As the technological leader in water-based additives, BYK offers a diverse range of cross-sector possibilities for almost all coating applications. You will have seen the results of our specialty chemicals both in premium technology products such as tablet displays or high-tech cars, and in everyday items such as parquet flooring, washing machines or wall paints – they are everywhere.

As one of the leading additive suppliers for water-based applications, we can even provide high-performance aqueous additive solutions for challenging protective & marine coatings.
The world is changing rapidly. This is particularly evident on the coatings market, with the switch from solvent-borne to water-based coatings as a result of the long-term trend towards more environmentally friendly products.

As one of the leading additive suppliers with the widest range of water-based additives throughout the industry, we have been conducting the appropriate research and development for decades. To date, more than 40% of our additives are already being recommended for water-based coatings and printing inks.

And we’re continuously expanding the range with new additives, as BYK is a leader in innovation. Excellent, differentiated additive solutions are developed based on new raw materials, using state-of-the-art technologies and while observing both global and local regulations. In this process, more than 50% of our research and development activities are aimed at additives which help to formulate environmentally friendly products.
## Contents

### ADDITIVES

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BYK Technologies</td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Defoamers</td>
</tr>
<tr>
<td>20</td>
<td>BYK-1680</td>
</tr>
<tr>
<td>22</td>
<td>BYK-1759</td>
</tr>
<tr>
<td>24</td>
<td>BYK-1786</td>
</tr>
<tr>
<td>26</td>
<td>BYK-1795</td>
</tr>
<tr>
<td>28</td>
<td>BYK-1796</td>
</tr>
<tr>
<td>30</td>
<td>BYK-1797</td>
</tr>
<tr>
<td>32</td>
<td>Surface Additives</td>
</tr>
<tr>
<td>34</td>
<td>BYK-327</td>
</tr>
<tr>
<td>36</td>
<td>BYK-3450/BYK-3451</td>
</tr>
<tr>
<td>38</td>
<td>BYK-3456</td>
</tr>
<tr>
<td>40</td>
<td>BYK-3566</td>
</tr>
<tr>
<td>42</td>
<td>BYKETOL-WA</td>
</tr>
<tr>
<td>44</td>
<td>Wax Additives</td>
</tr>
<tr>
<td>46</td>
<td>AQUACER 1540</td>
</tr>
<tr>
<td>48</td>
<td>CERACOL 605</td>
</tr>
<tr>
<td>48</td>
<td>Wetting &amp; Dispersing Additives</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>BYKJET-9171</td>
</tr>
<tr>
<td>50</td>
<td>DISPERBYK-2023</td>
</tr>
<tr>
<td>52</td>
<td>DISPERBYK-2157</td>
</tr>
</tbody>
</table>

---

**ADDITIVES**

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rheology Additives</td>
</tr>
<tr>
<td>50</td>
<td>Have you heard of RHEOBYK?</td>
</tr>
<tr>
<td>52</td>
<td>RHEOBYK-440</td>
</tr>
<tr>
<td>56</td>
<td>RHEOBYK-7600</td>
</tr>
<tr>
<td>58</td>
<td>RHEOBYK-7610</td>
</tr>
<tr>
<td>60</td>
<td>Portfolio for Powder Coatings</td>
</tr>
</tbody>
</table>

**INSTRUMENTS**

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>BYK Instruments</td>
</tr>
<tr>
<td>66</td>
<td>spectro2guide</td>
</tr>
<tr>
<td>68</td>
<td>BYK-mac i</td>
</tr>
<tr>
<td>70</td>
<td>micro-gloss XS</td>
</tr>
<tr>
<td>72</td>
<td>smart-chart Software</td>
</tr>
<tr>
<td>74</td>
<td>byko-spectra pro</td>
</tr>
<tr>
<td>76</td>
<td>Testing Physical Properties</td>
</tr>
</tbody>
</table>

**BYK LIVE**  Talks and Product Presentations

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>BYK Passes on its Knowledge</td>
</tr>
</tbody>
</table>

**BYK INSIDE**  Discover more about the BYK Brand

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>82</td>
<td>BYK by Numbers</td>
</tr>
<tr>
<td>84</td>
<td>What do we mean by innovation,</td>
</tr>
<tr>
<td></td>
<td>expertise and closeness?</td>
</tr>
<tr>
<td>90</td>
<td>The World of Multimedia Additives</td>
</tr>
<tr>
<td>92</td>
<td>BYK Highlights at the ECS</td>
</tr>
</tbody>
</table>

**TIPS**  Information for Your Stay

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>94</td>
<td>Highlights in Nuremberg</td>
</tr>
</tbody>
</table>
Decorative Coatings

Architectural Coatings
Architectural coatings range from interior wall paints to external coatings for facades, as well as decorative coatings for wood and metal, for example, with/on window frames, doors, fences, and road marking paints grids. BYK offers special additives according to the regulatory requirements for aqueous as well as for solvent-borne systems. In these applications different binders are used, such as acrylates, styrene-acrylates, alkyds, TPA, and PU.

Flooring Coatings
Once reserved for warehouses, production sites, shopping centers and hospitals, the use of liquid polymer coatings is gaining popularity in many commercial spaces. Increasing in parallel is regulatory oversight. For this reason, the growth of water-based and solvent-free systems is even more important. BYK additives for floor coatings simplify system handling and make it possible to obtain more reproducible results.

