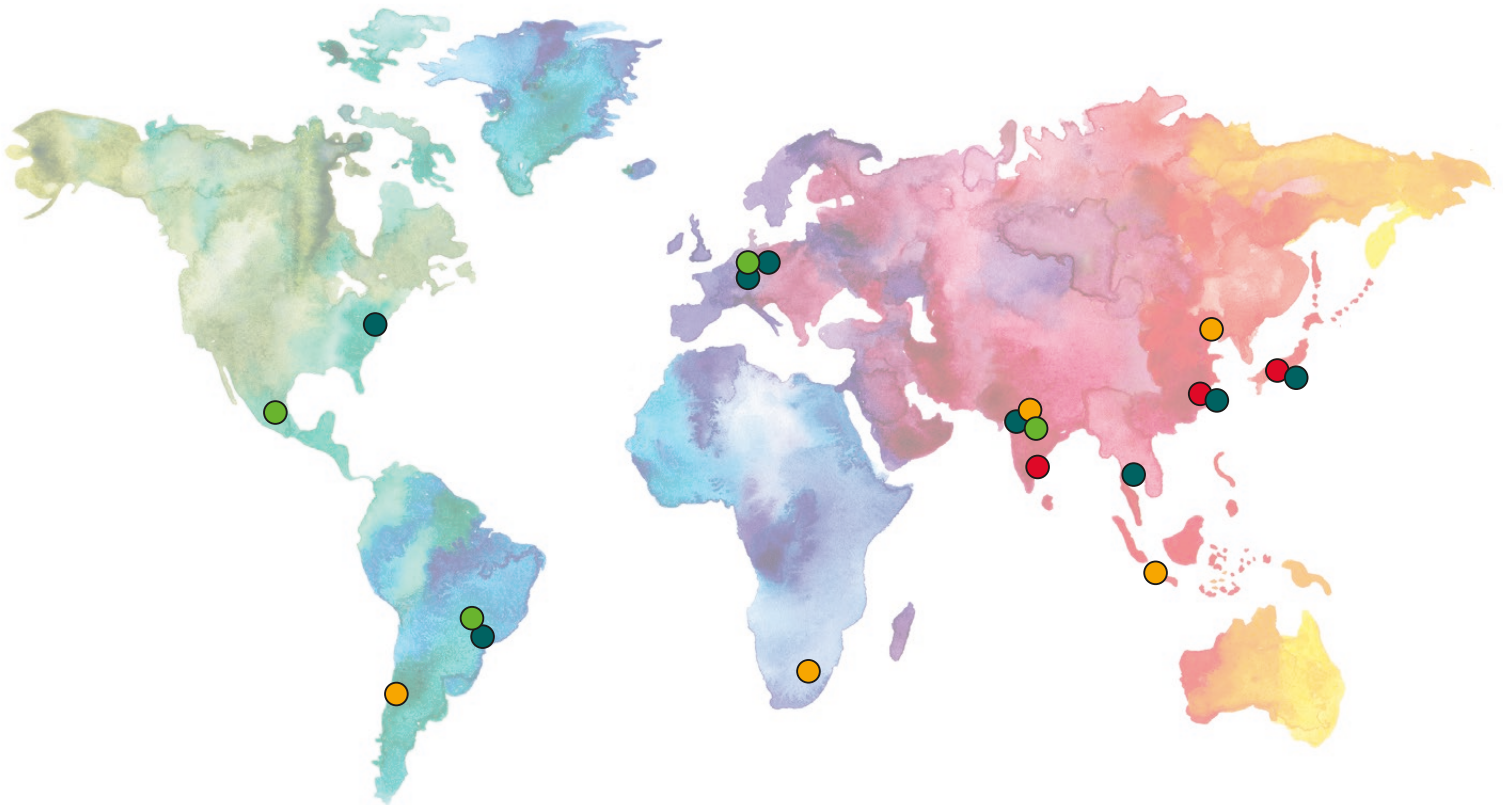


**GLOBAL COATINGS
AUTOMOTIVE,
DECORATIVE AND
INDUSTRIAL COATINGS**

LET HEUBACH SUPPORT YOUR GLOBALIZATION FROM PIGMENTS TO DISPERSIONS

As a leading global manufacturer of organic pigments, Heubach is uniquely positioned to provide a full range of colorant solutions for the coatings industry. With over 140 years of inherited market knowledge and extensive research and development expertise, our team of pigment experts around the world sets the industry standards, provides practical solutions, and delivers innovative products to accelerate your projects and future growth.

