

Coatings for functional surfaces

NanoTechnology
Made in Germany



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Welcome

to the heights of the Thuringian Forest



GBneuhaus is a specialist for surface finishing with functional layers. Our solutions are made by means of sol-gel process, a method of chemical nanotechnology. Based upon our long-time experience and using state-of-the-art facilities we are capable of fulfilling individual customer requirements in terms of function and design.

Mario Bauer
Head of Marketing & Sales



NanoTechnology

changes surface properties

As a specialist for innovative coating solutions, our portfolio covers a wide spectrum of functional and decorative coating systems for a variety of possible applications.

These coatings allow our customers to finish their products in various ways according to their needs. Defined attributes are either created or significantly improved, whereby multiple effects can be combined in one single coating system.

The innovative solutions from GBneuhaus GmbH thus enable a significant improvement of defined criteria such as colour luminosity, colouring, scratch resistance, electrical conductivity, UV-resistance, IR-reflection, temperature stability or water-repellent, hydrophobic characteristics (non-stick effect – “easy to clean”).



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SANPURE® Antimicrobial coating



The **SANPURE®** coating combines the excellent features of sol-gel coatings with the antimicrobial qualities of silver nanoparticles. That way, the reproduction of dangerous, multi-resistant germs can be reduced lastingly and safely. The agent AGPURE® nanosilver is registered according to EU 528/2012 (No. N-29919, No. N-29916).



SANPURE®
ANTIMICROBIAL COATING

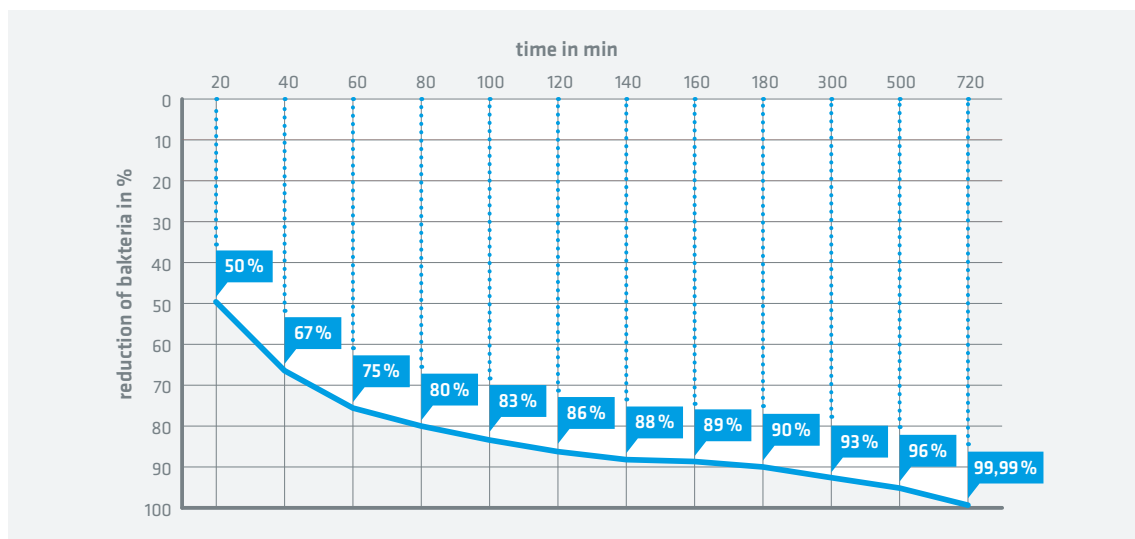
Antimicrobial coating

SUBSTRATES

- » **plastics** (polycarbonate, ethylene tetrafluoroethylene or polycarbonate films)
- » **glass** (borosilicate glass, soda-lime glass, quartz glass a.s.o.)
- » **metals and alloys** (e. g. steel, aluminium, copper, brass)

PROPERTIES

- » **reduces the reproduction of dangerous germs between cleaning cycles**
- » **maximum temperature load: 200 °C**
- » **film thickness from 150 up to 1.500 nm**
- » **lifelong antimicrobial effectiveness** (according to ISO 22196 / JIS Z 2801:2010; significant antimicrobial)
- » **physiologically harmless** (biocompatibility according to DIN EN ISO 10993-5)
- » **abrasion-resistant** (according to DIN EN 60068-2-70; minimum 100,000 cycles)
- » **scratch-resistant** (scratch hardness according to DIN EN ISO 1518: up to 20 N; pencil hardness according to DIN EN ISO 15184: up to 10 H)
- » **abrasive hardness** (cross-cut test according to DIN EN ISO 2409)
- » **no change in haptic and optic quality of substrates**
- » **chemical-proof to customary detergents and disinfection methods**
- » **transparent, individually coloured on request or proof of presence by fluorescence particles**
- » **mechanically flexible**