Construction Chemicals
BYK offers environmentally friendly solutions for construction applications. The innovative product portfolio contains different types of high-performance additives, particularly for cement-based applications such as dry mix mortars, concrete formulations and admixtures. Our rheology modifiers improve application and workability properties while our defoamers enhance de-aeration and prevent foam formation. The range of wetting & dispersing and surface additives finally provide pigment stabilization and leveling properties.
Wood & Furniture Coatings

BYK formulates premium additives distinctively for wood coating systems, offering high quality performance characteristics like: easy to clean, scratch-resistance, UV resistance, excellent surface leveling and, provide exceptional pigment stabilization within pigmented systems.

Automotive Coatings

BYK offers high solid systems and environmentally friendly solutions for water-borne, solvent-borne and UV coatings for OEM and refinish automotive applications such as: CED, primers, mono-coats, base coats and clear coat systems. Our wetting and dispersing additives maximize pigment efficiency for high transparency and our rheology modifiers and specialty waxes orient effect pigments for ideal metallic effect and flop. Optimize appearance with our flow and leveling additives and eliminate foam with defoaming technology.

Marine & Protective Coatings

Paints in Marine & Protective Coatings are applied at high film thickness to provide enhanced durability and resistance to aggressive environments to protect metal and concrete substrates. Whether it be the primer, filler, or top coat, BYK offers a wide range of additives to assist formulators in developing high performance protective and marine coatings systems.
**Special Coatings**

**Can Coatings**
High surface smoothness, very good scratch and abrasion resistance, absence of bubbles, good substrate adhesion and very good leveling are decisive characteristics for can coatings. BYK offers food contact-approved additives which can be used in solvent-based, aqueous and radiation-cured can coating systems.

**Coil Coatings**
The high speeds of industrial band coating lines and the subsequent extreme deformation of the coated sheets demand coatings with very good color stability. They must also be free of foam, provide excellent leveling, adhere well and have surface characteristics such as smoothness, scratch and abrasion resistance, and also enhanced easy-to-clean properties. With BYK additives, these properties can be achieved in all coil coating application areas.

**Industrial Coatings**
Industrial coatings are used on plastic, metal, and mineral substrates. The application areas are versatile and so are the required additives. BYK additives provide solutions for pigment stabilization, defoaming, improved surface properties and rheology control in aqueous, solvent-borne and solvent-free formulations.

**Powder Coatings**
Powder coatings are one of the most environmentally friendly coating systems. They are 100% solid and they contain no harmful VOCs. BYK offers a wide range of additives for powder coatings that improve leveling, prevent craters and enhance degassing and pigment wetting. A special range of additives is used to improve processing conditions and other types provide structured or textured surfaces. BYK also provides the right additives for clear powder coatings as well as UV powders.
Industrial Applications

Printing Inks
Printing speeds in conventional printing are becoming ever faster, with a corresponding increase in the demands on the printing inks used. BYK additives help meet these increased requirements and develop the optimum printing inks. Whether to improve the color strength and transparency of a printing ink, to improve the abrasion resistance of printing inks and overprint varnishes, for efficient defoaming or to improve the wetting behavior – BYK offers the fitting additives for aqueous, solvent-based and radiation-curing systems. Of course, they are also suitable for use in indirect food contact.

Inkjet Inks
Inkjet printing is becoming increasingly important in many areas in which substrates have traditionally been printed using exclusively conventional means, e.g. in packaging printing on paper, cardboard and foil, on ceramic substrates or on textiles. For all applications, BYK offers the fitting additives to support the formulation of inkjet inks, even in areas in which indirect contact with food is required. BYK additives ensure low-viscosity and long-term stable inkjet inks with optimum color strength, improve the jetting properties and abrasion resistance of aqueous, radiation-curing, solvent-based and ceramic inkjet inks.

Adhesives & Sealants
BYK is your expert technology partner when it comes to purposefully improving the properties of your adhesives and sealants. BYK offers additives for all kinds of adhesive systems, from aqueous dispersion adhesives to solvent-borne systems or solvent-free reactive systems such as polyurethanes, epoxides, acrylates and silane-terminated polymers. In addition, BYK is continuously expanding its range in the field of hot-melt adhesives.

See the show booth schedule on pages 78–81 for more!
Defoamers

**BYK-1680**

Construction Material Applications, in Particular in Combination with Concrete Additives Based on Polycarboxylate Ethers

**BYK-1680** – Very Good Defoaming and Leveling Properties in a Self-compacting Concrete Application

High-performance superplasticizers enable outstanding flow and workability properties in concrete applications. In the end system, however, the maximum possible strength properties cannot be achieved due to the foam-stabilizing effect of the superplasticizer, particularly in the case of PCE-based flow agents.

The use of defoamers is therefore mandatory in such formulations. Numerous suitable defoamers are incompatible and therefore, sooner or later, cause phase separation in the concrete additive. Over a longer period of time, many defoamers also tend to become ineffectual in the end system.

In contrast to this, BYK-1680 is characterized by its excellent and sustained defoaming effect as well as its very good compatibility in aqueous polymer solutions and construction material formulations.

**Benefits**

- Very good miscibility with water and PCE-based polymer solutions
- No turbidity or phase separation in concrete additives
- Long-term stability in concrete additives, even at elevated storage temperatures
- Very good spontaneous and controlled long-lasting defoaming effect
- Improvement to the flow behavior
- Post-addition to the end system possible without restrictions
Defoamers

**BYK-1759**

Silicone-free, Polymer-based Defoamer for Solvent-borne Systems

BYK-1759 is an aromatic-, mineral oil- and silicone-free defoamer based on polymers for flexographic and gravure printing inks. It is equally suitable for laminating adhesives. The additive is highly effective even at low dosage and has no impact on intercoat adhesion. Furthermore, flow properties of the system can be positively influenced.

