

OUR PLASTICS BUSINESS  
**IT JUST ADDS UP**



as in **Plastics**

as in **Powerful**

as in **Polymers**

as in **Proficiency**

as in **Performance**

as in **Practicality**



# Contents

- 04** Introduction
- 05** Our additives: solutions for the challenges to come
- 06** Our brands
- 08** Answers to the pressing issues of our time
- 10** Thermoplastics
- 12** Thermosets
- 14** PVC/coated fabrics
- 16** Global regulatory service



# Welcome to **BYK plastics additives**

With this brochure, we provide an overview of our innovative plastics business and its underlying philosophy that is based on our longstanding expertise in the industry.

As a globally leading additives manufacturer, it is our overriding aim to help our customers to fulfill their customers' needs. To achieve that goal, we offer an extensive portfolio that addresses the diverse plastics markets worldwide. We maintain the largest global network of application

laboratories in the industry, and provide technical service to our customers, wherever they are located. This customer proximity is the basis for our thorough understanding of today's market requirements. It helps us to detect new trends early and develop tomorrow's innovations accordingly.

Discover for yourself how our broad range of plastics additives and services benefits customers around the globe, and let us know how we can support your business, too.

## Note

To ensure the best appearance and full functionality, please open in Adobe Acrobat.



## Our additives: solutions for the challenges to come

As life without plastics has become inconceivable, additives are playing an increasingly important role for materials. They ensure quality and functionality. We offer innovative high-performance solutions for plastics converters and compounders, formulators and OEMs worldwide, and we follow a single mission: to supply additives which create value for our customers, and for their customers, too.

Today, BYK is a global leader in significant segments of the additives industry. Our products for fiber-reinforced composites and PVC plastisols are highly regarded within the sector. Besides their mechanic and esthetic advantages, they are known for their excellent processing qualities and ease of application.

We also provide easy-to-process multi-component additive systems based on our innovative skin-core extrusion and compacting technologies, tailored to the individual specifications of our customers. They optimize material properties (such as flame retardancy and UV or light stability), and address a multitude of applications, particularly in the fast-growing thermoplastics business.

Through close collaborations with direct and indirect customers along the value chain, we build and expand our expertise continuously. Our profound understanding of the markets we serve puts us in a position to anticipate new trends and create innovative applications for the challenges of tomorrow.

With our focus on sustainability, we help our customers meet their specific environmental targets, and have devised a new group of recycling additives which enable the value-added upcycling of used plastic materials.

### We're with you. Worldwide.

Innovation is key for us. With R&D centers in Wesel, St. Louis, and Shanghai, we are able to provide global solutions. This organizational structure allows us to develop solutions for applications that address specific local or regional market demands. In total, we invest eight percent of our yearly sales in research and development, new products and applications, which is more than the average in our industry. A fifth of our employees work in jobs related to R&D.

Our 17 production sites across the world allow us to be a global player who remains close to customers, wherever they may be. This is true for sales, distribution, service, and application.

We offer state-of-the-art testing equipment in our application laboratories in around 30 countries. This service helps us and our customers to identify the formulation best suited for their application, often saving R&D efforts on the part of our customers. Additionally, we provide technical service in Germany, China, India, Korea, Japan, and the USA. Our customer seminars provide useful information on the handling, dosage, and processing of our additives.



# Our brands

## High-performance plus process efficiency

Our customers have a broad portfolio of high-performance plastics additives to choose from. There are nine brands, all of them characterized by their exceptional performance properties.

### BYK

This is a group of extremely efficient and widely applicable additives to support the processing and product properties of PVC plastisols, thermosets and thermoplastics.

### DISPERBYK/DISPERPLAST

With our know-how regarding the integration of solids into dispersions, we created DISPERPLAST, a group of wetting and dispersing additives especially for PVC applications.

### BYK-MAX

Our BYK-MAX additives improve processing and help compounders and converters to work more efficiently, improving their throughput. The product group includes processing aids for PE, PP, PET, and polyamides, but also for thermoplastic compounds based on PE and PP, and for masterbatches. Our functional BYK-MAX additives optimize product properties and add value to thermoplastics. They range from anti-fog to anti-scratch and include flame retardancy, light and UV stability, nucleation and desiccation as well as solutions designed to improve the heat stability of nylon-based polymers used in electric and electronic products.





## RECYCLOBYK

Our formulated systems for recycling products are designed to improve the recyclates' quality, enabling new high-quality applications for used plastics rather than downcycling them. These formulations can be employed to recycle products based on HDPE, PP, PET MFI, PE/nylon, which include battery cases, bottle caps, bins, or crates.

## VISCOBYK

This product family serves to reduce viscosity in PVC plastisols.

## SCONA

SCONA is our multifaceted family of thermoplastics modifiers. The group includes adhesion promoters and coupling agents designed to improve advanced composites, fiber, glass fiber, or carbon fiber compounds, optimizing their mechanical properties and their impact strength.

## GARAMITE

These powdered rheology additives generate a rather pseudoplastic flow behavior.

