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Notes



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Welcome to BYK!

We bring additive innovations closer to your business

- **Accelerated localization**

China's industries are evolving rapidly, creating new requirements for formulation performance, application expertise, and sustainability. To help you stay ahead, BYK is heavily expanding its local capacities. With our modern, expanded laboratory in Guangzhou, our new mini-plant in Shanghai, and growing capabilities in wax additives, you benefit from closer technical collaboration, faster response times, and additive solutions tailored to the needs of the Chinese market.

- **Innovation for modern construction**

Construction chemicals are expected to deliver more than ever before. BYK supports you with innovative additive solutions for cement-reduced systems, dry-mix mortars, high-performance concrete, ready-to-use formulations, and advanced hybrid building materials. Thanks to our expertise, you can create superior, durable, and more sustainable construction chemical formulations that meet today's requirements and prepare for tomorrow's challenges.

- **Creating value through sustainability**

Sustainability is becoming a critical success factor throughout the entire value chain. BYK's growing portfolio of more sustainable additives enables you to minimize your environmental footprint while maintaining high performance standards. Whether your focus is using more sustainable resources, reducing emissions, or switching to PFAS-free formulations, we'll work with you to find the right additive solution for your specific formulation needs.

**Let's discuss your challenges and opportunities.
Together, we'll determine exactly what you need.**

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BYK markets

Architectural coatings

The architectural coatings portfolio covers a broad spectrum of applications, including interior wall paints, exterior facade coatings, and DIY wood and metal applications. It also encompasses pigment concentrates for tinting systems, including point-of-sale and in-plant tinting colorants. BYK delivers a comprehensive range of high-performance additives developed to meet regulatory requirements in both aqueous and solvent-based formulations. Covering applications from clearcoats to highly filled paints, the portfolio includes product groups such as wetting and dispersing additives, defoamers, and rheology and surface additives – ensuring a perfect performance in decorative architectural coatings.



Floor coatings

Liquid floor coatings, traditionally limited to warehouses, car parks, and industrial facilities, are increasingly being used in commercial buildings, shops, show rooms, and healthcare environments. Meanwhile, regulatory requirements have become significantly more stringent, driving demand for solvent-free (VOC-free) and aqueous systems. Our additives for floor coatings are specifically designed to meet these requirements. They improve formulation stability, simplify processing, and ensure reproducible performance – supporting consistent, high-quality results across modern floor coating formulations.



Construction chemicals

BYK provides sustainable and innovative additive solutions for modern construction applications. These solutions include cement-reduced dry-mix mortars, high-performance concretes, ready-mixed formulations, and advanced hybrid building materials. Thanks to this holistic approach, customers can develop construction chemical formulations that are more effective, longer-lasting, and more sustainable, meeting current and future market demands. Our product range is extensive. Our rheology modifiers optimize processing and application, while our powerful defoamers ensure efficient deaeration and reliable defoaming. Additionally, our wetting and dispersing, and surface additives improve the wetting of fillers and enhance flow and leveling properties.



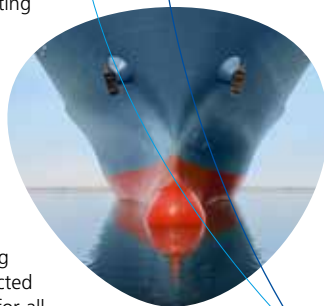
Wood and furniture coatings

BYK develops high-performance additives specifically tailored for wood coatings. These solutions are developed to improve key surface properties, including easy-to-clean, scratch and abrasion resistance, substrate wetting, defoaming, and excellent leveling. Additionally, BYK additives reliably stabilize pigments in pigmented formulations, ensuring high-quality surface finishes in modern wood coatings.



Marine and protective coatings

BYK offers specialized rheology additives for marine, protective, and intumescent coating applications, where extreme film thickness, long-term durability, and resistance against aggressive environments are critical. Our additives contribute to corrosion protection and enhanced fire resistance, while reliably meeting a wide range of additional performance requirements typical for these applications. To address these demanding conditions, BYK provides a carefully selected portfolio of high performance additives for all coating layers – from primers and fillers to topcoats. This enables formulators to design robust and durable coating systems that perform reliably throughout their service life.



Automotive coatings

Automotive OEM coatings

Our solutions cover all major coating layers, including cathodic electrodeposition coatings, primers, monolayer topcoats, basecoats, and clearcoat systems for the OEM sector. Developed to meet the highest automotive standards, our additives enhance gloss and leveling, while supporting color brilliance and intensity. BYK additives ensure optimal effect pigment orientation to optimize the flop effect. Additionally, our efficient defoamers prevent foam and related surface defects, ensuring consistently high-quality automotive finishes.



Automotive refinish coatings

BYK additives are engineered to enhance the performance of aqueous and solvent-based automotive refinish coatings, including putty, primer surfacers, one-coat topcoats, basecoats, and clearcoat systems. They improve critical surface properties such as gloss or leveling while enhancing color intensity and brilliance. Additionally, our specialized solutions promote the controlled orientation of effect pigments, thereby optimizing the flop effect. Furthermore, our additives effectively prevent foam and the related surface defects and have a positive influence on sandability and polishability. These properties enable efficient processing and high-quality, reproducible finishes.



Can coatings

Can coatings place stringent demands on surface quality, requiring low COF values, high scratch and abrasion resistance, foam-free film formation, reliable substrate adhesion, and excellent leveling. BYK additives are key formulation components that enable these performance attributes to be achieved consistently and reproducibly. A comprehensive portfolio of regulatory compliant additives for food contact applications is available, suitable for solvent borne, water based, and radiation curing can coating systems.



Coil coatings

In high-speed coil coating applications, where coated metal substrates are exposed to extreme mechanical stress, consistent coating performance is a decisive factor for operational efficiency and end-use quality. Formulations must ensure outstanding color stability, suppress foam formation, and deliver superior flow and reliable substrate adhesion. In addition, they deliver an attractive, smooth surface finish combined with outstanding scratch and abrasion resistance and improved easy-to-clean properties. Across all coil coating application segments, these demanding performance requirements are addressed by BYK's advanced performance additives.



General industrial coatings:

General industrial coatings are applied to a wide range of substrates, for example plastic, metal, and glass substrates and must meet a wide range of performance requirements. Accordingly, formulations rely on precisely balanced additives to address diverse challenges. BYK additives provide a perfect pigment stabilization, effective defoaming, surface property optimization, and rheology control in aqueous, solvent based, and solvent free coating systems.



Powder coatings

Powder coatings are among the most environmentally friendly coating technologies, as they are 100 % solid and free of VOCs. To meet demanding application and surface requirements, formulations rely on specialized additives. BYK additives provide optimal leveling, crater prevention, degassing, and pigment wetting in powder coatings. Additional solutions improve processing behavior or enable PTFE-free structured and textured surface effects, while dedicated additives are available for clear powder coatings and UV-curable powder systems.