**Benefits**

- Highly effective even at low dosage
- No impact on intercoat adhesion
- Positive influence on flow properties

**Applications**

- Printing inks
- Laminating adhesives
Defoamers

BYK-1786

Silicone-containing Defoamer for Aqueous Systems to Remove Microfoam Generated During Application

Benefits

- High defoaming efficiency with broad system compatibility (clear, matt, pigmented)
  - 1-pack Acrylics
  - 1-pack PUDs
  - 2-pack PU
  - Water-borne UV systems
- Especially suitable for aqueous systems applied by Airless/Airmix
- No or low influence on haze and cratering
- VOC-free
- APEO-free

A well balanced-defoamer, the interaction of compatibility and efficiency is the guarantor for an easy application and a high quality of the final coating. BYK-1786 shows excellent performance when it comes to difficult application methods such as HVLP, Airless and Airmix to eliminate the micro-foam that occurs in the coating film. The balanced silicone/polyether ratio leads to a perfect compatibility in a variety of aqueous coating systems e.g. pure acrylics, UV systems and 2-pack PU systems without a negative impact on clarity, haze and cratering.
Defoamers

**BYK-1795**

Silicone-free Polymer Defoamer for Solvent-borne, Solvent-free and Radiation-curable Systems

BYK-1795 is a silicone-free polymer defoamer for solvent-borne, solvent-free and UV-curable systems. Its spontaneous defoaming action and excellent compatibility mean that BYK-1795 can be used in a variety of applications. BYK-1795 has particularly outstanding defoaming properties in polyurethane- and epoxy-based floor coatings, in various solvent-borne coil coatings (e.g., PVDF or polyester/melamine), as well as solvent-borne general industrial coatings and UV-curable systems.

**Benefits**

- Spontaneously defoaming action combined with excellent compatibility
- Effective in a variety of systems:
  - Self-leveling floor coating
  - Coil coatings
  - Spray application (e.g. general industrial coatings)
- Very effective in:
  - Polyurethane and epoxy floor coatings
  - Solvent-borne coil coatings (e.g. PVDF, polyester/melamine)
  - Solvent-borne, general industrial coatings
  - Radiation-curable systems
- Silicone-free
- Ideal for high baking temperatures
- Emission-free (AgBB-compliant)
- Has food contact legal status
Defoamers

**BYK-1796**

Highly Effective Air Release Agent for Solvent-free and Solvent-borne Systems

In many areas, high-solid or 100% systems make a valuable contribution to reducing or avoiding solvent emissions. BYK therefore focuses its activities on this forward-looking, environmentally friendly technology, thereby offering competent solutions for complex system requirements.

**BYK-1796 – Excellent Defoaming in Solvent-free Epoxy Floor Coatings**

One challenge comes in releasing all of the air from a system. Trapped air not only alters a system’s optical properties, but also adversely affects its mechanical values. Among other things, this results from a high filling level and the absence of solvents. This often results in a higher processing viscosity, but prevents rapid air release from the system. The air introduced through raw materials and the processing methods used also play a major role. One such example comes in the form of PU or EP floor coatings.

BYK-1796 is a newly developed air release agent that guarantees fast and efficient elimination of trapped air without altering optical and mechanical properties. The high efficiency of the additive and a good price-performance-ratio make it the number one choice for solvent-free systems. BYK-1796 is also recommended for solvent-based systems, e.g. protective coatings, where it also offers a full range of services.

---

**Benefits**

- Excellent defoamer and air release agent
- Effective during both manufacturing and application of the coating
- Particularly suitable for solvent-borne and solvent-free applications, such as epoxy and polyurethane systems
- Very effective in various applications, particularly suitable for high-viscosity systems and for high layer thicknesses

---

Test system: 2K epoxy resin (highly filled with quartz sand), based on EPON 828/D.E.R 354 and Aradur 43-1 BD
Defoamers

**BYK-1797**

Silicone-Containing Defoamer for 100 % UV Printing Inks and OPV. Especially Recommended for Screen Printing Inks.

Due to their rheological profile, and since they are particularly prone to foaming during application, screen printing inks are especially challenging for defoamers. Often, it is also difficult to achieve good leveling, because, on the one hand, there is insufficient time with radiation-curable formulations and, on the other, the systems are configured for strong thixotropic to pseudoplastic behavior. That is where BYK-1797 comes into play, with two advantages. It has strong defoaming properties even at extremely low dosages, but with a little more, leveling can also be greatly improved. Newtonian radiation-curable systems such as UV flexographic inks or substrate printing inks often require additives both to eliminate foam, which may be carried through a enclosed doctor blade and to provide substrate wetting. This is another area in which BYK-1797 offers outstanding defoaming in many systems, even at the lowest of dosages.

**BYK-1797 – Excellent Defoaming and Leveling Properties in a Screen Printing Ink**

**Benefits**

- Spontaneous defoaming in UV systems, particularly in screen printing inks and PU-based thermosets
- Highly effective at a very low dosage
- Improves substrate wetting at a higher dosage

Printed on black LENETA substrate, 100-40 mesh
Surface Additives

**BYK-327**

Silicone-containing Surface Additive for Solvent-borne, Solvent-free, Radiation-curable and Aqueous Systems to Improve Leveling. Has a Defoaming Effect in Floor Coatings.

**Defoaming Test**

BYK-327 is a polyether-modified polysiloxane that can be used in aqueous systems, polar solvent-borne systems, and solvent-free systems. It has excellent leveling properties and causes a moderate reduction in surface tension. Its balanced polarity means that BYK-327 has very little effect on foam or even has a defoaming effect, depending on the system. BYK-327 is miscible with most common solvents, as well as with water without causing turbidity. This makes BYK-327 particularly suitable for clear coatings.