Our reputation for quality and commitment to innovation in all the pigments, dispersions and dyes we manufacture is unparalleled in the coatings industry. Heubach can deliver impactful solutions, no matter the scale of your project or business, and quickly turn your innovations into reality, positively impacting your people, your profitability, and our planet. From pigments to dispersions, color is our chemistry.



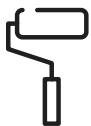
- *Pigments production plant*
- *Pigment dispersions production plant*
- *Pigments and pigment dispersions production plant*
- *Heubach key offices (sales, labs, etc.)*

OUR STRENGTHS – YOUR BENEFITS



BROAD & DIVERSIFIED PORTFOLIO

Heubach is a leading global manufacturer of organic pigments and dispersions offering a complete range for use in any type of coatings applications or technologies, from general purpose to high performance grades.



APPLICATION & FORMULATION EXPERTISE

An experienced team of chemists and technicians around the world are supported by our Global Innovation Center in Frankfurt, Germany to assist our customers around the globe.



GLOBAL PRODUCTION & HIGH QUALITY

An aligned footprint of 14 production sites to meet global product specifications and consistently deliver lot-to-lot quality, where you need us, across the globe.



INTEGRATED GLOBAL SUPPLY CHAIN

Global and regional customers benefit from a strong local site infrastructure, high service level in logistics, and a well-established distribution network.



SUSTAINABILITY AT HEUBACH

Heubach is a member of the Dow Jones Sustainability Index and actively participates in voluntary initiatives such as Global Compact and Responsible Care.



ENVIRONMENTALLY FOCUSED PRODUCT OFFERINGS

Heubach delivers on sustainability at the product level. A multitude of our pigments and dispersions offer benefits such as renewable content, low VOC, hazard free labeling, and ecolabel compliance.



GLOBAL ORGANIZATION, DEDICATED TO REGIONAL SERVICE

Through a dedicated sales force in all regions from Asia-Pacific to Europe, Middle East, Africa, Latin and North America, we are close to our customers wherever they are.



PRODUCT SAFETY & REGULATORY AFFAIRS

Expert teams in all regions of the world provide regulatory and labeling support to our customers.

LET HEUBACH SIMPLIFY
YOUR DEVELOPMENT
FROM PIGMENTS TO DISPERSIONS



Our broad portfolio, from high performance to economical organic pigments, meets the exacting demands of the Automotive, Decorative, and Industrial Coatings Industries. As a reliable partner, we have established a flexible worldwide production network that is actively committed to environmental protection and safety in all activities.

HOSTAPERM®

Hostaperm grade organic pigments represent the highest possible light and weathering fastness properties offered by Heubach and include the following chemistries: Benzimidazolone, Quinoxalinedione, Quinacridone, Perinone, Anthanthrone, Perylene, Phthalocyanine, Carbazole, and DPP. They are suitable for use in Automotive, Industrial, and Decorative paints.

NOVOPERM®

Novoperm pigment types offer good to excellent weather fastness, good solvent fastness and high heat resistance. They are widely used to replace both lead or other heavy metal based inorganic pigments and are suitable - depending on the grade - for use in the paint industry when the pigments have to meet special requirements.

PERMANENT

Permanent pigments are suitable for lower end coatings and are generally good for baking systems. They exhibit relatively good fastness to solvents and over painting. However, opacity, rheological properties, and weather fastness are relatively lower. Because of their high tinctorial strength, good gloss and largely good light fastness Permanent pigments are typically used in industrial and decorative paint systems. Opaque grades (70 types) show improved weathering in deeper shades.

HANSA® AND DALAMAR®

Hansa and Dalamar types have good to very good weather fastness and when compared to other chemistries are relatively lower in cost. These pigments demonstrate good rheological properties but fastness to over-painting and non-aliphatic solvents is limited. In addition, they bloom heavily in baking systems and have poor heat stability.

LET HEUBACH EMPOWER
YOUR COLOR PALETTE
FROM PIGMENTS TO DISPERSIONS



Heubach's expansive organic pigment and dispersion portfolio offers manufacturers a complete range of solutions for all types of interior or exterior architectural coatings, from general purpose to high performance grades. Our next generation pigments for water- and solvent-based applications are easily dispersible, do not require milling, and offer an economical alternative to in-house manufacturing of colorants. Our low VOC pigment dispersions improve operational efficiencies and capacity utilization while at the same time reducing the overall cost of pigment usage for Point of Sale and in-plant applications.



Dispersions

COLANYL® 500

Colanyl 500 is an APEO-free range of aqueous, binder-free pigment dispersions that are compatible with water-based and low VOC decorative paint systems. The rheological profile allows excellent accuracy and reliability when dosing in automatic and manual dispensers as well as easy incorporation into base paints. Furthermore, processing of Colanyl 500 dispersions is facilitated by their excellent stability to settling and skinning.



