-	-	-	11.0	8.5	2.0	6.6	CH2(CH2)4CHOH	100.16	50		108-93-0
2-ETHYLHEXANOL		1.00	1210.2	28.7	20	-	-	6.94	0.83	73.333	-70	182-186	288	0.1	2.6	99.1	80.0	0.05	20	0.26	1.432	20	>20	-	-	-	9.9	7.8	1.6	5.8	C4H9CH(C2H5)CH2OH	130.20	-		104-76-7
METHYLENE CHLORIDE		1450.0	0.8	26.5	20	-	-	10.98	1.31	n	-96.667	102-106	662	-		38.3	1.5	340.0	20	-	1.424	20	1.5	-		-	9.7	8.9	3.1	3.0	CH2Cl2	84.93	50		27639
Styrene				32.2					0.9		-30.6	145																			C8H8	104.14			
Diacetone alcohol / Diacetonealcohol	DAA/DACA	15.0		31					0.93		-44	166																			C6H12O2	116.15		4	
Benzyl alcohol				39					1.04		-15.19	204.7																			C7H8O	108.13		3.1	
Allyl Glycidyl Ether	AGE			32.1					0.96		-100	154																			C6H10O2	114.14		0.92	
Butyl glycidyl ether	BGE								0.93			165																						
PERCHLOROETHYLENE		210.0	5.7	32.3	20	-	-	13.47	1.61	n	-22.222	249-252	None	21,Mixed		87.8	15.8	-	-	-	1.504	20	-	90		-	-	-	-	-	CCl2=CCl2	165.80	25		127-18-4
TOLUENE	TOL	190.0	6.4	28.5	20	-	-	7.25	0.87	7.222	-95	110.6	538	46,Mixed		84.6	18.0	21.9	20	-	1.497	20	>20	105		-	8.9	8.8	0.7	1.0	C6H5CH3	92.13	50		108-88-3
VM&P NAPHTHA		160.0	7.6	-	-	-	-	6.27	0.75	6.667	--	244-282	249	126		-	-	-	-	-	1.423	20	>20	39		-	7.4	7.4	0.0	0.1	Mixture	-	300		64742-89-8
PARACHLOROBENZOTRIFLUORIDE		90.0	13.4	25.0	25	-	-	11.2	1.34	42.778	-35.556	282	-	-		-	-	-	-	-	-	-	-	64		-	7.3	-	-	-	C7H4F3Cl	-	-		98-56-6
XYLENE	XYL	70.0	17.3	28.7	20	-	-	7.20	0.87	28.333	-47.4	275-290	499	52,Mixed		94.5	40.0	6.6	20	-	1.498	20	>20	98		-	8.7	8.6	0.5	1.5	C6H4(CH3)2	106.16	100		-
AROMATIC 100		29.00	41.7	29.0	25	-	-	7.27	0.87	42.222	n	313-343	471	55,Mixed		-	-	1.0	20	-	1.499	20	>20	93		-	8.7	8.7	0.3	0.7	Mixture	120.00	-		64742-95-6
AROMATIC 150		6.00	201.7	30.0	25	-	-	7.51	0.90	65.556	n	362-410	443	59,Mixed		-	-	1.0	20	-	1.508	20	>20	97		-	8.7	8.7	0.3	0.7	Mixture	138.00	-		64742-94-5
AROMATIC 200c		<0.1	<12100	35.9	25	-	-	8.21	0.98	n	n	439-535	484	55,Mixed		-	-	-	-	-	1.592	20	>20	101		-	8.7	8.7	0.3	0.7	Mixture	166.00	-		-
		0.002								120	-50	254	393																						

NOTES



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