**Benefits**

- > 99% active substance
- Excellent leveling properties
- No turbidity in the film coating
**BYK-3450 and BYK-3451**

Silicone Surfactants for Aqueous Systems with a Significant Reduction in Surface Tension and Improved Wetting on Highly Non-Polar Substrates, without Increasing Surface Slip

**Benefits**

- Excellent spreading and wetting properties
- Strong reduction in surface tension
- Lower foam stabilization compared with standard silicones

**Applications**

- Printing inks
- Inkjet inks
- Architectural coatings
- Adhesives and sealants
- Care products and polishes

Non-polar substrates such as PP, PE or PET as well as surfaces soiled with oily substances are difficult to wet with aqueous systems. These surfaces are usually non-polar and have a low surface energy. In terms of application, in particular aqueous printing inks and inkjet inks for printing films, pressure sensitive adhesives on silicon paper, but also soiled substrates during coating application should be mentioned here. In these cases, special silicone surfactants are required, which, on the one hand, cause a very powerful reduction of the static surface tension of the system to be applied, but, on the other hand, ensure in particular very good wetting through improved spreading capabilities. With BYK-3450 and BYK-3451, BYK has developed two new additives based on trisiloxanes, which achieve very good wetting of even the most difficult substrates as well as great spreading capabilities. When compared to conventional silicone surfactants, both additives show less foam stabilization, resulting in an improved processing and application.
Surface Additives

**BYK-3456**

Fluorine-free, Silicone-containing Additive to Improve Substrate Wetting and Leveling in Aqueous Systems and Solvent-free UV Coatings

Efficient substrate wetting and outstanding leveling are not guaranteed in every system nor are they easy to achieve. A particular challenge is posed by aqueous systems owing to the high surface tension of the medium, and UV systems, which are critical based on their rapid curing and high application speeds. It is for these specific systems that BYK has developed a new additive. BYK-3456 is a fluorine-free silicone additive that greatly reduces the dynamic and static surface tension. Even rough and porous substrates (e.g. wood) are wetted perfectly. As BYK-3456 is active both at the interface to the substrate and at the surface, the additive simultaneously improves substrate wetting and leveling. In contrast with many other additives, however, BYK-3456 does not stabilize foam. And there is no negative impact on the recoatability of the system. The additive is compatible with a multitude of resins and stable to hydrolysis across a broad pH range.

Benefits

- Excellent substrate wetting even on porous substrates, e.g. wood
- Improved substrate wetting combined with good leveling properties
- Reduction in the dynamic surface tension
- Hydrolytic stability at low and high pH values
- Eliminates craters, fish eyes and picture framing
- High compatibility with many resins

**BYK-3456 – Mode of Action Compared with Standard Additives**
BYK-3566 is the latest addition to BYK’s range of macromer technology based surface additives that provide an increase of the surface energy of dried coatings. The relatively long silicone-macromer chain on which BYK-3566 is based causes a powerful orientation to the interface paint/air and thus increases its efficiency. Additionally, the longer chain provides some anti-crater properties. BYK-3566 is recommended for use in aqueous, solvent-borne, and 100 % systems.

BYK-3566 = Higher increase of the surface energy at lower dosage levels

Benefits

- Increases the surface energy of cured paint by orientation to the interface paint/air
- Shows stronger orientation to the interface in solvent-borne, forced or room temperature drying systems due to its longer silicone macromer chains
- Better wetting and adhesion of the next layer
- Improves the leveling
- Provides certain anti-crater properties
- Is recommended for aqueous, solvent-borne and 100 % systems
Surface Additives

**BYKETOL-WA**

APEO-free Version of BYKETOL-WS

BYKETOL-WS has for decades been the well known standard additive for an anti-popping and anti-pinhole effect in waterborne forced drying systems. The European Commission put now one of the additive ingredients (APEO) on the list of substances subject to authorization. The sunset date for this raw material is the 4th of January 2021. Afterwards, the manufacture, import and use of the substance is no longer allowed in the European market. Therefore we developed BYKETOL-WA which is based on unrestricted components and provides an almost identical performance compared to BYKETOL-WS.

It’s time to switch to BYKETOL-WA!

**Benefits**

- Excellent anti-popping and anti-pinhole effect
- Almost identical alternative to BYKETOL-WS
- Enhanced performance in combination with matching defoamer
Wax Additives

**AQUACER 1540**

Wax Additive to Improve the Surface Properties of Aqueous Coating Formulations, Especially Can Coatings

Can coatings form a protective film on metallic substrates for food packaging. On the one hand, they prevent the corrosion of the metal, and on the other hand, they protect the food contained inside the can. Many foodstuffs sold in metallic packaging contain, for example, acids, fats or salts. These food components can corrode the metal, thereby causing metal compounds to be released into the foodstuff.

The processing of the metal is particularly challenging, as it will be formed after it has been coated. Therefore, an optimum balance between the flexibility and the hardness of the coating is essential. AQUACER 1540 is a wax emulsion based on carnauba wax, and has been specially developed for can coatings with low film thickness. The additive provides low COF values, an excellent scratch resistance, and has no negative effect on the gloss, even in the case of thin layers. AQUACER 1540 fulfills food contact legal status requirements, and can be used both for internal and external coatings.