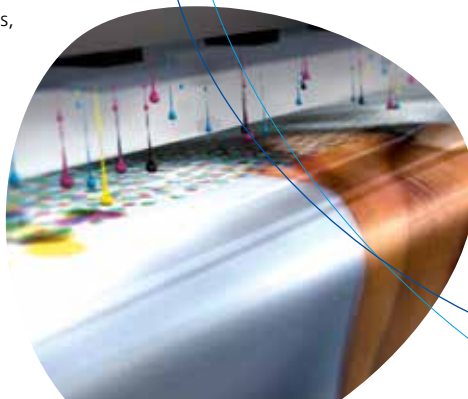
Printing inks

Today, printing inks must be able to withstand higher and higher printing speeds. To meet this requirement, formulations must ensure consistent print quality and reliable process stability across all systems. BYK additives enable efficient defoaming, improved color strength and transparency, enhanced abrasion resistance in printing inks and overprint varnishes, and optimized wetting behavior. There are suitable solutions available for aqueous, solvent-borne, and radiation-curing systems, including additives that comply with selected food-contact regulations.



Inkjet inks

Inkjet printing is becoming more significant in areas where conventional printing technologies were traditionally used, such as printing on paper, board, and foil packaging, as well as on ceramics and textiles. These applications require precise ink formulations, especially with regard to viscosity, stability, and print performance. BYK additives facilitate the formulation of low viscosity inkjet inks that remain stable over time while delivering high color strength. By improving jetting behavior, wetting, and abrasion resistance, they enable consistent performance in aqueous, solvent based, radiation curing, and ceramic inkjet systems, including solutions suitable for regulated food contact applications.



Adhesives and sealants

BYK is your dedicated technology partner, systematically improving the performance of adhesives and sealants. Our additive solutions are developed for all major adhesive chemistries, including aqueous dispersions, solvent-borne systems, and solvent-free reactive systems, such as polyurethanes, epoxides, acrylates, and silane-terminated polymers. Additionally, BYK is continuously expanding its portfolio for hotmelt adhesives to address evolving formulation and processing requirements.



Wetting and dispersing additives

DISPERBYK-2013

Solvent-free wetting and dispersing additive for 100 % UV, solvent-borne UV, and aqueous UV systems.

DISPERBYK-2013 with its 100 % active substance is particularly well-suited for UV-curing printing inks and coatings. It provides a consistent, low viscosity development during the manufacture of printing inks and coatings and prevents a thixotropic profile, resulting in excellent storage stability.

As DISPERBYK-2013 has a remarkably narrow molecular weight distribution, resulting in an excellent dispersion and stabilization of, in particular, organic pigments and carbon blacks, it notably enhances the transparency of UV-curing printing inks while simultaneously giving color strength. The 100 % solid DISPERBYK-2013 does not introduce any solvents into the formulation.



Benefits

- Well-balanced product polarity
- Solvent-free, liquid additive with 100 % active substance
- Effective viscosity reduction with minimized thixotropic flow behavior
- Enhanced storage stability of the formulated coating systems
- Significantly improved optical properties, such as
 - color strength and transparency
 - increased gloss and minimized haze

Applications

- Printing inks
- Industrial coatings
- Wood and furniture coatings

Wetting and dispersing additives

DISPERBYK-2098

High-performance, economic wetting and dispersing additive for aqueous pigment concentrates and effective compatibilizer for aqueous coatings.

Aqueous pigment concentrates with a broad resin compatibility support the coatings industry's approach to reduce the number of raw materials and control cost but simultaneously achieve high coloristic quality in aqueous coatings.

Resin-free pigment concentrates provide the required broad compatibility and thus increase the formulation flexibility. They also allow higher levels of pigment loading, which, in return, enables better control of their impact on the coating – technically and commercially.

DISPERBYK-2098 is a high-performance, cost-effective additive that has been designed for such aqueous, resin-free pigment concentrates with broad compatibility. It is also an effective compatibilizer to reduce flooding and floating and enhance the tinting strength of pigment pastes when post-added.

Benefits

General benefits:

- Highly cost-effective
- Dual-function additive
- VOC- (< 1500 ppm) and APEO-free

As a wetting and dispersing additive:

- Outstanding dispersion and stabilization of pigments, high pigment loading achievable
- Good viscosity reduction and storage stability in aqueous pigment concentrates
- Very broad compatibility in aqueous formulations
- Excellent color strength development
- Also suitable for inorganic pigments such as titanium dioxide or iron oxide red*

As a compatibilizer:

- Effective reduction of flooding and floating by improving the colorant acceptance
- Better color strength development

Applications

- Architectural coatings
- Wood and furniture coatings
- General industrial coatings
- Automotive coatings
- Floor coatings
- Marine and protective coatings

* For enhanced performance, the addition of a small dosage of BYK-154 is recommended.

Wetting and dispersing additives

DISPERBYK-2290

VOC- and APEO-free powder wetting and dispersing agent for use with highly alkaline aqueous building materials

DISPERBYK-2290 is a highly efficient powder VOC- and silicone-free wetting and dispersing agent for use in predominantly sag-controlled, mineral based building material formulations. The additive is highly compatible with various different mineral binder systems. Due to its powder form, the additive is easy distributed in the building material formulation.

DISPERBYK-2290 accelerates and improves wetting of the powder components. Not only the consistency but also the rheological properties are retained throughout the processing time. The processing properties are improved by the homogeneous and robust texture.

DISPERBYK-2290 – Improved anti-sagging properties after application



0.05 % competitor



0.05 % DISPERBYK-2290

Benefits

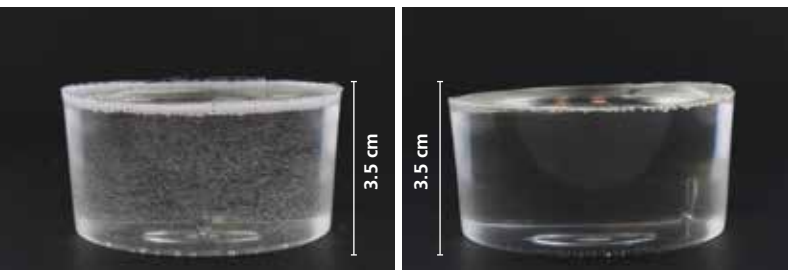
- Environmentally friendly
 - VOC-free, < 1500 ppm
 - APEO-free
- Accelerated and easier mixing
- A robust and homogeneous structure is achieved
- Workability properties are improved
- Consistency is maintained over a longer period of time
- No negative influence on setting behavior
- Stabilization of pigments and fillers

Defoamers

BYK-1748

Silicone- and VOC-free,
100 % polymeric defoamer for epoxy
resin-based, clear thick layer systems.

**BYK-1748 – The ideal solution, even for very
high layer thicknesses**



Without additive

With BYK-1748

Test system: Solvent-free, clear 2-pack epoxy resin coating

Additive dosage: 0.1 % additive (as supplied) based on the total formulation

Thick layer systems, in particular solvent-free systems, require the use of highly effective additives. Ensuring good defoaming even at high film thicknesses requires powerful products that can cause turbidity in clear systems.

BYK-1748 is a silicone-free polymeric defoamer that has been specially developed for clear, high-build, and solvent-free 2-pack epoxy resin systems. Despite its particular efficiency, it does not cause turbidity or cratering. With the use of BYK-1748, excellent transparency can be achieved, even at very high film thicknesses.

BYK-1748 is a 100 % additive that largely consists of bio-based raw materials and is VOC- and APEO-free.