TECHNOLOGY

- » **dip coating or spraying**
- » **application process is defined individually according to geometry and requirements of the substrate**

COATING

- » **certified according to REACH and RoHS**
- » **certified according to ISO 9001:2015; processes comply with IATF 16949**
- » **environmental management conforms to ISO 14001**

GBhydrophobic

Easy to clean coating



In many areas there is a demand for water-repellent surfaces that are easy to clean. GBneuhäus provides a range of innovative nano-coatings, including the hydrophobic application **GBhydrophobic**, particularly for substrates like metal, plastics or glass.

GBhydrophobic

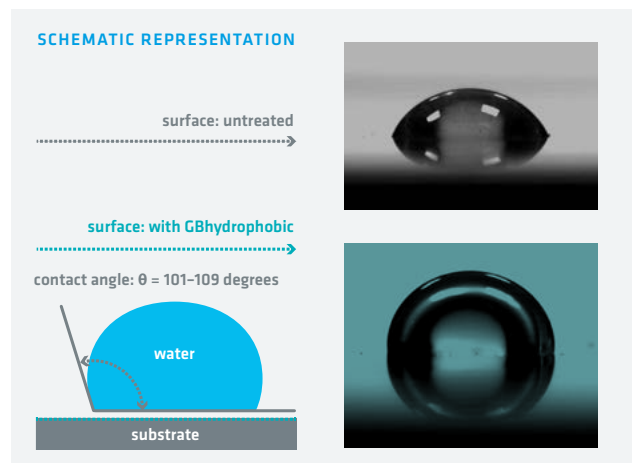
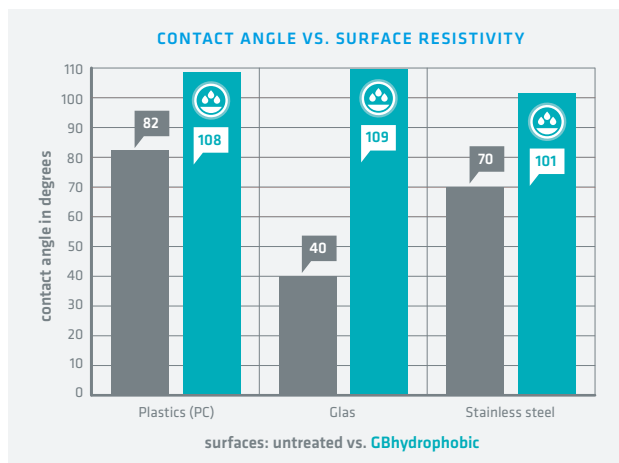
Easy to clean coating

SUBSTRATES

- » **plastics** (polycarbonate, ethylene tetrafluoroethylene or polycarbonate films)
- » **glass** (borosilicate glass, soda-lime glass, quartz glass a.s.o.)
- » **metals and alloys** (e.g. steel, aluminium, copper, brass)

PROPERTIES

- » **contact angle for water** $\theta \geq 105^\circ$ (according to DIN 55660-3:2011-12)
- » **maximum temperature load:** 200 °C
- » **transparent, individually coloured on request**
- » **combinable with antimicrobial function (SANPURE®)**
- » **film thickness from 150 up to 1.500 nm**
- » **no change in haptic quality of substrate**
- » **scratch-resistant** (scratch hardness according to DIN EN ISO 1518 up to 20 N; pencil hardness according to DIN EN ISO 15184 up to 10 H)
- » **abrasive hardness** (cross-cut test according to DIN EN ISO 2409)
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GBhydrophilic

Anti fog coating



Easy-to-clean or fog-free surfaces often require a hydrophilic coating. Among the variety of solutions for specific applications. GBneuhaus is also able to offer nano coatings with hydrophilic features for surfaces made of plastic or glass, the eponymous **GBhydrophilic**.