## RHEOBYK

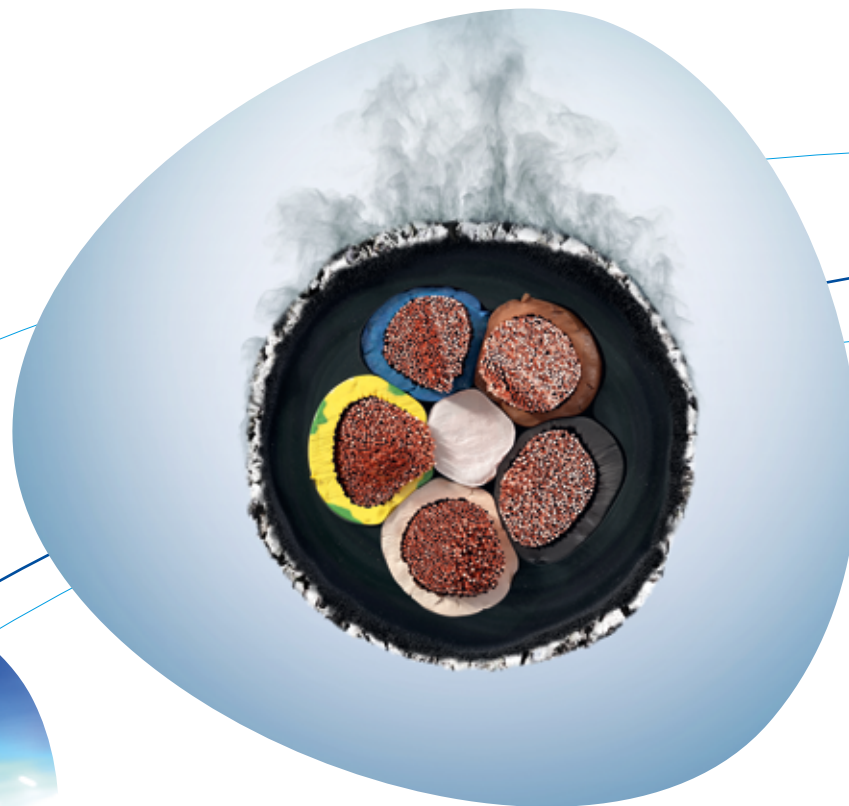
RHEOBYK includes a group of liquid organic rheology additives which generate a thixotropic flow behavior.

## CLOISITE

Modified phyllosilicates for use in thermoplastics as flame retardant synergists and to improve physical properties.

## Answers to the pressing issues of our time

Climate change, digitization, and energy efficiency are pressing issues of our time. Simultaneously, the desire for lifestyle products grows. Our additives provide promising high-performance solutions to all these demands. Most high-tech applications benefit from our portfolio. They include lightweight construction for the automotive industry, composite resins used for wind power plants, UV-resistant films to protect agricultural greenhouses. Our additives also provide comfort, for example, when they are used to optimize PVC floorings or to provide effects such as flame retardancy, anti-scratch, or odor reduction.









# Thermoplastics

Widening the polymer horizon



Thanks to their versatility, thermoplastic materials are extremely popular worldwide and constitute a booming market. Applications range from products for the automotive industry to electrical and electronic products, from film and packaging materials to products for the construction industry and white goods.

Our diverse portfolio supports different stages of the value chain, improving material properties, product quality and optimizing efficiency during production. Our portfolio consists of single- and multi component, additive mixtures. The concentrates are based on our innovative skin-core extrusion and compacting technologies, which make them particularly easy to handle and allow for highly loaded additive concentrates.

Our products are suited for a wide range of plastic materials, including polyolefins and engineering plastics. Besides processing aids, novel coupling agents, and modifiers from our BYK and SCONA brands, the BYK-MAX and CLOISITE products play a major role in thermoplastics applications. Most of them are designed precisely for that purpose. RECYCLOBYK products are designated to improve the recyclates' quality.

Our processing aids improve throughput and process efficiency. This concerns the dispersion of pigments and fillers, but also the reduction of viscosity, odors, or VOC. Often, these additives also enhance the mechanical properties of the finished parts without affecting their appearance.

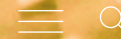
Our functional additives are used to achieve a multitude of properties, which are crucial for today's state-of-the-art thermoplastic applications in the automobile industry as well as the electric and electronics sectors. Properties include UV and thermal stability, flame retardancy, nucleation, and desiccation. Additionally, there is a range of additives providing anti-fog, anti-scratch, and anti-static effects.

To best support our customers, our organization differentiates between industrial applications and transportation applications. This allows our end use specialist teams to focus their know-how and expertise in one area of application and collaborate on projects with direct and indirect customers. Our laboratories contribute to this collaboration, running application tests of our additives that replicate our customers' production conditions. We have a number of laboratory machines at our disposal, including tape casting, injection molding, and single- and twin-extruders.

As our latest product innovations show, this internal organization helps us to support our customers with innovative solutions, and to capture new market trends early and efficiently.

