

A large white industrial robotic arm is positioned in a factory setting, with its gripper holding a small metal cup. The background shows a blue-tinted industrial environment with various machinery and components.

**COMPETENCE ENERGIZED BY**

**LANXESS**  
Energizing Chemistry

The **Global Competence Centers**  
of LANXESS Inorganic Pigments support  
customers and end-users worldwide

**X BAYFERROX®**  
Color for Life.

**X COLORTHERM®**  
Color for Life.

**X Bayoxide®**

## Contact information

We are available for you worldwide and are happy to provide you with the names of our specialists in your area.



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LANXESS inorganic pigments provide a significant added value to our customers. With our wealth of experience and state-of-the-art industry know-how, we are able to understand our customers'



business and with Bayferrox®, Colortherm® and Bayoxide® provide them the optimal solution for their business requirements. Thereby, LANXESS customers can increase their efficiency and productivity, and are even able to develop new products and applications.

Our high quality, innovative products come with the technical service and advice of our Global Competence Centers. With them, our customers have a reliable partner that supports them in becoming increasingly successful in the future.

## ■ Jörg Hellwig

Head of LANXESS Inorganic Pigments

# GLOBAL COMPETENCE

**LANXESS Inorganic Pigments is one of the world's leading manufacturers of iron oxide and chromium oxide pigments. The products sold under the Bayferrox®, Colortherm® and Bayoxide® brands are characterized by their high and consistent level of quality. At the same time, our production standards ensure that we satisfy the highest sustainability requirements worldwide.**

However, our philosophy goes much further than that. We don't just sell pigments, we also offer solutions to technical issues and provide assistance in the event of problems.

As the technology leader in the field of synthetic iron oxide and chromium oxide pigments, LANXESS Inorganic Pigments is the only supplier with a global network of Competence Centers providing our customers with competent and active support with the use of LANXESS pigments. The service portfolio of our Global Competence Centers comprises a wide range of testing and consulting services in the construction, paints and coatings and specialties segments. As a pigments specialist and innovation driver, they enhance the efficiency of our customers worldwide.

Our specialists investigate customer queries under realistic conditions in our comprehensively equipped laboratories. They provide information on optimal pigment selection and processing in the various application systems, and in the event of problems also investigate the causes. They work closely together with our own sales force and our carefully selected, technically-adept distributors and agents to provide complete global customer support.

We use brochures, technical bulletins, direct discussions and even presentation events to share our many years of experience with our customers. LANXESS regularly conducts workshops for interested customers to resolve specific issues or to train new employees. The staff at the Global Competence Centers also monitor market trends and collaborate with Research and Marketing to develop and introduce new products. As the link between our customers and our Marketing, Research, Production and Logistics units, the staff of the Global Competence Centers contribute to the continuous improvement of LANXESS services and product quality.

## ■ Research at LANXESS

LANXESS is constantly investing in research and development in order to identify and de-

### ■ Overview of the Global Competence Centers





velop new areas of application for synthetic iron oxide and chromium oxide pigments. The Global Competence Centers collaborate closely with Research, Production and Marketing to take innovations from the concept stage through to market maturity. Our research projects are focused on innovative and high-quality products for both existing and new applications, optimizing the quality of current products, further enhancing the efficiency and sustainability of our processes and improving the further processing of our pigments.

In the pigments field, we have for example developed iron oxide granules that are easier to meter and produce less dust than pigment powders when used for the coloration of construction materials; furthermore, we offer

innovative yellow pigments which provide our customers decisive advantages for processing because they allow for lower viscosities in paints, coatings and pastes. Research is also being conducted into applications that go far beyond the pigmentary properties of iron oxides and chromium oxides. This has produced such products as adsorbers for the removal of arsenic from drinking water and iron oxides for the desulfurization of biogas. Developments for medical applications and products for batteries are other focal points of our innovation efforts. We do not rely solely on our own innovative power and expertise, however, we also collaborate with our customers, with universities, institutes and other industrial partners to bring projects to a successful conclusion.



# CONSTRUCTION

**LANXESS Inorganic Pigments is one of the largest suppliers of pigments for the construction industry. The high-tinting-strength products from the Bayferrox® and Colortherm® ranges can be used to lend an aesthetic touch to a wide variety of construction materials, including lime-sand bricks, colored sands, in-situ concrete, concrete goods and even asphalt surfacing.**

The color spectrum ranges from yellow to orange, red, brown and green to black. All LANXESS products are characterized by high quality and quality consistency in addition to simple and outstanding processability.

The Global Competence Center Construction is focused on production methods as well as the

formulation and quality assurance of colored concrete materials. It is also involved in the further development of new pigments suitable for use in construction applications. The equipment in the laboratories enables the application technicians to investigate customer queries under realistic conditions. The team also answers questions on mixing and metering technology, and can, for example, provide complete support for the installation of a pigment metering unit anywhere in the world, from unit planning to completion.