GBhydrophilic

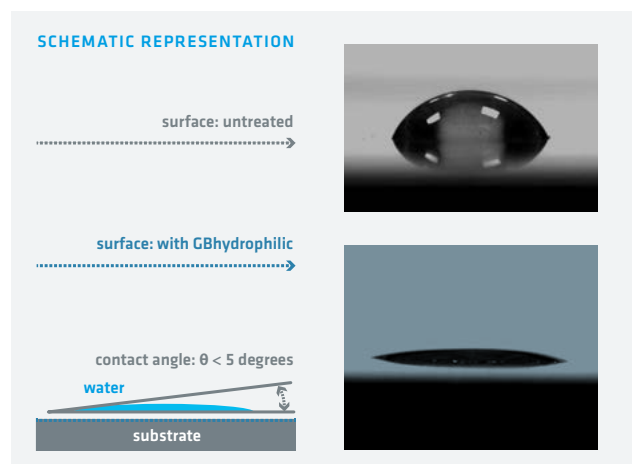
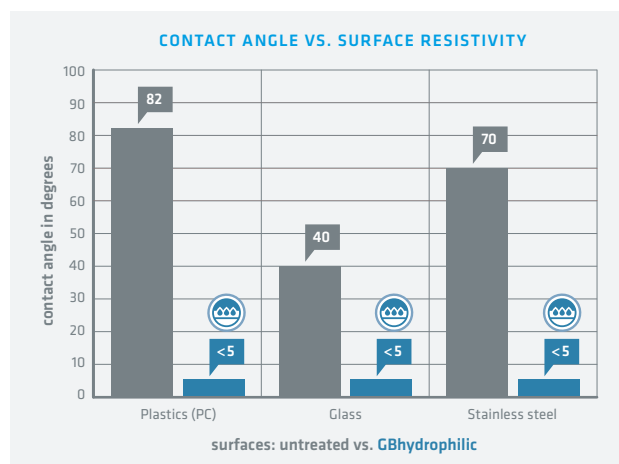
Anti fog coating

SUBSTRATES

- » **plastics** (polycarbonate, ethylene tetrafluoroethylene or polycarbonate films)
- » **glass** (borosilicate glass, soda-lime glass, quartz glass a.s.o.)

PROPERTIES

- » **contact angle for water** $\theta < 5^\circ$ (according to DIN 55660-3 2011-12)
- » **maximum temperature load:** 200–500 °C (depending on system)
- » **combinable with antimicrobial function (SANPURE®)**
- » **film thickness from 150 up to 1.500 nm**
- » **no change in optic and haptic quality of substrates**
- » **scratch-resistant** (scratch hardness according to DIN EN ISO 1518: up to 20 N; pencil hardness according to DIN EN ISO 15184: up to 10 H)
- » **abrasive hardness** (cross-cut test according to DIN EN ISO 2409)
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GBprotect plastics UV-protection coating



Being used outdoors, plastic components are exposed to the ultraviolet radiation of the sunlight and detrimental chemical substances in the atmosphere. GBneuhaus provides a range of innovative nano-coatings, including the **GBprotect plastics** application that affords protection against these hazards as well as it makes sure that high-quality components retain their optical features and maintain their performance.

GBprotect plastics

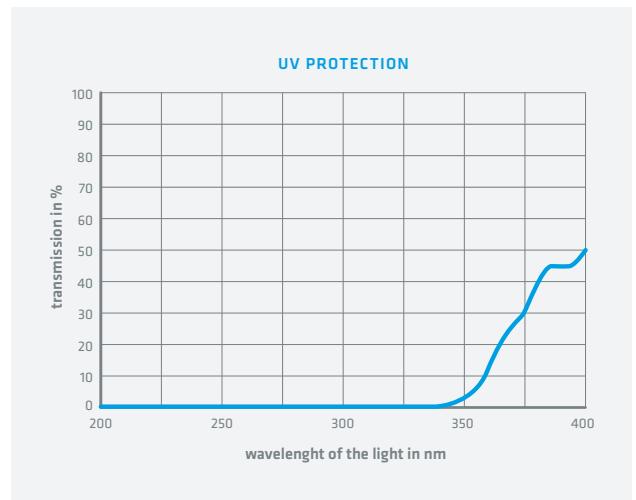
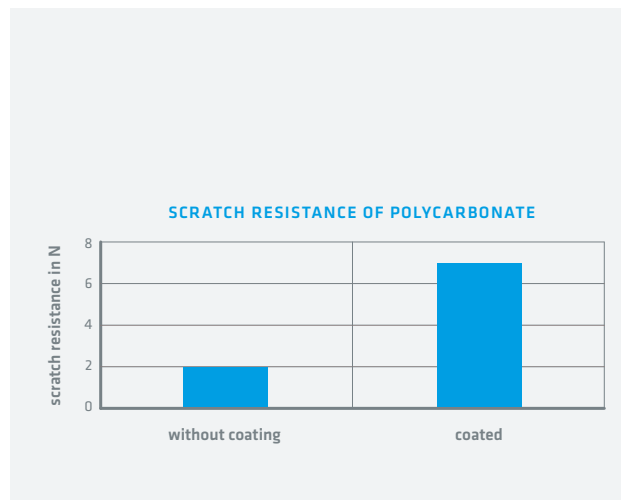
UV-protection coating