Industrial applications include cable formulations and films for greenhouses or packaging.

Transportation applications consist of interior and exterior car components as well as under-the-hood applications.



# Thermosets

Bringing out the best in thermosets



Our portfolio for thermosets contains products for a wide range of applications including advanced composites. Through this portfolio, we serve all technologies employed within the plastics sector (including SMC and BMC molding compounds, pultrusion, infusion, and hand lay-up).


Our products are suited to unsaturated polyester, vinyl esters, epoxy resins, polyurethanes, and acrylates. Applications include fiber-reinforced composites, gel coats and casting compounds, electrical and electronics insulations (e.g. CCL applications), polymer concrete, as well as engineered and artificial stone.

The wide range of customers we serve within these markets reflects the different stages of the value chain in the industry. Our customers include resin producers and formulators as well as producers of finished components. They use our additives to improve material properties, but also to ensure the efficiency of their production processes.


Given the fast market pace with constantly evolving trends and growing expectations regarding sustainability, our customers rely on us for innovative solutions based on our long-standing expertise. Our most recent developments in this field are proof of that expertise; they include the world's first coupling agent for carbon fibers (BYK-C 8013), and an air release agent based entirely on renewable resources (BYK-A 505).

Our additive portfolio helps optimize different aspects of thermoset systems. Coupling agents, for example, act as adhesion promoters and contribute significantly to the mechanical strength of polymer concretes or fiber-reinforced systems. Our rheology additives and air release agents improve the material's processing qualities, while wetting and dispersing products affect its storage capability. To ensure efficient and reliable production processes, manufacturing, our processing additives often combine a number of effects, such as mold separation plus surface enhancing properties.

We support our customers with laboratory services in order to test our additives in their applications, if needed. For example, we employ our sheet molding press to identify suitable products for fiber-reinforced compounds.



To assist our customers who want to reduce their workplace hazards, we created a group of styrene emission suppressants for unsaturated polyester resins in particular. They comply with current health & safety regulations.



# PVC/coated fabrics

Optimizing the plastisol production

PVC plastisols are used in numerous applications, ranging from floorings to wall coverings, from printing inks to coated fabrics to tarps and other textile applications. Our corresponding additive portfolio supports the production processes of product manufacturers and helps processors to optimize material properties.

Customers can choose from four major product groups. These include wetting and dispersing additives for incorporate fillers and pigments, as well as defoamers and air release agents, which facilitate optimal conditions during the manufacturing process. We also offer process additives and viscosity depressants, many of which meet indoor emission levels thanks to low emissions.

Based on our longstanding experience in the industry, we provide intelligent solutions fast to new market trends, as our most recent DISPERPLAST innovation shows. It enhances the production efficiency of in-demand luxury vinyl tiles (LVT).

To identify the formulation best suited for the application in question, our end use specialists assist customers with state-of-the-art testing in our laboratories. With our spread coating machines, for example, we are able to replicate industrial conditions used for floorings and artificial leather under lab conditions. As a result, we obtain precise data on the performance of our additives.



The new wetting and dispersing additive DISPERPLAST-1180 is specifically designed for filled and plasticized PVC dry blends, often employed in backing layers of luxury vinyl tiles (LVT). Converters can select from a wide range of BYK additives for coated fabrics as well as PVC-free natural leather applications.



## Global regulatory service with us, it's easy to follow requirements

Many of our customers produce the same product simultaneously at different locations worldwide. They need to follow the regulatory requirements within different regions, and expect their suppliers to do this, too, while providing the same high quality and the same technical specifications worldwide. Our Global Regulatory Service allows us to help our customers meet these expectations.

When designing new formulations, we aim to come up with additive solutions suited to any world region. Depending on the additive's application, it conforms to the relevant regulations of the EU, Switzerland, the USA, Japan, or China. This applies, for example, to rules regarding food contact and toy compatibility, as well as other health and safety issues.

Based on our commitment to product stewardship, we provide a BRIEF (BYK Regulatory Information Extensive Form) for each additive. This data sheet contains all the relevant international regulatory data plus further information on product safety.

Our Global Regulatory Service Team manages all aspects relating to product safety, product stewardship, and the registration of chemical substances. The international team consists of highly qualified specialists who also act as direct contacts for our customers, whether for initial inquiries or for collaboration on specific projects.



# BYKmark your products

**BYK-Chemie GmbH**  
P.O. Box 10 02 45  
46462 Wesel  
Germany  
Tel +49 281 670-0  
Fax +49 281 65735

**info@byk.com**  
**www.byk.com**

ADD-MAX®, ADD-VANCE®, ADJUST®, ADVITROL®, ANTI-TERRA®, AQUACER®, AQUAMAT®, AQUATIX®, BENTOLITE®, BYK®, BYK®-DYNWET®, BYK®-MAX®, 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®, POLYAD®, PRIEX®, PURE THIX®, RECYCLOBLEND®, RECYCLOBYK®, RECYCLOSSORB®, 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.



A member of  ALTANA