Dispersion for Paint & Coatings

Repeatable & Consistent Quality

A member of ALTANA

BYK

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Testing and measuring instruments from BYK can effectively evaluate the quality of color, gloss, and appearance as well as the physical properties of paint and coatings. Being an important part of the quality control process, our dispersion solutions deliver to following markets and applications:

- Aerospace & marine coatings
- Anti-friction coatings
- Architectural
- Automotive & transportation
- Automotive refinish
- Coil coatings
- Conductive coatings
- Effect paints
- Road markings
- Specialty coatings

Aerospace Coatings

The aircraft industry raises the highest demands on coatings. They have to withstand not only ice, hail and sandstorms, but also enormous temperature fluctuations. It is not uncommon for the temperature to fluctuate between minus 60 and plus 100 degrees Celsius. This causes enormous expansion of a fuselage and wings. Coatings are constantly exposed to UV rays and regularly affected by cleaning chemicals. Nevertheless, even the smallest cracks in the coating are not permitted. It must remain extremely resistant and at the same time extensible to protect aircraft skins from corrosion.

With finer pigments and homogeneous particle distribution, up to 20% of the material can be saved in modern aerospace coatings. With an average coating weight of 650 kg (Airbus A380), about 130 kg can be saved. As a result, the aircraft is lighter, consumes less kerosene and produces less CO2.

For the development of high-quality aerospace coatings, VMA-Getzmann offers a particularly large and sophisticated range of DISPERMAT® dispersion and grinding devices. The desired fineness can be precisely achieved with these devices. With our production range, the results obtained in the laboratory can be transferred to the production scale.

Anti-Friction Coatings

Anti-friction coatings are functional coatings which offer individual solutions for specific problems. They are mostly used where low friction is required without grease or where conventional lubricants are not applicable. The high-performance coating material is used, for example, in piston coatings, seat rails and emergency running properties.

Since this coating is individually tailored, large batches are rather rare. This product is often made in laboratory conditions. It is important to reach a uniform grain size distribution, and “the finer” is not always “the better”.

With many years of experience in this area, VMA-Getzmann can present efficient and modular dissolvers and basket mills. The TORUSMILL® range in combination with DISPERMAT® achieves excellent results.

Automotive & Transportation Paints

Quality requirements for paints used in the automotive industry are extremely high. A single motor vehicle requires up to 12 liters of paint, which is applied to the body surface in several layers. Each of these layers, whether it is a primer, base coat or clear coat, is subject to different requirements. Here, not only corrosion protection or scratch resistance, but also uniform color strength and color gloss of the surface are essential.

With DISPERMAT® dissolvers and milling systems supplied by VMA-Getzmann, you will achieve the desired pigment fineness and superior product performance faster than our competitors. The modularity of our equipment allows for seamless integration of dissolvers and basket mills with or without vacuum on one machine.

Automotive Refinish Paints

Automotive refinish paints are used to repair small paint damages and therefore avoid a completely new paint job. This process is commonly known as “smart repair”. Refinish paints are a mixture of a base coat paint (automotive paint) and clear coat paint. The base coat should ensure that the previously damaged area matches the surrounding color. The clear coat paint is used to restore the protective layer. If the base coat/clear coat ratio is not set correctly, the previously damaged surface will still be protected, but there will be visual differences in color tone and color strength. VMA-Getzmann offers dispersion technologies and homogenizers to optimize the paint production process. The DISPERMAT® is also available for solvent-based products with explosion protection according to ATEX.

Coil Coatings

Coil coating is also called the continuous metal band coating. Steel or aluminum sheets are coated either on one side or on both sides in an endless process. Paints, plastic powders and plastic films are used as coating materials. There are various coil coating applications. Whether it is corrosion protection, textured paint or colored paint, requirements for coil coatings are always very high because metal sheets are shaped only after they has been painted. VMA-Getzmann offers stirring and dispersion devices for the development and production of coil coating machines.