HOSTATINT® 500

Hostatint 500 is a range of aqueous, binder-free pigment dispersions that is manufactured without APEO additives and is designed for tinting systems. These multi-purpose dispersions are compatible with water-based and solvent-borne systems. The product line consists of all 12 A through L colorants plus high durability exterior and high opacity options. Hostatint 500 dispersions allow exact dosing in automatic and manual dispensers as well as easy incorporation into base paints.



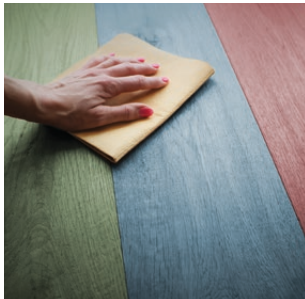
HOSTATINT™ AU

Hostatint AU is a range of universal high-performance aqueous pigment dispersions designed to meet industry color standards and can be easily calibrated to your current color portfolio. With additional improvements for increased opacity, higher durability, and better fade resistance, the Hostatint AU range also includes ten highly durable exterior pigments engineered to maximize performance in exterior applications, resulting in superior light- and weather-fastness properties.

LET HEUBACH INSPIRE
YOUR FORMULATION
FROM PIGMENTS TO DISPERSIONS



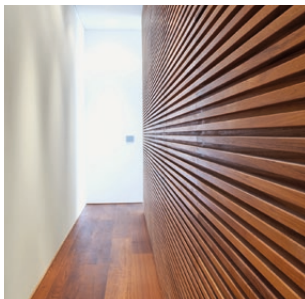
Heubach's broad range of innovative solutions enables our customers to protect wood and enhance its natural beauty. We assist our customers in the production of decorative stains and wood coatings ranging from traditional solvent-borne wood stains and clear wood finishes to environmentally conscious systems like water-based, water-miscible and UV-curable wood coatings.



Dispersions

HOSTAFINE®

Hostafine pigment dispersions are designed for the newest generation of transparent water-based wood stains and glazes. The complete range of organic and inorganic aqueous binder-free pigment dispersions are based on APEO-free non-ionic wetting agents. The ultra-fine dispersed pigments exhibit high tinting strength and brilliance with outstanding transparency and superior fastness properties as compared to dyes. The Hostafine range includes 15 low viscosity pigment dispersions that can be blended for striking as well as traditional wood shades.



Dispersions for 100 % UV coatings

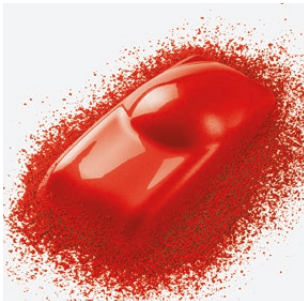
HOSTATINT™ UV 100

- Simplify your process – liquid pigment preparations as easy to use alternative to own dispersing
- Excellent pigment-wetting by using polymeric binder (polyether-acrylate) leading to
 - Highly stable dispersions
 - High pigment loading and good rheological profile
 - Low amount of dispersing agents
 - Wide range of compatibility (polyether-, epoxy-, polyurethane- and polyester-acrylate)
- State-of-the-art oligomeric reactive diluent
 - Provides medium reactivity and supports good flow properties
 - Usable in formulations fulfilling strict surface requirements, e. g. of furniture coatings
- Tight coloristic specification
 - Gravimetric tinting strength $\pm 5\%$
 - dH ± 0.5
 - dC ± 0.8
- Shelf life: 24 months

LET HEUBACH DRIVE
YOUR STYLE
FROM PIGMENTS TO DISPERSIONS



Heubach delivers color solutions to surpass not only our customers' exacting color requirements but also the demanding performance and durability expected in a multitude of applications of automotive OEM and refinish coatings.



Innovation

HOSTATINT™ A 100-ST

Metallic and mineral effect shades are popular for industrial applications. Our super-transparent Hostatint A 100-ST pigment dispersions enhance such effects with color intensity similar to that of dyes while having very high light and weather fastness with no migration or bleeding. The Hostatint A 100-ST range contains no halogens (chlorine or bromine) in their molecular formula, and are based on a widely compatible aldehyde resin and a solvent with a flash point above 100 °C, resulting in safer transportation, storage and handling.



AUTOMOTIVE TRENDBOOK

Heubach's biennial global Automotive Trendbook presents the colors and styles that will play a role in the future of the automotive industry. The collection of automotive styling shades is based on Heubach's in depth color knowledge of the industry and observations of social trends, topics and industry developments. The Trendbook includes analysis of color popularity and offers innovative solutions based on the rich history of organic pigments. Heubach is one of the only pigment producers worldwide leading the way in color trend forecasting for the automotive industry.