Benefits

- Excellent defoaming of epoxy resin-based thick layer systems
- High transparency in clear applications
- Does not affect the surface properties
- High level of effectiveness, even at low dosage
- Very good storage stability
- Silicone-free
- 100 % active substance
- High proportion of bio-based raw materials
- VOC- (< 1500 ppm) and APEO-free
- Label-free

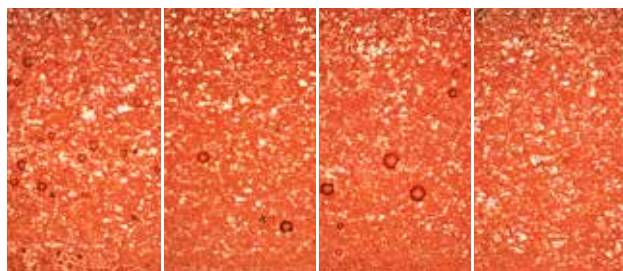
Defoamers

BYK-1765

Solvent- and silicone-free defoamer for high-solid and solvent-free epoxy systems

The combination of high viscosity, low solvent content and high film thickness that can be seen in epoxy systems in protective and floor coatings, poses a particular challenge for the defoaming of such systems.

Microscope image of the coating cross section: Defoaming of the entire film



Control

Silicone
defoamerPolymer
defoamer**BYK-1765**

Test system: 2-pack high-solid epoxy primer

Additive dosage: 1 % additive as supplied on component A

Insufficient defoaming affects not only the optical properties, but also the functionality of coatings, e.g. corrosion resistance.

The polymer defoamer BYK-1765 was therefore especially developed for the special requirements in high-solid and solvent-free epoxy systems.

Benefits

- Excellent defoaming in high film thicknesses
- Improved surface appearance
- Silicone-, fluor- and solvent-free

Application

Especially recommended:

- Marine and protective coatings
- Floor coatings

Recommended:

- General industrial coatings
- Adhesives and sealants

Defoamers

BYK-1810/BYK-1811/ BYK-1815/BYK-1816/ BYK-1818



PFAS-free, silicone-containing defoamers for solvent-borne and solvent-free systems.

Per- and polyfluoroalkyl substances (PFAS) are widely used in everyday life as components of, for example, non-stick coatings, fire-fighting foams, or paints. However, since PFAS are now suspected of having the potential to be harmful to health, their use is being viewed increasingly critically worldwide.

Defoamers also often contain fluorine-modified silicones for a spontaneous and fast defoaming effect. BYK has expanded their portfolio and now offers PFAS-free sustainable alternatives to fluorine-modified silicone defoamers: BYK-1810, BYK-1811, BYK-1815, BYK-1816, and BYK-1818.

These five additives provide high efficiency and excellent spontaneous defoaming on a par with PFAS-containing products, yet are completely fluorine-free. They can be used in a wide range of solvent-borne and solvent-free systems and cover a broad spectrum of applications overall.

Applications of PFAS-free defoamers

Applications	BYK-1810	BYK-1811	BYK-1815	BYK-1816	BYK-1818
Architectural coatings	●	○	○	○	○
Floor coatings	●	○	○	○	○
General industrial coatings	●	○	●	●	○
Marine coatings	●	●	●	●	●
Protective coatings	●	●	●	●	●
Wood and furniture coatings				●	○
Automotive refinish coatings	○				
Adhesives and sealants	●	○	●		
Thermosets	○		○		

● Highly recommended ○ Recommended

Benefits

- Excellent defoaming properties in solvent-borne and solvent-free systems (wide range of applications)
- Spontaneous defoaming even at low dosage levels
- Prevention of pinholes
- Reduction of surface tension
- Positive influence on leveling and surface appearance
- Good storage stability

Defoamers

BYK-1851
BYK-1852

Polymer defoamers replace well-known standard products in solvent-borne and solvent-free systems

Markets are changing dynamically, and this also affects the procurement side. As an important raw material for the well-known polymer defoamers BYK-051 N, BYK-052 N, and BYK-053 N is no longer available, BYK has developed replacement products that are almost identical. They are based on the same chemistry as their predecessors and are equivalent in terms of application, but no longer contain aromatic solvents. This results in marginal changes in the technical data.

BYK-1851 and BYK-1852 replace well-known standard defoamers

BYK-051 N	>	BYK-1851
BYK-052 N	>	BYK-1852
BYK-053 N	>	BYK-1852

Both defoamers are silicone-free and have a strong and spontaneous effect, although BYK-1851 is the slightly more compatible additive. BYK-1852, on the other hand, is more efficient and can therefore be used at an even lower dosage. It is suitable for medium- to non-polar systems. BYK-1851 and BYK-1852 do not reduce the intercoat adhesion when recoating.

Benefits

- Spontaneous and very efficient defoaming of a wide range of systems
- Silicone- and aromatic-free
- For good leveling and defect-free surfaces

Areas of application

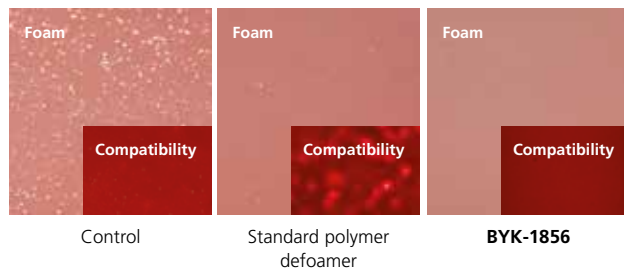
- General industrial coatings
- Architectural coatings
- Wood and furniture coatings
- Automotive coatings
- Marine and protective coatings
- Floor coatings
- Printing inks and overprint varnishes

Defoamers

BYK-1856

Silicone- and aromatic-free defoamer with excellent defoaming effect and exceptional compatibility for solvent-borne and solvent-free systems

BYK-1856 in a protective epoxy primer:
Very good defoaming and outstanding compatibility



Test system: Conventional 2-pack protective epoxy primer

Additive dosage: 0.5 % (as supplied) based on the A component

Application method:

1. Foam: Pour out the epoxy primer onto PE foil after incorporating air by vigorously stirring
2. Compatibility: Draw down of the epoxy primer on glass panel in a film thickness of 200 µm (wet) after stirring

In many applications, defoamers should be not only highly effective, but also highly compatible; something that initially appears to be contradictory. The new, silicone-free BYK-1856 defoamer has been developed based on acrylates and can achieve both effects at the same time. The defoamer is particularly suitable for systems requiring high compatibility and good defoaming. BYK-1856 is effective in 2-pack epoxy- and 2-pack polyurethane-based coating applications as well as in many common thermoset systems based on epoxy resin, unsaturated polyester and vinylester resin, and acrylic syrups of a low molecular weight.

General benefits

- Silicone- and aromatic-free
- Powerful and spontaneous defoaming/air release effect
- Excellent compatibility
- Easy handling due to low viscosity

Specific benefits in coating applications

- Improves leveling
- Especially recommended for epoxy resin and polyurethane systems
- Highly suitable for increased film thicknesses

Surface additives

BYK-379

Highly active silicone-containing surface additive with strong dynamic properties and minimal foam stabilization

In order to achieve excellent surface properties, such as good substrate wetting, surface slip, anti-crater properties, or scratch resistance in coatings and printing inks, BYK offers a number of highly active polyether-modified polydimethylsiloxanes that provide a strong reduction in static surface tension. In fast printing processes, spray applications, and in inkjet applications, the reduction of dynamic surface tension is also important.