SUBSTRATES

- » **plastics** (polycarbonate, ethylene tetrafluoroethylene or polycarbonate films)

PROPERTIES

- » protection against UV radiation of the sunlight and detrimental substances in the atmosphere
- » reduction of the short-wave UV spectrum ($\lambda < 320$ nm) to less than 1 %
- » reduction of the UV spectrum ($320 \text{ nm} < \lambda < 350$ nm) to less than 10 %
- » filter effect within the visible light spectrum on request
- » combinable with antimicrobial (SANPURE®) and/or hydrophobic features
- » maximum temperature load: 200 °C
- » customisation to specific conditions
- » film thickness from 150 up to 1.500 nm
- » no change in haptic quality of substrate
- » **scratch-resistant** (scratch hardness according to DIN EN ISO 1518 up to 20 N; pencil hardness according to DIN EN ISO 15184 up to 10 H)
- » **abrasive hardness** (cross-cut test according to DIN EN ISO 2409)
- » **chemical-proof** to customary detergents and disinfection methods
- » mechanically flexible



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GBprotect metal

Anti-corrosion coating



GBneuhaus provides a corrosion protection coating, developed and tailored for the special requirements of industrial customers. **GBprotect metal** combines excellent protection against corrosion with a thin layer and high transparency.

GBprotect metal

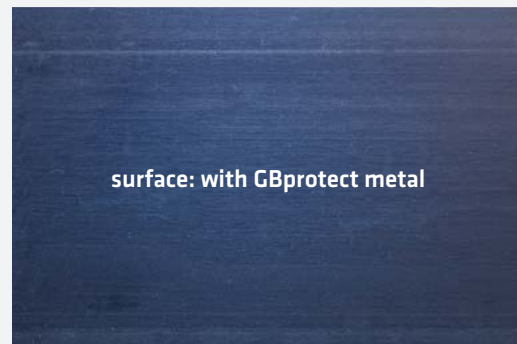
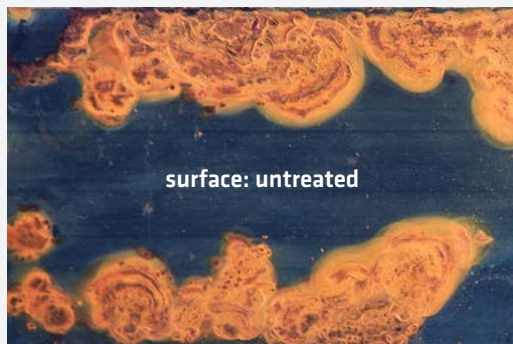
Anti-corrosion coating

SUBSTRATES

- » **metals and alloys** (e. g. steel, aluminium, copper, brass)

PROPERTIES

- » **protection of components against aggressive environmental influences**
- » **standard:** › salt spray test (according to DIN EN ISO 9227)
 - › strain in condensed water climate (according to DIN EN ISO 6270-2)
- » **option:** › customisation to specific corrosive environments
 - › customisation to specific substrates and compound structures
 - › combinable with antimicrobial (SANPURE®) and/or hydrophobic features
- » **maximum temperature load:** 200 °C
- » **film thickness** from 150 up to 1.500 nm
- » **no change in haptic and optic quality of substrate**
- » **scratch-resistant** (scratch hardness according to DIN EN ISO 1518: up to 20 N; pencil hardness according to DIN EN ISO 15184: up to 10 H)
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GBantistatic

Antistatic coating



In many areas of industrial manufacturing as well as households, static charges are quite frequently a source of damage and contamination. The innovative nano coating **GBantistatic** protects surfaces made of plastic or glass against electrostatic charge.