Testing and any required certification of pigment conformity with the requirements of the standards applicable to the respective area of application are also among the services provided by the Global Competence Center Construction.



Testing the conformity of pigments according to EN 12878 with respect to compressive strength and setting behavior of the colored concrete.



### Customer Service Elements

- Pigment testing according to EN 12878
- Determination of setting of pigmented cement
- Strength testing of pigmented concrete
- Color adjustment, matching and formulation
- Solutions to processing problems  
(investigation of causes in practice-relevant systems, e.g. concrete block paver manufacturer, concrete roofing tile machine, asphalt mixer)
- Determination of solar reflectance
- Support with questions regarding automatic pigment metering, e.g. consulting during the planning and installation of a metering unit

# PAINTS AND COATINGS



The high-tinting-strength products of the **Bayferrox®** and **Colortherm®** high performance ranges can be used virtually universally in the paints and coatings sector. Some of the black and yellow pigments have limited thermal stability. We therefore also offer special **Colortherm®** and **Bayferrox®** products for applications where this is an issue (e.g. coil coatings and powder coatings).

The Global Competence Center Paints is the central contact for all questions associated with Bayferrox® and Colortherm® pigments in coating applications.

The specialists at LANXESS provide tips for optimal pigment selection and help developing tailored solutions for processing in a variety of coating systems. Here, not only the pigment characteristics but also the potential mutual reaction with other formulation components are considered. The range of services also includes starting formulations for pigment mixtures to obtain specific shades (color matching).

Should processing problems occur, the experts at the Global Competence Center Paints help to investigate the causes and to present corrective solutions. The team also helps with the pigment conformity testing, e.g. in the event of color and coating-specific complaints.

Dispersion and color measurement of pigments in various systems



A person wearing a white lab coat is painting a yellow wall with a brush. The brush is loaded with yellow paint and is in the process of applying it to the wall. The background is a clear blue sky.

### Customer Service Elements

- Dispersibility testing in various coating systems
- Measurement of color values
- Measurement of viscosity according to various methods
- Determination of zeta potential
- Recording of the grading curve
- Determination of sieve residue according to DIN 53195
- Determination of the oil absorption according to DIN EN ISO 787/5
- Measurement of the specific surface area via gas adsorption according to BET
- Determination of the pH of the aqueous extract
- Measurement of the electrical conductivity of the aqueous extract

# PLASTICS

**The pigments used for coloring plastics must satisfy a number of exacting requirements. Applications range from packaging materials, tubes and connecting elements in the construction industry, cockpits and synthetic leather in the automotive industry, synthetic materials in the electronics and electrical industry, artificial turf and synthetic running surfaces on sports fields to artificial wood.**

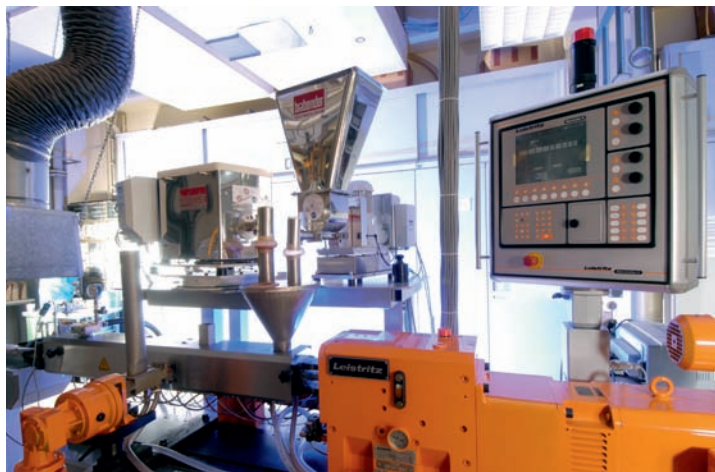
Given the short dwell times and relatively low shear forces in the processing equipment, the pigments must have good dispersibility, i.e. they must be easy to disperse to rapidly reach their final tinting strength. They must also have high thermal stability, must not migrate and their

lightfastness and weather stability should be adequate for the intended application.

With the Colortherm® brand, LANXESS has for decades offered a range of products developed specifically for the plastics industry that satisfies these demands.

The Global Competence Center Plastics supports our customers with the development of formulations and the resolution of specific issues.

The laboratory is very well equipped with single and twin-screw extruders, injection molding machines, rollers and a blown film machine as well as a hot press, allowing the behavior of pigments in plastics to be investigated under realistic conditions.