The DISPERMAT® CC is a special laboratory device designed exclusively to conduct stress tests of a coil coating before it is applied to metal sheets.

Conductive Coatings

As the term suggests, a conductive coating is a coating that conducts electrical current. It makes up a large proportion of conductive solid materials. This can be silver, copper or graphite. Synthetic resins and solvent-based paints are often used as a liquid component. Due to its high solid content (> 80%), the viscosity of a conductive coating is often very high. In order to ensure the maximum possible contact area between the particles and therefore the optimal conductivity, it is important to achieve a small particle size.

With its extensive range of DISPERMAT® machines, VMA-Getzmann offers the dispersion and grinding solutions which are aimed at processing highly viscous products. Ceramic materials can also be used to counteract abrasive product properties.

Effect Paints

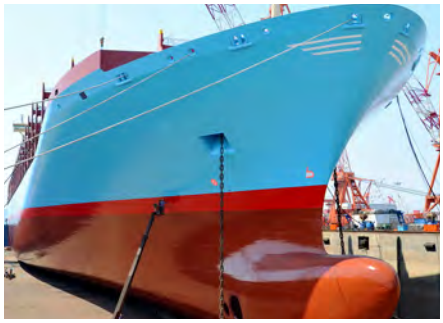
Effect paints are paints in which so-called effect pigments are embedded. These effect pigments give additional properties to paints, such as angle-dependent changes in color, gloss or texture. In addition to classic metal pigments, there are also mineral and synthetic mica pigments. The latter are more advanced and create completely new optical effects.

The challenge is in distributing pigments absolutely homogeneously and to prevent particles from sedimenting. Otherwise, it can negatively affect visual perception. VMA-Getzmann offers a wide variety of stirring devices which can be combined with the DISPERMAT® series in order to homogenize the product at both low and high viscosities in a non-destructive manner.

Road Markings

Road marking paints are an important component of traffic management and road surface marking. These paints not only have to withstand heavy mechanical stresses caused by motor vehicles. They are also permanently exposed to weather conditions all year round, including frosts, heat and moisture.
For this purpose, a variety of materials are used. Plastics, processed under high temperature, are common. VMA-Getzmann also offers special solutions such as a DISPERMAT® dissolver with a shaft thermally decoupled from the motor in order to disperse products with high operating temperatures.

Marine Coatings



Paints and varnishes are exposed to a wide variety of stresses on the high seas. You need to protect the ship's hull from sea water, fresh water, fuel, various chemicals and UV radiation, as well as heavy waves. Constant flows towards the bow, keel and stern also have a long-term abrasive effect. The DISPERMAT® of VMA-Getzmann can be used successfully to disperse pigments for ship paints. VMA-Getzmann also offers a device specially designed for measuring tribological properties of ship paints. Thanks to this technology implemented in the DISPERMAT® RR, it is now possible to precisely measure frictional properties of ship paints in seawater. VMA-Getzmann also makes a valuable contribution to optimizing ship resistance and therefore to saving energy for increasing world's shipping traffic.

Special Paints for Wind Turbines

Depending on their location, wind turbines are exposed to strong weather conditions all year round, even to aggressive sea air. In addition to these great challenges for paints, wind turbines also have to resist insects. Indeed, any contamination on the surface of rotor blades has a negative influence on flow properties. Self-cleaning coatings are also required here. The requirements for such coatings are special and complex. VMA-Getzmann offers a complete range of DISPERMAT® laboratory, dispersion and grinding devices. With these devices, the desired properties can be optimally developed in order to reproduce them on a production scale.

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Dispersers provide the mechanical energy to breakdown agglomerated particles to smaller aggregates. There are two classes of dispersers to grind material. The first group uses a high shear disperser blade rotating at a high speed. The second class are bead mills that use grinding media. A mechanical force moves the media at a rapid speed creating a shear force by collisions and rolling movements. The material volume, viscosity, and final particle size are key factors to select the right disperser.

We will partner with you to help you select be best dispersion unit to meet your specific coatings application.

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