LET HEUBACH NAVIGATE
YOUR INNOVATION
FROM PIGMENTS TO DISPERSIONS



Heubach offers a complete range of organic pigments and dispersions for use in all types of Industrial Coatings applications, from general purpose to high performance. The established 70 grade pigments represent the industry standard for lead-free formulations and are characterized by high opacity and excellent rheology.



Dispersions

HOSTATINT™ A 100

The Hostatint A 100 pigment dispersions are based on an aldehyde carrier resin which was developed especially for industrial paint applications. The dispersions are produced to narrow tolerances of shade and color strength allowing highly consistent paint production for both manual and automatic dispensing. The solvent and additives employed were specifically chosen to avoid hazardous labeling or special storage conditions associated with flammability. All Hostatint A 100 products show good compatibility and can be added to many types of solvent-based paint systems.



Dispersions

HOSTATINT™ SI

Hostatint SI, a new generation of pigment dispersions for solvent-based systems, is formulated for unparalleled compatibility, best-in-class rheology, and is coloristically matched to meet industry standards. Compatibility is one of the key advantages of the Hostatint SI range. All Hostatint SI colorants are drop-in ready for minimal calibration of your current portfolio. The broad range of base chemistries supported, ensures any variability or variety of customer tint bases has been considered in the engineering of the Hostatint SI platform of colorants. All Hostatint SI colorants can help optimize costs in manufacturing and maximize color performance in the most demanding industrial coating applications.

TINTING SOLUTIONS FOR SUSTAINABLE EXTERIOR COATINGS IR-REFLECTING PIGMENT DISPERSIONS



Dark surfaces absorb more sunlight than light surfaces and thus build up heat quickly. The concept behind Heubach's modern IR reflective pigments is to maximize the solar reflectivity of a coated surface and to minimize heat and its negative effects on the substrate.

IR-reflectance is achieved by the physical backscattering of radiation through the pigment particles. Solar radiation comprises not only the visible spectrum of wavelength range (400 to 700 nm), but also the ultraviolet UV (<400 nm) and near infrared NIR (700 to 2500 nm). NIR dominates the overall irradiated solar energy by more than 50 percent. This property can be defined as Total Solar Reflectance (TSR) in 250 nm–2500 nm.

The majority of inorganic pigments have intrinsic properties which contribute to IR-reflectance. Therefore, it is important to choose pigments with a higher TSR value to optimize heat reflection performance.

The most significant results can be achieved by replacing iron oxide black or carbon black with optimized IR-reflecting Pigment Green 17, which coloristically behaves like a traditional black. Heubach makes this available as a ready to use aqueous pigment dispersion, known as Colanyl Oxide Black IR 500.

Heubach has expanded on the IR-reflecting benefits of Colanyl Oxide Black IR 500 by providing a full range of 13 additional dispersions suitable for exterior façade coatings.

SAFETY, DURABILITY AND INNOVATION ROAD MARKING APPLICATIONS



While traditional lane markings, safety markings or direction indicators are typically yellow or white, more colors are now being used to mark privileged areas, such as bicycle lanes, walkways or parking spaces.

The key requirements for road markings have always included high reflectivity, weather fastness, skid resistance, hiding power, and low installation cost. But as more cities become “smarter”, so then must the traffic; road markings must therefore be recognizable by the various vehicle sensor and detection systems to ensure safe and efficient traffic flow. Information, such as location and speed limits, can be painted directly onto the road, making intra-city navigation much more accurate than a GPS-based navigation system.

Road marking systems are based on paints (solvent, water), thermosets (2C epoxy and polyester systems), thermoplastics (hydrocarbons, and alkyds) and cold plastic like methyl meth-acrylate (MMA). Road marking paints are composed of finely ground pigments blended in the binder system. Further components added in the paint manufacturing process increase storage stability, enhance ease of application and improve the final

weather fastness of the paint. Most organic pigments can be used in both, solvent and water-borne traffic paints where they meet current requirements in terms of costs and durability. The challenge is to use the right organic pigment to reach the optimum in coloristic, stability in high-temperature applications and fastness under outdoor weathering conditions.

Heubach offers a wide range of lead-free powder pigments and pigment dispersions for all types of road marking systems. Our next generation pigments are optimum solutions for cold plastic (MMA) and solvent-based traffic paints. Colanyl® 100 and 500 grades are commonly used for road marking paints and are based on extended ranges of organic and inorganic pigments.

Federal standards and RAL shades can be readily matched with these products for improved day and night time properties and durability.

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