Testing of pigments in a blown film machine; production of test masterbatches at LANXESS

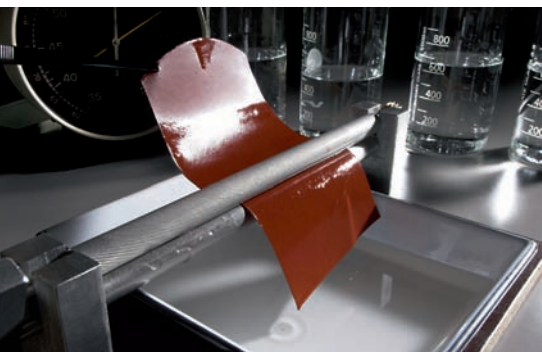
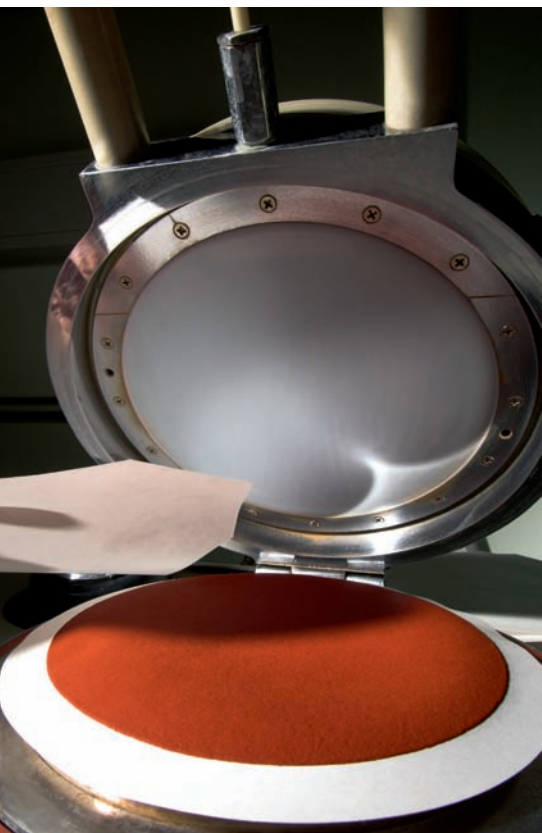




### **Customer Service Elements**

- Coloristics in plastics
  - in flexible PVC
  - in extruded thermoplastics
  - in PVC paste
- Measurement of thermal stability
  - injection molding
  - kneader test
  - heating cabinet
- Dispersibility testing
  - pressure filter test
  - calender test in flexible PVC
  - blown film test
  - extruder test
- Light and weather stability testing

## PAPER



Production and impregnation of laminate papers.

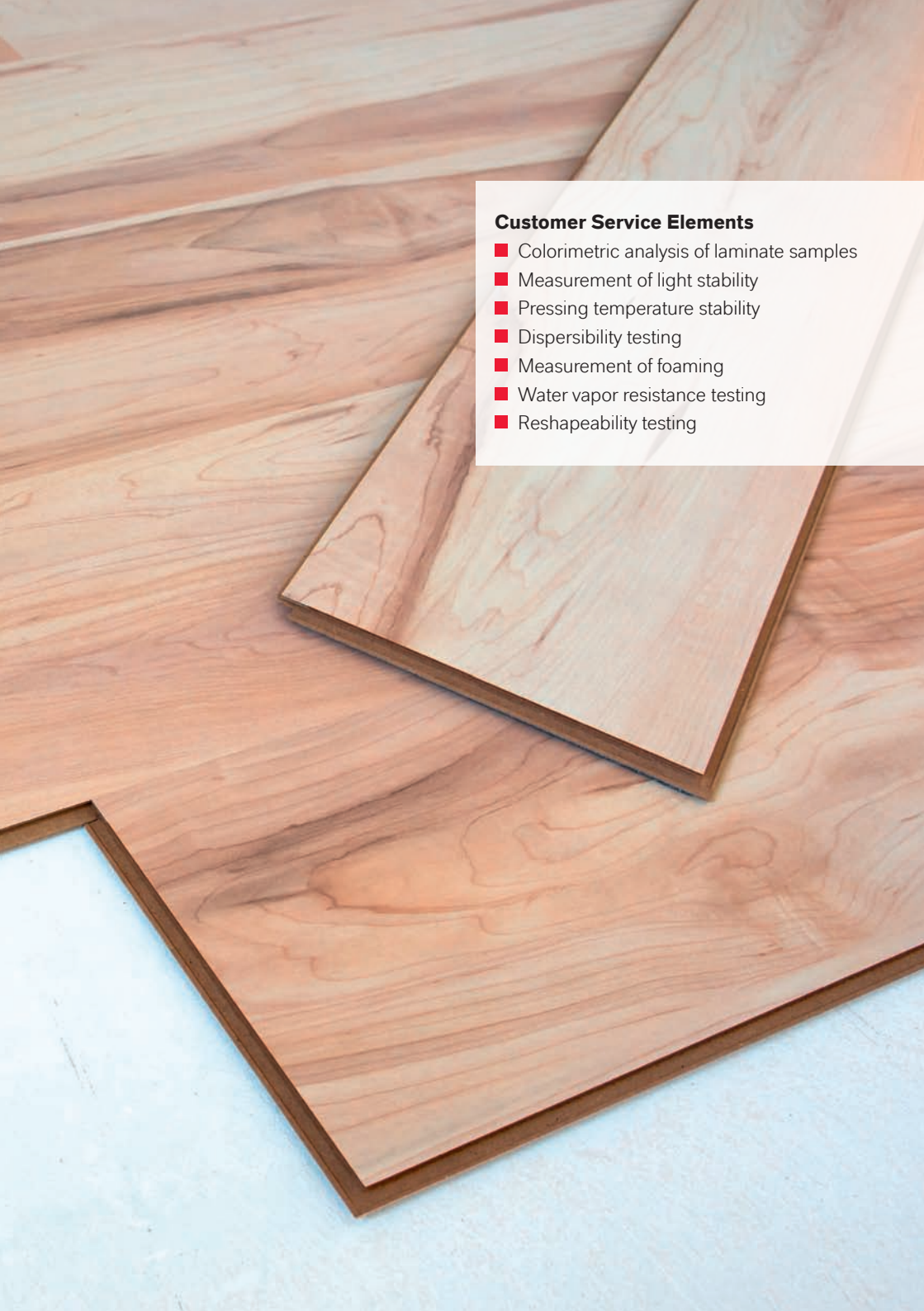
**Bayferrox® pigments from LANXESS have long been the benchmark in the paper industry for high quality.**