The silicone additive BYK-379 has therefore been especially developed for printing inks and inkjet inks to ensure these dynamic properties as well as to achieve the same surface effects as conventional highly active silicone additives. Due to the comb-like structure of the product, a reduction of static and dynamic surface tension is achieved at the same time.

The additive is universally usable in aqueous, solvent-borne, and radiation-curing coatings, printing inks, and inkjet inks and is broadly compatible. In addition, it hardly stabilizes foams and is very effective even at low dosages.

Benefits

- Very strong reduction of dynamic surface tension
 - Good wetting in fast printing processes
 - Improved jetting in UV inkjet inks
 - Excellent drop spread on the substrate in UV inkjet inks
- Very strong reduction of static surface tension
 - Good substrate wetting
 - Optimized anti-crater properties
 - Increase of surface slip
 - Improvement of scratch resistance
- No or only minimal foam stabilization
- 100 % active substance
- Universally usable – broadly compatible in aqueous, solvent-borne, and radiation-curing coatings, printing inks, and inkjet inks
- Cyclic siloxanes D4/D5/D6 content: each < 0.1 %
- Complies to the food contact regulations according to Swiss Ordinance and Nestlé Guidance Note*

* This information is correct as of November 2022.

The current status for all of the above can be found at

<https://www.byk.com/en/service/regulatory-affairs/food-contact>

Surface additives

BYK-3483

Modern, multi-functional silicone surface additive for aqueous systems, especially with low co-solvent content.

The general trend in the industry is toward high-solid, solvent-free, or aqueous systems. With aqueous systems, the industry faces major challenges that require strong and versatile additives. For example, the increasing use of low-polarity substrates requires additives that greatly reduce surface tension. In addition, the additives should offer very good anti-cratering and anti-contamination properties, as some resin systems and special applications require strong defoamers, which can cause side effects such as dewetting or cratering. Contamination by low-polarity liquid droplets or dust can also occur.

In order to cover all these requirements with only one product, BYK has developed another special additive that combines different functions such as wetting, leveling, and defoaming and at the same time is suitable for different aqueous systems from lower to higher polarity. BYK-3483 expands the range of applications of the BYK-3480 family by being particularly suitable for systems with a very low co-solvent content and offering a good balance between defoaming effect and excellent compatibility in various aqueous systems. It can also be used in solvent-free UV systems.

Benefits

- Excellent substrate wetting and leveling with one additive
- Strong reduction of surface tension
- Defoaming effect
- Anti-cratering properties and pinhole elimination
- Strong contamination resistance
- Universal and good compatibility: suitable for very low up to higher organic co-solvent content

Areas of application

- General industrial coatings
- Leather finishes and coated fabrics
- Printing inks
- Marine and protective coatings
- Architectural coatings
- Wood and furniture coatings
- Floor coatings
- Adhesives and sealants

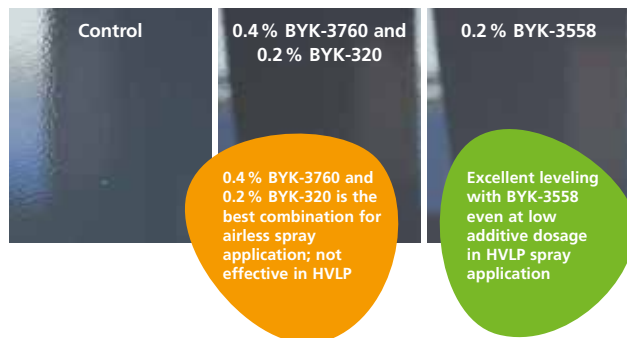
Surface additives

BYK-3558

Surface additive to improve leveling and prevent cratering in high- and medium-solid coating systems

Coating systems with a higher solid proportion, e.g. high- or medium-solid coatings, typically contain a significantly reduced quantity of solvents. This is particularly advantageous, for example, in cases where coating is carried out manually, such as in automotive refinish applications. The disadvantage is that

BYK-3558 replaces combinations of various additives



Test system: High-solid 2-pack PU system. Additive dosage: Active substance on component A; **Test method:** Spray application using HVLP (high volume, low pressure); nozzle: 1.4 mm, pressure: 2.0 bar

these modern high-solid systems are more challenging to apply, especially with regard to good leveling and a crater-free surface.

To date, the use of standard additives alone has only been able to achieve partially satisfactory results. For this reason, combinations of additives are often used, for example, a medium-active silicone for a sufficient reduction of surface tension and good slip together with a leveling-promoting acrylate.

BYK-3558 is based on a new technology and combines the beneficial properties of silicones and polyacrylates in a well-balanced manner in one product. It moderately reduces the surface tension, thereby wetting the substrate and ensuring good leveling. It prevents cratering and increases surface slip. BYK-3558 is therefore an excellent and easy-to-use alternative for perfect surfaces in solvent-reduced high- and medium-solid coating systems.

Benefits

New technology combines the benefits of silicones (reduction of surface tension, increase in surface slip) and polyacrylates (improvement of leveling properties) in one additive.

- Excellent leveling in high- and medium-solid clearcoats and pigmented coatings for automotive refinish and industrial coating applications
- Reduction of surface tension and increase in surface slip at the same level as medium-active silicones
- Effective prevention of cratering

Surface additives

BYK-3568

Macromer-technology based surface additive for increasing the surface energy of solvent-borne, 100 %, and UV coatings to ensure effective substrate wetting and good leveling.

For decades, formulators of clearcoats and topcoats have been successfully using silicone-based additives when there is a need to reduce the surface tension to enable better wetting of the substrate, avoid cratering, and ensure good surface slip. Furthermore, once the coating has cured, it should have good wettability and recoatability, and the subsequent layers (e.g. including labels) should adhere to it.

The silicone- and polyether-modified acrylate BYK-3568, however, is able to improve the substrate wetting like a moderately active silicone while increasing the surface energy and surface slip at the same time.

BYK-3568 is therefore the perfect addition to BYK's product range of macromer-modified acrylates. Its benefits are particularly evident in clearcoats and topcoats, for which good recoatability or adhesion of subsequent layers is required, such as in two-color coatings.

Classic silicone additives offer:

Anti-cratering properties	Surface slip	Surface energy	Wetting and adhesion
			

Silicone- and polyether-macromer-modified polyacrylates can do more:

Anti-cratering properties	Surface slip	Surface energy	Wetting and adhesion
			

Benefits

- Significantly reduced surface tension in the liquid coating – effectiveness comparable to that of a moderately active silicone
- Increased surface energy in the cured coating for better recoatability and less of a negative effect on the adhesion of labels, printing inks, or adhesives
- Improved wetting through subsequent layers, particularly if the next is an aqueous system ideal for two-color coatings
- Good leveling, higher surface slip (lower COF)
- Suitable for solvent-borne, solvent-free, and UV systems; also suitable for aqueous systems if compatibility is good

Surface additives

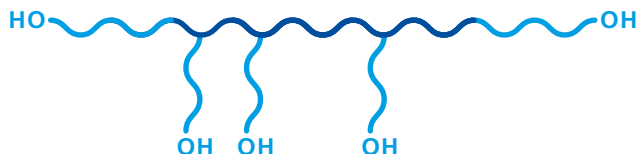
BYK-SILCLEAN 3725



PFAS-free, silicone-containing surface additive for a permanent easy to clean effect in aqueous coatings.