**Benefits**

- Low COF values
- Improves the scratch resistance of the coating
- No influence on turbidity, haze or gloss
- Particularly suitable for low film thicknesses
- For internal and external coatings
- Food contact legal status

**Applications**

For aqueous can coatings and aqueous systems with a low proportion of co-solvent.
Wax Additives

**CERACOL 605**

Wax Additive to Improve the Surface Properties of Solvent-borne and Aqueous Coating Formulations with a High Proportion of Organic Co-solvent, Especially Can Coatings

Can coatings form a protective film on metallic substrates for food packaging. On the one hand, they prevent the corrosion of the metal, and on the other hand, they protect the food contained inside the can. Many foodstuffs sold in metallic packaging contain, for example, acids, fats or salts. These food components can corrode the metal, thereby causing metal compounds to be released into the foodstuff.

The processing of the metal is particularly challenging, as it will be formed after it has been coated. Therefore, an optimum balance between the flexibility and the hardness of the coating is essential. CERACOL 605 is a very fine wax dispersion based on carnauba wax, and has been specially developed for can coatings with low film thickness. CERACOL 605 contains butylglycol, and is ideal for solvent-borne and aqueous systems with a high proportion of co-solvent. The additive provides low COF values, an excellent scratch resistance and good optical properties, even in the case of thin layers. CERACOL 605 fulfills food contact legal status requirements, and can be used both for internal and external coatings.

**Benefits**

- Very fine wax dispersion for low film thicknesses
- Low COF values
- Improves the scratch resistance of the coating
- Minor influence on turbidity, haze or gloss
- For internal and external coatings
- Food contact legal status

**Applications**

For solvent-borne and aqueous systems with a high proportion of co-solvent, especially can coating systems
Wetting & Dispersing Additives

**BYKJET-9171**

Solvent-free Wetting and Dispersing Additive for Aqueous Inkjet Inks

The new BYKJET-9171 expands BYK’s range of aqueous inkjet inks. It is particularly suitable for stabilizing organic pigments and disperse dyes, although it can also be used for inorganic pigments and carbon blacks.

Produced on the basis of controlled polymerization technology, BYKJET-9171 is characterized by a very narrow molecular weight distribution that makes it possible to manufacture perfectly dispersed and long-term stable pigment dispersions.

The highly deflocculating effect of BYKJET-9171 causes a significant increase in gloss, optical density, transparency or hiding power, and a strong reduction in mill base viscosity, which enables a higher pigment content in pigment concentrates.

BYKJET-9171 is especially recommended for resin-free grinds.
Modern solvent-borne printing inks are becoming increasingly polar. That is why it is particularly challenging to find suitable, compatible dispersing additives for NC-based printing inks. At the same time, PU and vinyl systems result in increased polarity as well as a faster printing process. The quicker processing speeds therefore require faster-drying printing inks. This can be achieved by using a solvent that evaporates more quickly, or by applying less printing ink. However, if less printing ink is applied, then higher pigmentation will be needed to achieve the same coloristic properties. BYK has responded to market demand and developed DISPERBYK-2023. This additive offers optimal dispersion and stabilization of organic pigments, as well as outstanding compatibility across a wide polarity range. DISPERBYK-2023 provides the formulation with virtually Newtonian flow behavior and itself contains a highly volatile solvent. The outstanding properties of DISPERBYK-2023 result in high application speeds with high levels of printing quality, combined with outstanding process reliability.

Benefits

- Excellent dispersion and stabilization for numerous organic pigments
- Strongly reduced viscosity with virtually Newtonian flow behavior, even where pigmentation levels are high
- Improved coloristic properties, gloss and transparency in solvent-borne systems
- Widely compatible with different resins such as TPU, TPA and vinyls
- Particularly suited to NC formulations, even those with a high alcohol content
- Effective across a broad polarity range
- Contains ethyl acetate as solvent and therefore does not add any slowly evaporating solvents to the formulation. It is thus ideal for use in packaging prints.
Wetting & Dispersing Additives

DISPERBYK-2157

Solvent-free Wetting and Dispersing Additive for Low Polar Systems

Today, it is still a challenge for wetting and dispersing additives to provide good pigment stabilization and a good storage stability in systems of low polarity. These systems contain e.g. solvents, like paraffins, isoparaffins, vegetable oils, mineral oils or plasticizers. As a response to the market demand, BYK has developed the broad compatible DISPERBYK-2157 which is especially suitable for low polar systems. The additive is recommended for all kinds of pigments and greatly improves optical properties such as color strength, transparency and gloss. Additionally, DISPERBYK-2157 provides a strong viscosity reduction and a good stability of the millbase.

Benefits

- Excellent dispersing and stabilizing performance
- Improves color strength
- Strong viscosity reduction of millbase
- Good storage stability of millbase
- Excellent heat stability
- Solvent-free and liquid additive with 100 % active substance
- Easy handling
- No labelling of the additive

Applications

- Inkjet inks
- Printing inks
- PVC-Plastisols
- Architectural coatings
- Protective coatings
Have you heard of RHEOBYK?

Under the new brand name RHEOBYK, BYK has brought together organic products from the versatile rheology portfolio, underlining its extensive expertise as a leading supplier of rheology additives. At BYK you receive a wide range of tailor-made solutions which you can use to optimize your production and to precisely adjust the flow, processing and storage properties of your products.

Please contact us!
Driven by the Chinese coatings market – especially the freight container coatings market – water-borne systems based on latest epoxy dispersions became into focus in the marine & protective market during the last 2 years. These coatings are formulated with a high pigment content and are applied in higher film thicknesses, so that a rheology control agent is needed to adjust coating properties like anti-sagging and anti-settling.