GBantistatic

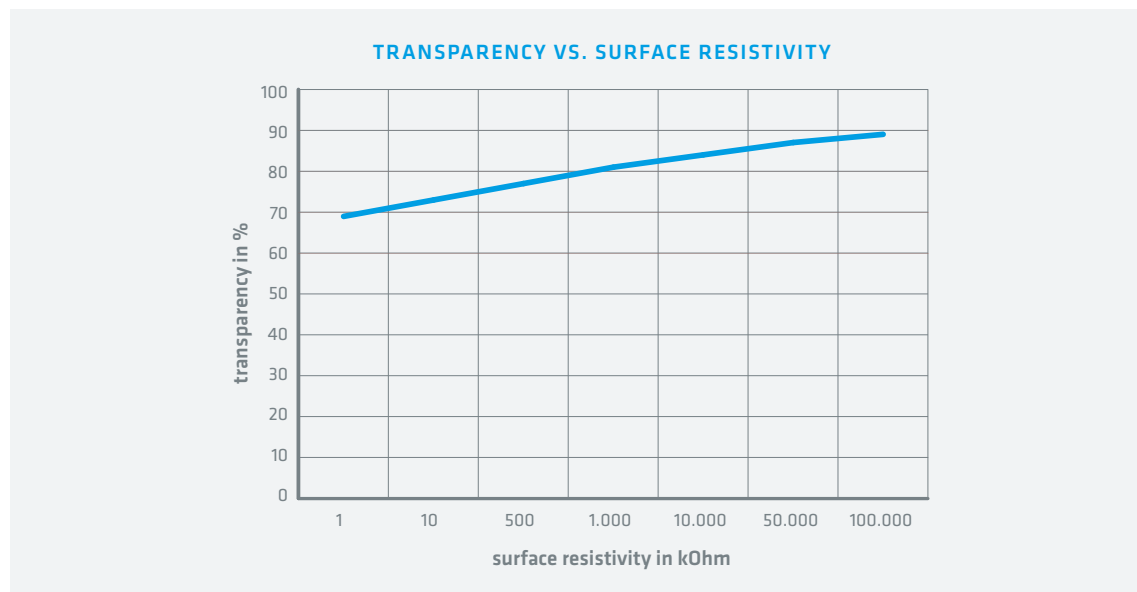
Antistatic coating

SUBSTRATES

- » **plastics** (polycarbonate, ethylene tetrafluoroethylene or polycarbonate films)
- » **glass** (borosilicate glass, soda-lime glass, quartz glass a.s.o.)

PROPERTIES

- » **prevention of electrostatic charging on surfaces** (according to DIN EN 6079-32-2)
- » **specific surface resistance $R = 100 \text{ k}\Omega \dots 100 \text{ G}\Omega$** (according to DIN EN 60093:1993-12)
- » **transparency $> 80 \%$; individually coloured on request**
- » **maximum temperature load: 260°C**
- » **combinable with antimicrobial (SANPURE®) and/or hydrophobic features**
- » **film thickness from 150 up to 1.500 nm**
- » **no change in haptic quality of substrate**
- » **scratch-resistant** (scratch hardness according to DIN EN ISO 1518 up to 20 N; pencil hardness according to DIN EN ISO 15184 up to 10 H)
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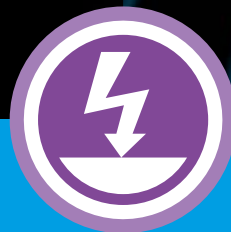
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GBconductive

Electrically conductive coating



In many areas of active heating or printed electronics there is a demand for electrically conductive and transparent coatings. Within our range of innovative nano coatings, GBneuhaus provides the product **GBconductive** as a conductive coating for surfaces made of plastic or glass.