For many years, BYK has been investing considerable research efforts and resources in replacing products containing per- and polyfluoroalkyl substances (PFAS) with more environmentally friendly alternatives. This is resulting in a sustainable, PFAS-free portfolio with versatile product properties for a wide range of applications.

Structure of BYK-SILCLEAN 3725



● Polysiloxane backbone, non-polar

● Hydrophilic modification, polar

BYK-SILCLEAN 3725 is one such additive. It is hydroxy-functional and, thanks to its special structure, highly effective in aqueous, crosslinking coating systems. In this type of application, it permanently improves the resistance to contamination by water- or oil-containing substances and the cleanability (easy to clean effect). It is therefore a perfect addition to the BYK-SILCLEAN product range.

Benefits

- PFAS-free and low cyclic siloxanes content
- Creates permanent properties such as
 - Hydrophobicity and oleophobicity for water- and oil-repellent coating surfaces
 - Reduced dirt adhesion to the coating surface and easier cleaning
 - Improved substrate wetting, leveling, and surface slip of coatings
 - Anti-blocking
- Very compatible in many aqueous systems

Applications

- General industrial coatings
- Architectural coatings
- Automotive OEM coatings
- Floor coatings
- Marine and protective coatings
- Wood and furniture coatings
- Leather finishes and coated fabrics

Wax additives

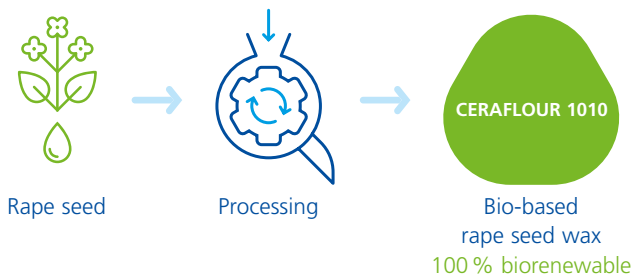
CERAFLOUR 1010

BYK's sustainable, biorenewable, rape seed based wax additive for high matting and mechanical resistance.

For BYK, sustainability is an important criterion in the development of new additives. In addition to the product's direct properties and effects, questions regarding environmental impact, chemical basis and energy consumption always play a significant role, too.

CERAFLOUR 1010 gives an excellent matting effect and provides high mechanical resistance. This makes it ideally suited for modern wood coatings system, like natural look formulations.

The CERAFLOUR 1000 series is based on renewable carbon



Benefits

- Particularly suitable for radiation curable systems
- Excellent matting efficiency
- Very good scratch and abrasion resistance
- 100 % renewable resources
- Particle size distribution
D50: 6 µm, D90: 16 µm
- Melting point: 70 °C

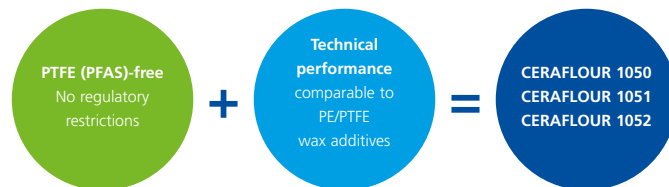
Wax additives

CERAFLOUR 1050 **CERAFLOUR 1051** **CERAFLOUR 1052** 

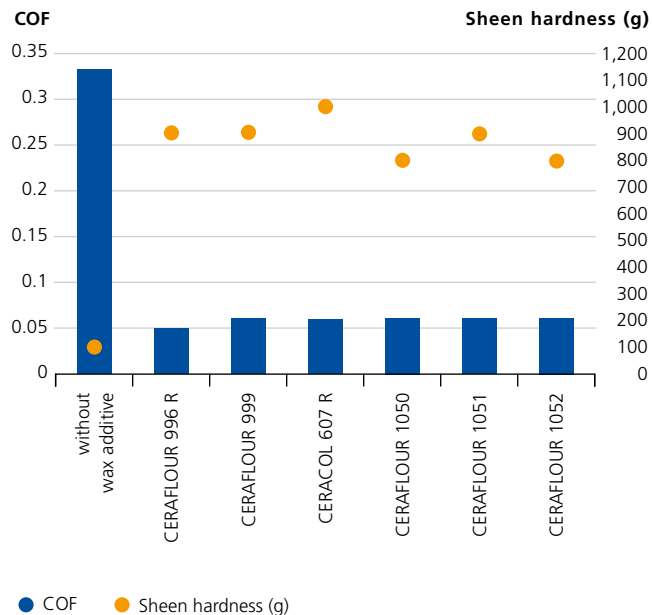
PTFE-free micronized wax additives for excellent abrasion and scratch resistance in aqueous, solvent-free, solvent-borne, and UV coating systems.

Polytetrafluoroethylene (PTFE) is a typical representative of perfluoroalkyl and polyfluoroalkyl (PFAS) substances. Its usage has been increasingly critically assessed at a global level for some time now, because products from this group of chemicals are suspected of being harmful to health. Nevertheless, PTFE possesses some desirable properties that harmless materials often do not have. In the field of wax additives, for example, conventional PTFE-based variants demonstrate outstanding abrasion and scratch resistance.

For this reason, BYK has developed sustainable alternatives to PE/PTFE wax additives that are both safe to use and ensure excellent application results: CERAFLOUR 1050, CERAFLOUR 1051, and CERAFLOUR 1052. Their special composition gives these additives a comparable level of mechanical resistance, including abrasion and scratch resistance. Their fine particle size distribution also makes them ideal for use in clearcoats and systems with low film thicknesses. CERAFLOUR 1050, CERAFLOUR 1051, and CERAFLOUR 1052 can be used to achieve matting in aqueous cosolvent-containing systems. All three additives are food contact compliant.



Very good scratch resistance and surface slip in a BPA-free can coatings clearcoat



Test system: BPA-free polyester/melamine system

Additive dosage: 1 % wax additive solid based on the total formulation

COF: Coefficient of friction

PTFE-free!

Benefits

of CERAFLOR 1050, 1051, and 1052:

- Significant improvement in abrasion and scratch resistance
- Medium to strong reduction in surface slip
- Very fine particle size distribution → also suitable for clearcoats and systems with low film thicknesses
- Food contact compliant

Additional benefits

- of CERAFLOR 1050:
Especially recommended for clearcoats and haze-sensitive systems
- of CERAFLOR 1051: Good performance in a wide range of application areas
- of CERAFLOR 1052:
Ideal for systems that require less surface slip

Applications

- General industrial coatings
- Can coatings
- Coil coatings
- Wood and furniture coatings
- Architectural coatings

Rheology additives

BYK-AQUAGEL 7110

Rheology additive based on a modified and highly purified phyllosilicate for adjusting thixotropic flow behavior in aqueous systems

BYK-AQUAGEL 7110 is an organically modified phyllosilicate that provides thixotropic flow behavior and very good anti-settling properties in aqueous systems as well as an increase in storage stability in final products. It is based on a naturally sourced phyllosilicate but thoroughly purified and then “shock-dried”, creating a permanently delaminated, open structure and preventing the reagglomeration of the single clay platelets.