However, since established rheology additives in the market are not efficient enough, are not stable or even do not work at all in epoxy dispersions, a new technology is required.

With RHEOBYK-440, a new rheology additive based on liquid polyamide technology has been designed, which provides a tailor-made solution for adjusting rheology in these modern water-borne epoxy systems as well as completes BYK’s product family of liquid polyamides with a product for various other water-borne systems.

Besides optimizing anti-sagging and anti-settling properties in water-borne epoxies, RHEOBYK-440 is suitable for various other water-borne coatings, e.g. for achieving good effect pigment orientation.
Completing the Family of Liquid Polyamides – RHEOBYK-430/RHEOBYK-431/RHEOBYK-440

Benefits

- Especially designed for the latest water-borne epoxy systems
  - Improves anti-sagging and anti-settling properties
  - Provides fast structure recovery. Highly shear thinning
  - Stable rheology when mixed with hardener
  - Stable viscosity over storage

- Easy to handle and to incorporate
  - Pre-activated, liquid product
  - Post-addition highly recommended
  - No pH-value adjustment necessary; pH-value resistant

- Final coating properties are not affected (e.g. corrosion resistance, adhesion)

Polyamide backbone
Hydrogen bonds for rheological effect

Compatibility providing unit
(EO, PO, Alkyl-chains)

Rheology enhancing group

Urea unit
RHEOBYK-7600 is a VOC-, APEO- and tin-free associative thickener (HEUR) for aqueous systems, to generate highly pseudoplastic flow behavior. RHEOBYK-7600 considerably increases the viscosity in the low shear range, stabilizes the viscosity when added to color pastes, and improves the color paste acceptance. The rheological properties are comparable to those of RHEOBYK-TVS HEAT technology in conjunction with a better flow. The additive is liquid and, due to its composition, it is also very compatible with the systems, which makes it easy to incorporate and handle. The sagging tendency and the storage stability are improved. It is not necessary to specifically adjust the pH value or control the temperature during incorporation. Combining with rheology additives, which are effective in the high shear range, enables optimal processability.

Benefits

- Stable viscosity when colorants are added
- Improved colorant acceptance
- Comparable rheological properties with a better flow with regard to RHEOBYK-TVS HEAT technology
- Improved sagging tendency and storage stability
- Easy handling
- No pH value adjustment and no temperature control required
- VOC-, APEO- and tin-free
RHEOBYK-7610 is a VOC-, APEO- and tin-free associative thickener for aqueous systems, to generate highly pseudoplastic flow behavior. RHEOBYK-7610 considerably increases the viscosity in the low shear range and also provides very good flow. The additive is liquid and therefore easy to handle. Storage stability is improved. It is not necessary to specifically adjust the pH value or control the temperature during incorporation. When combined with rheology additives which are effective in the high shear range, it enables an optimum processability. RHEOBYK-7610 is highly recommended for use in systems for airless application.

- Self-leveling properties with good anti-sagging
- Stops dropping of coating systems
- Thick layers by means of spray application (airless/airmix/HVLP)

**Benefits**

- Highly effective in the low shear range
- Self-leveling properties with good anti-sagging
- Stops dropping of coating systems
- Thick layers by means of spray application (airless/airmix/HVLP)
- Adds higher elasticity to the system
- Easy incorporation
- No pH value adjustment and no temperature control required
- VOC-, APEO- and tin-free
Widest Additive Portfolio for Powder Coatings in the Market

**Anti-crater & Leveling**
- Suitable in all resin systems
- Perfect flow and anti-crater properties
- Broad range of compatibility

**Micronized Waxes**
- Texture and structure effects
- Degassing & outgassing
- Gloss reduction
- Scratch and abrasion resistance

**Processing & Dispersing**
- Higher extrusion efficiency and throughput
- Better pigment dispersing
- Improved surface appearance (DOI)

**Special Applications**
- Problem solvers
- Compatibility
- Increased surface energy
- Clear coats
- Adhesion

**Rheology Modifiers**
- Increased melt-viscosity
- Edge coverage
- Texture and structure effects

**Additives for Masterbatch**
- Liquid additives for resin manufacturers
- Improved flow properties
- Better compatibility
### Anti-crater & Leveling

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BYK-3900 P</td>
<td>Best anti-crater and leveling properties</td>
</tr>
<tr>
<td>BYK-368 P</td>
<td>Broad compatibility and general purpose in all systems</td>
</tr>
<tr>
<td>BYK-3902 P</td>
<td>Specialized for low thickness applications</td>
</tr>
</tbody>
</table>

### Micronized Waxes

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CERAFLOUR 961</td>
<td>Prevention of substrate outgassing in all systems</td>
</tr>
<tr>
<td>CERAFLOUR 955</td>
<td>Fine and matt texture finishes in all systems</td>
</tr>
<tr>
<td>CERAFLOUR 960</td>
<td>Best degassing properties in HAA systems to avoid pinholes</td>
</tr>
</tbody>
</table>

### Processing & Dispersing

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BYK-3950 P</td>
<td>Improved processing, higher throughput in all systems</td>
</tr>
<tr>
<td>BYK-3955 P</td>
<td>Improved processing and dispersing of carbon black</td>
</tr>
<tr>
<td>DISPERBYK-2205</td>
<td>Improved processing and dispersing of organic pigments</td>
</tr>
</tbody>
</table>

### Special Applications

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BYK-3931 P</td>
<td>Most suitable problem solver to eliminate craters</td>
</tr>
<tr>
<td>BYK-3932 P</td>
<td>Improved slip properties and surface protection</td>
</tr>
<tr>
<td>BYK-3933 P</td>
<td>Increased surface energy to improve recoatability</td>
</tr>
</tbody>
</table>