GBconductive

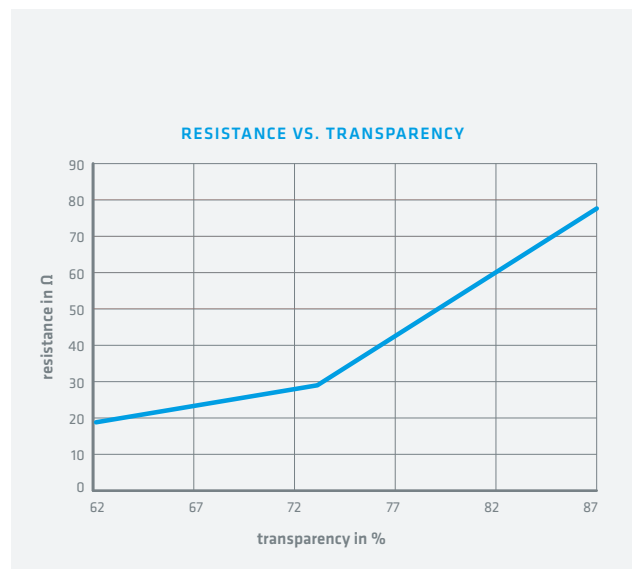
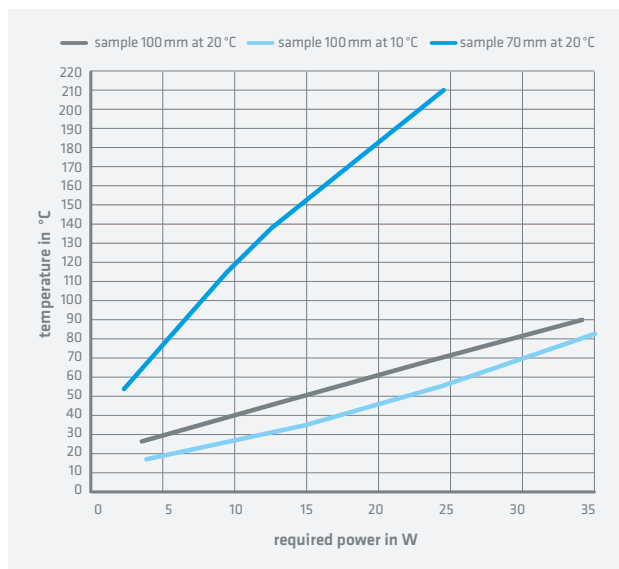
Electrically conductive coating

SUBSTRATES

- » **plastics** (polycarbonate, ethylene tetrafluoroethylene or polycarbonate films)
- » **glass** (borosilicate glass, soda-lime glass, quartz glass a.s.o.)

PROPERTIES

- » **applications for AC or DC**
- » **maximum power capacity: 290 W at 19 Ω ; R = 19 Ω ... 112 Ω**
- » **transparency > 80 %; individually coloured on request**
- » **maximum temperature load: 260 °C**
- » **combinable with antimicrobial (SANPURE®) and/or hydrophobic features**
- » **film thickness from 150 up to 1.500 nm**
- » **no change in optic and haptic quality of substrate**
- » **scratch-resistant** (scratch hardness according to DIN EN ISO 1518 up to 20 N; pencil hardness according to DIN EN ISO 15184 up to 10 H)
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NanoTechnology

Our concept
of quality



Our quality policy is characterised by a clear and distinct customer orientation and an appreciation of their specifications paired with the self-conception of our region for innovation and tradition.

Mario Unger
Quality Manager



GBn has been certified pursuant to DIN EN ISO 9000 ff. since 1997, currently according to DIN EN ISO 9001:2015. We naturally guarantee accurate process monitoring and sustainable efficiency tests for our customers and partners.

The quality manager with his special field of responsibility reports directly to the Board. Our sensitised and specially trained technical staff perform not only visual checks but also use various specific measured values from pre-treatment, production, right through to the final inspection. Our OEM products are 100 % tested according to our customers' specifications. Customer audits are common and confirm the consistency and transparency of our processes.

Trustful purchasing relationships exist with suppliers of materials (chemicals, metals, solutions, pigments). On account of the systematic assessment and monitoring of our suppliers as well as our internal quality management system, we are able to maintain a high level of consistency for our production solutions. This is a sound basis for excellent production results.

We are well aware of our responsibility to the environment. It is our concern to encourage an in-plant environmental policy, to pursue ecological goals and to establish a corresponding environmental management system in accordance with ISO 14001. This also includes our internal energy management. Numerous resources have already been saved and the environmental impact therefore reduced, for example through heat recovery.

Since some of our customers are integrated in the supply chain of the automotive industry, we also work on the basis of ISO/TS 16949. A large share of our process organisation is aligned to this.

Our goal is to meet the requirements for certification in this field as well as in environmental management.

We use state-of-the-art measurement technology to check our products' conformance to specified quality criteria, e.g.

- » various spectrometers to measure photometric values in integrating spheres
- » measuring microscopes and profile projectors to measure geometries with an accuracy of 1/100 mm
- » reflection and transmission spectrometers in the range from 200–1100 nm
- » rheometers to measure the viscosity of coating solutions
- » tensiometers for contact angle measurements in order to assess surface tensions



*We are looking forward
to your inquiry.*

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