This structure results in a larger surface area and thus easier dispersion and incorporation into the system, as well as better rheological effectiveness compared to conventionally treated natural phyllosilicates. Hence, time-consuming dispersion at high shear forces is rendered unnecessary and final viscosity levels are achieved sooner.

Intermediates which are produced with BYK-AQUAGEL 7110 develop a higher viscosity (water viscosity) immediately after the additive has been stirred in.

BYK-AQUAGEL 7110: Water viscosity in intermediates

BYK-AQUAGEL 7100



BYK-AQUAGEL 7110



Test system: 4 % additive (as supplied) in water

Benefits

- Shock-drying provides permanently open, delaminated, and slightly pre-activated structure
- Easy incorporation and instant activation
- Better rheological effectiveness → lower additive dosage required to achieve final viscosity levels
- Thixotropic flow behavior
- Water viscosity
- Excellent anti-settling properties and sag resistance in final products

Applications

- Architectural coatings
- General industrial coatings
- Wood and furniture coatings
- Marine and protective coatings
- Adhesives and sealants

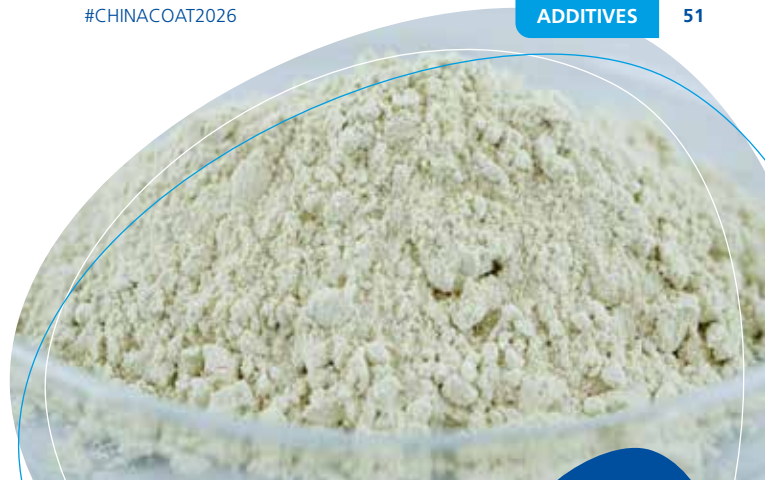
Rheology additives

CLAYTONE MPQ

Highly efficient organophilic phyllosilicate for a particularly wide polarity range – free of crystalline silica and improved storage stability

The specific organic modification of natural phyllosilicates allows customized rheology additives to be developed for any polarity range. Depending on the filler content and dosage, these organophilic phyllosilicates offer thixotropic or pseudoplastic flow behavior and cause an increase in viscosity in the low shear range. However, the crystalline silica (quartz) usually contained in typical organophilic phyllosilicates must be labeled as carcinogenic outside Europe.

BYK has therefore developed a organically modified phyllosilicate that is completely free of crystalline silica and can also be used in a particularly wide polarity range. CLAYTONE-MPQ improves sag resistance, anti-settling properties, and storage stability in non-polar alkyd systems as well as in medium-polarity polyurethanes or high-polarity epoxy coatings. The sag resistance of 2-pack epoxy formulations remains excellent even after storage. The additive has no negative influence on the optical properties of the coating, such as gloss.



Free of
crystalline
silica (quartz)

Benefits

- Viscosity increase in the low shear range
- Therefore improvement in
 - Sag resistance (also in epoxy systems after storage)
 - Anti-settling properties
 - Storage stability
- Especially wide application range from low-polarity to high-polarity systems (also for aromatic-free systems)

Applications

- Marine and protective coatings
- General industrial coatings
- Architectural coatings

Rheology additives

GARAMITE-7305

Powdered rheology additive for polar solvent-based and solvent-free systems to increase storage duration and sagging resistance

GARAMITE-7305 is a rheology additive that delivers advantages over conventional organophilic phyllosilicates (organoclays). Conventional phyllosilicates usually require high shear forces and polar activators to support dispersion during incorporation. In comparison, GARAMITE-7305 can be incorporated and activated very easily in solvents and binders using moderate shear forces. The additive features a strong pseudoplastic viscosity profile. The use of GARAMITE-7305 allows formulations with high viscosity to be achieved in the low shear range, resulting in excellent anti-settling features and antisyneresis properties. When shear forces are applied, a major reduction in viscosity takes place, which significantly improves the application properties.

Recommended use

GARAMITE-7305 is best suited for mid-polar to polar systems in the following applications:

Architectural coatings	●
Protective coatings	●
Industrial coatings	●
Coil coatings	○
Powder coatings	●

● especially recommended ○ recommended

Rheology additives

RHEOBYK-7460 CA

RHEOBYK-7470 CA

RHEOBYK-D 7460

Lithium chloride-free liquid rheology additives for aqueous, solvent-based, and solvent-free systems.

Benefits

- For outstanding
 - Anti-sagging
 - Anti-settling
 - Storage stability
 in various systems and a wide range of applications
- Lithium chloride-free → for the most stringent regulatory requirements
- Liquid – easy to dose and handle

Regulatory requirements are increasing continuously, not only for new products but also for established ones. For example, it is expected that in the near future all products containing 0.3 % (within the EU) or 0.1 % (outside the EU) lithium chloride will have to be labeled as reprotoxic, i.e. will receive the H360F addition.

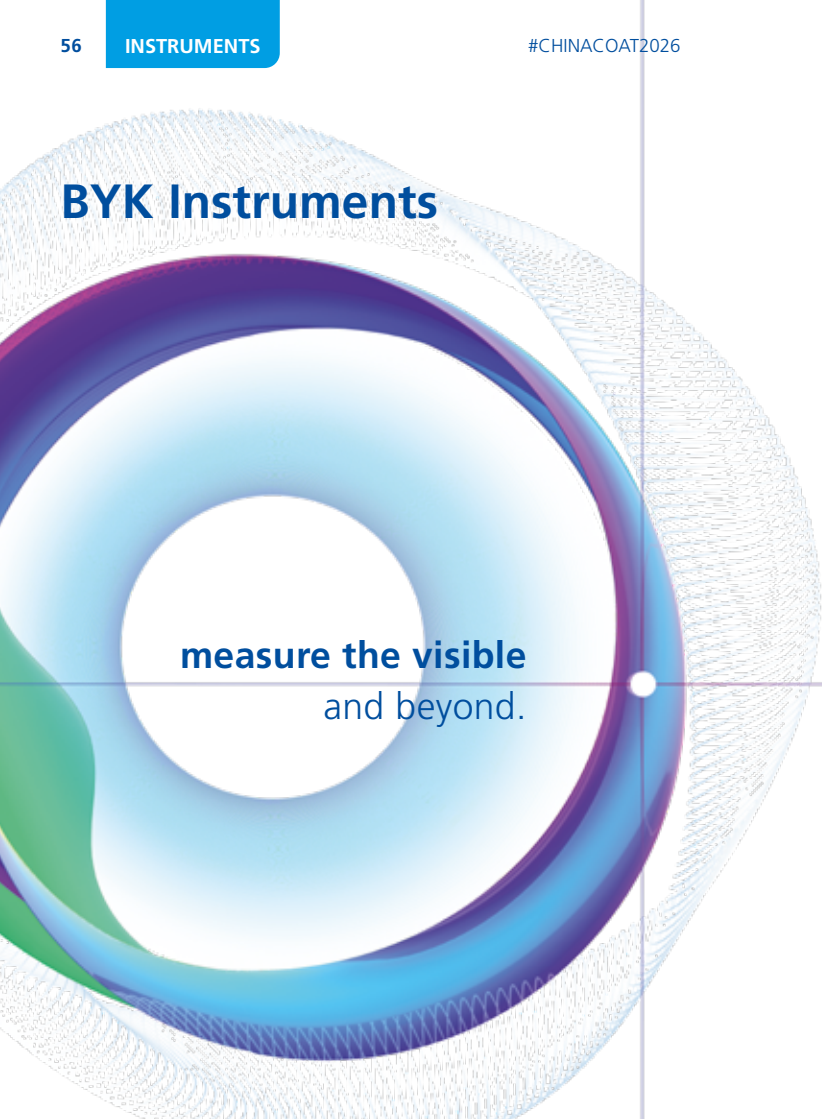
For many years, BYK has been proactively developing alternatives to the existing portfolio that also meet future regulatory requirements. As part of this initiative, three new urea-based liquid rheology additives have now been developed, which are variants of known thixotropic agents:

The lithium chloride-free variants work very similarly, but not completely identically.

Lithium chloride-containing additive	Lithium chloride-free variant	
RHEOBYK-7410 CA	RHEOBYK-7460 CA	For medium-polar solvent-based and -free systems
RHEOBYK-7420 CA	RHEOBYK-7470 CA	For aqueous and high-polar systems
RHEOBYK-D 410	RHEOBYK-D 7460	For medium-polar solvent-based and -free systems

By replacing the stabilizer, the new additives are lithium chloride-free. Like the existing products, they provide a strong thixotropic flow behavior and significantly reduce the sagging and settling tendency of the application systems.

BYK Instruments

A large, stylized graphic of a circular instrument, possibly a microscope or a lens, with concentric rings in shades of blue, purple, and green. The text 'measure the visible and beyond.' is centered within the innermost white circle.

measure the visible
and beyond.

The world is in a continuous change. The trends of 'globalization and standardization' within a more and more 'digital world' not only change consumer behavior but also your requirements for 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.

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!

Color quality control solutions for industrial paints and coatings



Industrial paints and coatings come in a variety of colors, textures and effects that enhance the appearance. In addition, the color of industrial paints and coatings not only affect the aesthetics but often has a very practical use. As many finished products consist of multiple components which are manufactured by different suppliers and at different locations, uniformity of color and appearance is crucial.

Not only the paint batches need to be delivered with consistent quality, but also the production process of the finished product needs to be controlled. The "correct" color has to be ensured across different material types and gloss levels. Color tolerances are dependent on the application and the hue.



color2view and spectro2guide

Perfect partner for global color management

- The only portable and benchtop spectrophotometer that combines color and gloss measurement with an integrated fluorimeter to control color harmony and to analyze long-term color stability based on fluorescence.
- Thanks to the powerful LED Technology and many years of experience, an outstanding technical performance is guaranteed. The superior accuracy and excellent Inter-Instrument-Agreement allow use of digital standards.
- Furthermore, for the first time in the industry, digital standards can be exchanged between portable and benchtop spectrophotometers. The excellent extra-instrument agreement between spectro2guide and color2view has made the seamless use of digital standards a reality – without additional profiling.

Color quality control solutions for your specific task



Short description	spectro2guide Pro		spectro2guide		spectro2go		spectro2go XS	color2go	
Catalog Nr.	7087		7070	7075	7085	7086	7095	7635	7630
Color geometry	45°c:0°		d:8° (spin/spex)	45°c:0°	d:8° (spin/spex)	45°c:0°	d:8° (spin/spex)	d:8° (spin/spex)	45°c:0°
Measuring capability	Color Gloss Fluorescence Jetness		Color Gloss Fluorescence		Color Gloss		Color	Color Gloss	
Sample port			12 mm		12 mm		5 mm	12 mm	
Measuring area			8 mm		8 mm		4 mm	8 mm	
Repeatability color			0.01 ΔE94 (10 consecutive measurements on white)		0.01 ΔE94 (10 consecutive measurements on white)			0.01 ΔE94	
Reproducibility color			0.11 ΔE94 (average of 12 BCRA II tiles)		0.11 ΔE94 (average of 12 BCRA II tiles)			0.30 ΔE94	
Digital standards			yes		yes			no	

Viscosity measurement with high efficiency



References

ISO 2884

Determination of viscosity using rotary viscometers operated at a specified speed

ASTM D4287

Standard test method for high-shear viscosity using a cone/plate viscometer

ASTM D7395

Standard test method for cone/plate viscosity at a 500 s^{-1} shear rate



The flow behavior of a liquid coating is crucial as it significantly influences its handling and application properties. Viscosity is a key factor in describing this flow behavior. However, the viscosity is not constant for most coating systems, it depends on the temperature as well as the coating's response to mechanical stress.

This applied stress is described as the shear rate and to correctly control and predict the flow behavior it needs to be applied to the coating in a controlled and even fashion.

byko-visc CP

Rotate and flow through thick and thin

- Cone and plate viscometer that allows for absolute viscosity determination
- Constant shear rates throughout the sample
- Built-in temperature control
- Small sample sizes save time and material
- Switch cones without the need for recalibration
- Effortlessly switch between low and high shear applications

Innovative color formulation software for solid and effect paints

Color matching challenges turn into accurate hits



Whether it's finding the ideal color for a new vehicle model, repairing a damaged car finish or optimizing a furniture coating – a uniform and consistent color is key for the perception of product quality!

Even slight deviations can be noticeable and lead to costly rework. Therefore, precise color matching is essential to ensure high-quality standards and meet customer expectations. However, the increasing use of effect pigments and multi-layer effect paints has made color matching even more complex, as their color changes with viewing angle and lighting conditions.

That's why digital tools have become an essential part of the color matching process. By combining multi-angle spectrophotometers with advanced software, even effect finishes can now be matched fast, precisely and consistently.

BYK-match

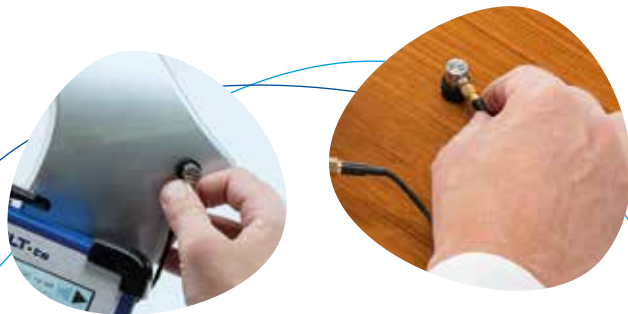
Simplifies the complexity of color matching

- Advanced search, correction and formulation from scratch capabilities
- Color matching of solid, effect and multi-layer effect finishes
- Utilizing BYK-mac i color, sparkle and graininess data
- AI-driven pigment selection to find the right pigment combination
- Matching score for easy evaluation of color & effect match quality
- Cloud-based platform which is always up-to-date

Multi-layer film thickness measurement for any substrate

Film thickness variation has a significant impact on paint durability, color and appearance harmony. Accurate monitoring will avoid excess material usage. Multi-layer systems could only be measured accurately using destructive methods combined with a high-cost microscope which is very time consuming and requires expert knowledge. The BYK-PELT family is the solution for non-destructive multi-layer film thickness measurement with highest precision – available as a handheld measurement tool or an automated version to mount on a robot for process control.