### Micronized Waxes

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CERAFLOUR 961</td>
<td>Prevention of substrate outgassing in all systems</td>
</tr>
<tr>
<td>CERAFLOUR 955</td>
<td>Fine and matt texture finishes in all systems</td>
</tr>
<tr>
<td>CERAFLOUR 960</td>
<td>Best degassing properties in HAA systems to avoid pinholes</td>
</tr>
</tbody>
</table>

### Rheology Modifiers

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAYTONE-40</td>
<td>High efficient rheology modifier to increase viscosity</td>
</tr>
<tr>
<td>CLAYTONE-HY</td>
<td>High efficient rheology modifier to increase viscosity</td>
</tr>
<tr>
<td>GARAMITE-1958</td>
<td>Rheology modifier for epoxy systems</td>
</tr>
</tbody>
</table>

### Additives for Masterbatch

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BYK-361 N</td>
<td>Anti-crater and leveling properties in all resin systems</td>
</tr>
<tr>
<td>BYK-356</td>
<td>Anti-crater and leveling properties in all resin systems</td>
</tr>
</tbody>
</table>
BYK Instruments
The Objective Eye for Paint QC Solutions

The world is in a continuous change. The trends of ‘globalization and standardization’ within a more and more ‘digital world’ not only change our consumer behavior, but also your requirements of testing solutions:

Global Communication
- Global specifications are prerequisite for seamless communication and ask for digital standard distribution.
- Excellent technical performance in compliance with international standards is a must requirement.

Standardized QC Management System
- Standardized QC procedures and QC reports need to be easy to set-up globally.
- Routine QC checks and documentation are the key to product and process optimization.

Increase Efficiency
- Innovative technologies are needed to guarantee objective and reliable measurement data.

Figures and Facts Instead of Feelings!
spectro2guide

Raise Your Expectations
Touch the Color

Benefits

• Color, gloss and new fluorescence measurement in one instrument
• Balanced and upfront design with large 3.5” color touchscreen
• Docking station with built-in standard for automatic calibration and charging
• Live preview of measurement spot with zoom function
• Smart high tech LEDs with peak performance for digital standards
• Data analysis out-of-the-box with WiFi or USB connection

#touchthecolor
www.touchthecolor.com
BYK-mac i
The NEW Standard for Multi-angle Color and Effect Measurement

**Benefits**

- Excellent correlation to visual perception: 6-angle color measurement and sparkle/graininess analysis
- Quantification of fluorescence with new parameter IntEmission
- Innovative LED technology guarantees excellent inter-instrument agreement allowing digital standard distribution
- 10-year warranty on LED light sources
- Color display for ease of use at production line
micro-gloss XS
The Perfect Fit for Small Parts

Benefits

- Small port – 2 x 4 mm
  The gloss of small and large parts will finally fit together

- Unsurpassed performance
  Best in temperature control – reliable and stable results from 10...40 °C
smart-chart Software
The Solution to Set-up a Global QC Management System

**Benefits**

- Works with micro-gloss, spectro2guide, BYK-mac, wave-scan and cloud-runner
- Powerful standard management with digital standard distribution
- Predefined customer specific color and appearance scales of all auto OEMs
- Re-calculation of measurement results in any color systems
- Standardized QC reports
  - trend graphs – SPC box plots
byko-spectra pro

See Things the Right Way

Benefits

- Light booth with highest Mlvis class A for daylight simulation of CIE D65 and D75: Combination of filtered halogen lamps with LEDs
- Eight certified light sources: D65, D75, A, HZ, CWF, TL84, U30 and UV
- Simultaneous visualization of color temperature and light intensity in lux ensures 100% controlled illumination
- Auto Sequence Mode for standardized and efficient color evaluation
- Available as luminaire. Mount on the ceiling or a wall and appraise conveniently large products
Testing Physical Properties
from Wet to Dry

- Cross-Cut Adhesion Applicators
- Applicators
- Drawdown Test Charts
- Pendulum Hardness
- Film Thickness
- Flow and Dip Cups
18.03.
Session 7, Raum Kiew
16.30–17.00 h
Dr. Jörg Hinnerwisch
New wetting and dispersing additives for water-borne coatings – no pain with rain and stain anymore

19.03.
Hall 4, Booth 4–214
11.10–11.30 h
Carsten Nagel
Highly effective aqueous silicone defoamers range for spray applied systems

20.03.
Hall 4, Booth 4–214
9.50–10.10 h
Dr. Markus Möller
BYK-1680 – Liquid defoamer for PCE admixtures & concrete applications

20.03.
Hall 9, Booth 9–544
11.10–11.30 h
Heiko Juckel
RHEOBYK: Unique rheology additives not only for latest water-borne epoxy coatings
**20.03.**
Hall 1, Booth 1–131
11.30–11.50 h
Carina Kraft
*Turning challenges into chances – inside regulatory affairs*

**20.03.**
Hall 9, Booth 9–544
13.30–13.50 h
Holger Wach
*Radiantly colorful – solvent-free wetting and dispersing additive for radiation-curable wood and furniture coatings*

**20.03.**
Hall 1, Booth 1–131
14.30–14.50 h
Brigitte Weber
*GARAMITE, unique rheology modifier and anti-settling agent for solvent-borne and solvent-free systems*

**20.03.**
Hall 1, Booth 1–131
15.10–15.30 h
Mark Heekeren
*The future is macromer – solution provider for multi-layer application*

**20.03.**
Hall 1, Booth 1–131
11.30–11.50 h
Carina Schepers
*New silicone-free defoamer for efficient high-speed application in coil coatings and for general industrial coatings spray application*

**20.03.**
Hall 4, Booth 4–214
14.10–14.30 h
Marcus Wessel
*Excellent performance at highest application speeds – new silicone surfactant for water-borne wood coatings*

**20.03.**
Hall 1, Booth 1–131
14.30–14.50 h
Annika Gerbener
*Highly effective air release agents for solvent-free and solvent-borne floor coatings*
BYK by Numbers

About 1,000 Samples a Day

More than 35 Laboratories Across the Globe

More than 16 Specialized End-Uses

More than 2,300 Employees Around the World

9 Percent Average Increase in Sales per Year

More than 145 Years of Expertise
What do we mean by... Innovation?