Products for the paper industry are marked with the 'Tested paper quality' seal.

The staff at the Global Competence Center Paper monitor market trends and are in close contact with our customers. They analyze their needs and requirements, and provide the impetus for the development of new products. The Global Competence Center Paper is realistically equipped for the production of colored papers and laminate samples, which are subjected to a comprehensive series of tests following preparation. It provides support with the development of formulations and color matching, the resolution of metering and bulk handling issues, analytical questions and customer-specific problems.

The analysis of pigment properties in laminate begins with the preparation of a test paper, which is then impregnated and pressed. The pressed decorative layer produced then undergoes the required tests.



The background of the image shows several pieces of light-colored wood-grain laminate flooring. One piece is in the foreground, partially cut off on the left. Another piece is in the middle ground, and a third is in the background. The wood grain is a mix of light tan and brown tones. A white rectangular box with a thin grey border is positioned in the upper right area of the image, containing text.

### **Customer Service Elements**

- Colorimetric analysis of laminate samples
- Measurement of light stability
- Pressing temperature stability
- Dispersibility testing
- Measurement of foaming
- Water vapor resistance testing
- Reshapeability testing

# TECHNICAL OXIDES

**For technical applications, LANXESS offers the comprehensive Bayoxide® E and Bayoxide® C range of pigments that have been developed for very diverse markets, industries and requirements.**

With these products, color plays a subordinate role to chemico-physical properties such as purity, hardness, reactivity or magnetism.

Our technical oxides are used in a number of diverse applications including toners for laser printers and copiers, in water treatment and biogas desulfurization, in batteries, brake pads and air bags as well as in refractory products and ceramic pigments.

The Global Competence Center Specialties supports our customers with the optimization of their technical oxides and the resolution of spe-

cific issues. The Center works with LANXESS Research to develop tailored oxides satisfying the specific needs of individual customers, and new areas of application are developed in close collaboration with partner companies.

Each year, we develop solutions together with our partners worldwide in which our pigments help users to develop their products optimally for their end markets. This would not be possible without a network of experts at LANXESS that understand and speak the customer's language.

Besides technical markets, staff at the Global Competence Center Specialties support areas of application for color pigments with special requirements, such as decorative cosmetics, the production of colored mulch and the coloration of fertilizers.



Testing of Bayoxide® adsorbers for water purification





### Customer Service Elements

- Testing of physical and chemical properties of pigments and oxides
- Characterization and analysis of toners
- Evaluation of adsorber media for water purification
- Formulation recommendations
- Metering recommendations for desulfurization products
- Color matching for specialty applications
- Development of solutions to processing problems
- Field tests

Health and Safety Information: Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the LANXESS products mentioned in this publication. For materials mentioned which are not LANXESS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets, product information and product labels. Consult your LANXESS representative in Germany or contact the Regulatory Affairs and Product Safety Department of LANXESS Germany or – for business in the USA – the LANXESS Product Safety and Regulatory Affairs Department in Pittsburgh, Pennsylvania.

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