A game changer in your quality control that saves time and money while giving you accuracy and valuable data for optimization you didn't have before.



BYK-PELT

Accurate echoes from layer to layer

- Non-destructive measurement of multi-layer systems on any substrate material.
- Reports individual layer thickness and total thickness at each measurement location.
- Compact and lightweight with color touch-screen display.
- smart-chart software for professional documentation and data analysis with SPC charts.
- Innovative transducer technology for a wide thickness range:
 - Low frequency transducers for thick layers up to 5 mm
 - Medium frequency transducers for layers 18–500 μm
 - High frequency transducers for thin layers down to 5 μm



Technical presentations

11th November

2:00–2:30 PM	Hall 1.1 Booth D01	Yu Hu Special coatings senior specialist	New generation surface additive for easy clean effect in aqueous coatings – BYK-SILCLEAN 3725
2:30–3:00 PM	Hall 1.1 Booth D01	Ella Hou Floor coatings senior specialist	Efficient defoaming for high-viscosity, trouble-free recoating for floor coatings
3:00–3:30 PM	Hall 1.1 Booth D01	Kecun Miao Marine & protective coatings lab head	High-efficiency wetting & dispersing with locally sourced raw materials

12th November

2:00–2:30 PM	Hall 1.1 Booth D01	Shen Kai Instruments technical senior manager	BYK-Gardner new instrument and test theory introduction
2:30–3:00 PM	Hall 1.1 Booth D01	Huili Wang Automotive coatings lab head	Guideline for jetness basics, evaluation and influencing factors of carbon black in basecoats
3:00–3:30 PM	Hall 1.1 Booth D01	Xi Xin Wood coating chemist	Wax additives for aqueous wood coating formulation design

What do we mean by...



...innovation?

Continually offering the most modern and advanced additives. To do this, we invest about 8 percent of our annual turnover in research and development – 3 times more than most in the sector. Research and development and application technology staff make up 22 % of our workforce.

...expertise?

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

byk.com



...closeness?

Our global footprint and end-use structure enable us to deliver regional, tailor-made solutions to our customers with specialized industry and application focus.

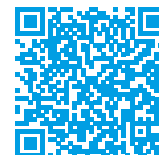
Welcome to the **interactive world** of BYK additives



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



byk.com/ebooks



BYK: world's largest and most versatile flexshuttle facility

- Significant time-to-market advantage for customers
- BYK doubles capacity in application technology

Would you like to learn more?

Feel free to talk to our HTS experts:
hts.byk@altana.com

Our expertise plus service in China

Same standards worldwide

Whether in Germany or China, U.S. or Korea: our laboratories offer the same service worldwide. The equipment is state of the art – so we will always find the ideal solutions for your application.

Application labs

- Shanghai: 33
- Guangzhou: 2

Plastics labs

- PVC/leather
- Thermosets
- Thermoplastics

Paint labs

- Protective coatings
- Special coatings
- Wood and furniture coatings
- Automotive coatings
- Architectural coatings

Industrial applications labs

- Battery
- Graphic arts
- Adhesive and sealants

Brand new application lab in Guangzhou, China

- Full-scope integrated testing solutions
- Shorten customers' testing cycles

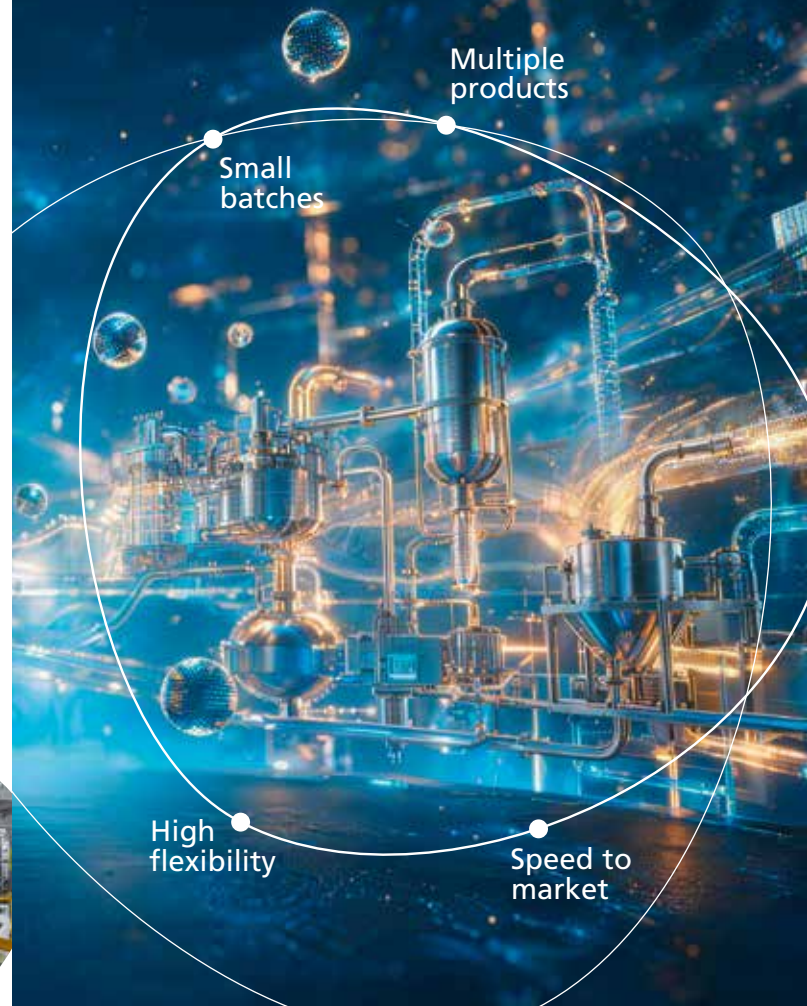


China for China

New mini-plant at Shanghai integrated site

The new mini-plant is defined by its highly flexible localized manufacturing capacity, a core competency tailored for the evolving demands of the Chinese market.

Serving as a new local innovation and production hub, the mini-plant features four professional production lines and focuses on the production of silicone-based, silicone-free and wax additives for diverse industrial scenarios.



BYK by numbers

About

1,000

samples a day

More than

30

laboratories
across the globe



40 markets

Investment in R&D



3 times higher
than the industry
average

More than

150

years of
expertise

About

2,700

employees worldwide

Sustainability

Do you know BYK's solutions and products for sustainability?

What does sustainability mean at BYK?

Sustainability is of high value at BYK and has many facets. The search for alternative raw materials, the reorientation of research and development towards more sustainable products, sustainability in the applications of our customers, and the safest possible recycling in the sense of the circular economy are also among our most important topics.

We integrate the three dimensions of ecology, economy, and social commitment into all decision-making processes at BYK.

Unfortunately, we cannot be THE solution to climate change – but we can be part of the solution. With our sustainable solutions, we want to create value – not only for our customers, but also for our environment, our employees and future generations.



Discover
byk.com/sustainability

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