Continually offering the most modern and advanced additives. To do this we invest about eight percent of our annual turnover in research and development – three times more than most in the sector. Research & development and application technology staff make up 22% of our workforce.
What do we mean by... Expertise?

We host more than 40 customer seminars annually, sharing valuable know-how and insights into product solutions and application techniques.

www.byk.com
What do we mean by...
Closeness?

Our global footprint and end use structure enable us to deliver regional, taylor-made solutions to our customers with specialized industry and application focus.
Welcome to the Interactive World of BYK Additives.

Our multimedia ebooks support your work with interactive graphics, fascinating animations, and videos to illustrate chemical processes.

ebooks.byk.com
BYK Highlights

Automotive Coatings

Construction Industry

Product Safety

Architectural Coatings

Powder Coatings

Can Coatings

Wood & Furniture Coatings

Instruments
Highlights in Nuremberg

Time to Explore the City?
Imperial Castle

The Imperial castle (Kaiserburg) is Nuremberg’s most famous landmark. In the morning you’ll have it pretty much to yourself and be able to explore at your leisure. The highlight: the amazing view over the city.

Easter Market

A stroll around the Easter market. It was established in 1424 and is Nuremberg’s oldest market. Stall holders sell ceramics, textiles, sweets and much more. Take a short lunch break at one of the food stalls.

Albrecht Dürer Stube

The traditional inn delights guests with its ambiance and hospitality – and, of course, good food. The specialty of the region is Schäufele, a roasted shoulder of pork with crackling. Tip: reserve a table as it is usually very popular.

Old Town

It’s well worth a walk through the old town. Marvel at the many historical buildings. In the afternoon, enjoy a coffee and cake in one of the lovely cafés.
Publishing Information

ShowNews #ECS2019 – A publication of BYK.

Publisher: BYK-Chemie GmbH, Marketing & Sales Services, Abelstr. 45, 46483 Wesel, Germany

Editor-in-chief: Sven Kremser

Editorial Team: Dörte Claussen-Dietsch, Stefan Gollnick (technical content), Nicole Weiand (project coordinator), Tobias Austermann, Thomas Czeczetka, Albert Frank, Carola Gaulke, Gabi Kigle-Böckler, Julia Kleist, Petra Lenz, Dr. Stefan Mössmer

marketing.byk@altana.com
www.byk.com

ShowNews is the fair newspaper of BYK, published in English and German. Reproduction and incorporation in other media is permitted only with the approval of the editorial board.

Pictures: Neue Zeiten, Getty Images, Adobe Stock
Layout: heureka GmbH, Essen
Printed by: Margreff Druck + Medien GmbH, Essen, formulated with additives from BYK

BYK-Chemie GmbH
P.O. Box 100245
46462 Wesel
Germany
Tel +49 281 670-0
Fax +49 281 65735
info@byk.com

BYK-Gardner GmbH
P.O. Box 970
82534 Geretsried
Germany
Tel +49 8171 3493-0
Fax +49 8171 3493-140
info.byk.gardner@altana.com

ACTAL®, ADD-MAX®, ADD-VANCE®, ADJUST®, ADVITROL®, ANTI-TERRA®, AQUACER®, AQUAMAT®, AQUATIX®, BENTOLITE®, BYK®, BYK-DYNWET®, BYK-SILCLEAN®, BYKANOL®, BYKETOL®, BYKJET®, BYKO2BLOCK®, BYKOPLAST®, BYKUMEN®, CARBOBYK®, CERACOL®, CERAFAK®, CERAFLOUR®, CERAMAT®, CERATIX®, CLAYTONE®, CLOISITE®, DISPERBYK®, DISPERPLAST®, FULACOLOR®, FULCAT®, GARAMITE®, GELWHITE®, HORDAMER®, LACTIMON®, LAPONITE®, MINERAL COLLOID®, MINERPOL®, NANOBYK®, OPTIBENT®, OPTIFLO®, OPTIGEL®, PAPERBYK®, PERMONT®, POLYAD®, PRIEX®, PURE THIX®, RECYCLOBLEND®, RECYCLOSORB®, RECYCLOSTAB®, RHEOBYK®, RHEOCIN®, RHEOTIX®, SCONA®, SILBYK®, TIXOGEL®, VISCOBYK® and Y 25® are registered trademarks of the BYK group.

The information herein is based on our present knowledge and experience. The information merely describes the properties of our products but no guarantee of properties in the legal sense shall be implied. We recommend testing our products as to their suitability for your envisaged purpose prior to use. No warranties of any kind, either express or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding any products mentioned herein and data or information set forth, or that such products, data or information may be used without infringing intellectual property rights of third parties. We reserve the right to make any changes according to technological progress or further developments.

This issue replaces all previous versions – Printed in Germany

Additive Guide
www.byk.com/app

02/2019