

INORGANIC PIGMENTS



HEUCODUR® & VANADUR™

Color solutions for the most demanding applications



As the quality and performance of industrial products continue to improve, so do the demands on their appearance and durability. Therefore, there is a steadily increasing requirement for more durable pigments to color products such as paints, plastics, building materials and ceramics. As a consequence, the complex inorganic color pigments are of increasing importance to formulators. They need to satisfy the highest demands for heat stability and chemical inertness as well as weather- and light fastness, while taking account of the ecological aspects of the end product. To date, complex inorganic color pigments are the most stable class of pigments developed by the color industry.

HEUCODUR® pigments belong to this class. Their unique fastness properties are directly related to high-temperature processing (above 800 °C / 1500 °F), which yields homogeneous crystalline complex inorganic color pigment compounds. This high-temperature-process demands a very precise control over the chemical and technical parameters, which has been made possible by the most up to date state of the art facilities for the production of HEUCODUR® pigments. The result is a very accurate control over particle morphology and particle size distribution, thereby explaining the improved high color strength and hiding power of HEUCODUR® as well as the enhanced dispersion obtainable with these pigments in various formulated systems.

Applications

- › Coil coatings, powder coatings, industrial coatings, architectural coatings etc.
- › Plastics (PE, PP, PVC etc.) for masterbatch, building products, etc.
- › Engineering plastics (ABS, PC etc.) for e.g. automotive applications
- › Fiber and thin film plastic applications
- › Exterior building products, e.g. cement, concrete, roofing granules etc.
- › Ceramic applications

HEUCODUR® Nickel Rutile Pigments

HEUCODUR® - Nickel Rutile Pigments

The structure of rutile yellow is based on the rutile crystal modification of titanium dioxide. These types of pigments offer outstanding hiding power, light fastness and resistance to temperature, chemicals (including acid and alkali) and weathering. Detailed know-how and process control of each of the manufacturing steps is needed to achieve optimised pigment performance. For rutile yellows, different colors can be obtained by variation of the calcination temperature. A higher calcination temperature results in darker grades with higher chroma. With regard to opacity, optimum performance is found for medium shades.

Name	Mass Tone	Tint (1:1)	Pigment	Color Index	Av. Primary Particle Size [µm] ¹⁾	Oil Absorption [ml/100g] ²⁾	Heat Resistance [°C] ³⁾
HEUCODUR® Yellow 7G			(Ni,Sb,Ti)O ₂	P.Y. 53	0,1 - 0,2	17	< 700
HEUCODUR® Yellow 152			(Ni,Sb,Ti)O ₂	P.Y. 53	0,1	17	800
HEUCODUR® Yellow 8G			(Ni,Sb,Ti)O ₂	P.Y. 53	0,2 - 0,3	16	< 800
HEUCODUR® Yellow 156			(Ni,Sb,Ti)O ₂	P.Y. 53	0,2	16	800
HEUCODUR® Yellow G 9082			(Ni,Sb,Ti)O ₂	P.Y. 53	0,2	15	800
HEUCODUR® Yellow G 9116			(Ni,Cr,Sb,Ti)O ₂	P.Y. 53	0,1	17	800

HEUCODUR® PLUS

The latest titanium yellow development based on an innovative and proprietary technology, which leads to improved gloss, opacity and cleanness. The abrasiveness is reduced by a factor of four if compared to conventional nickel titanium yellows. HEUCODUR® PLUS combines traditional fastness properties with the opportunity to replace titanium dioxide in various color formulations. HEUCODUR® PLUS increases the color saturation and protects the sensitive organic pigments in order to extend the life cycle of coatings and plastic products.

Name	Mass Tone	Tint (1:1)	Pigment	Color Index	Av. Primary Particle Size [µm] ¹⁾	Oil Absorption [ml/100g] ²⁾	Heat Resistance [°C] ³⁾
HEUCODUR® PLUS Yellow 150			(Ni,Sb,Ti)O ₂	P.Y. 53	0,1	16	800
HEUCODUR® PLUS Yellow 154			(Ni,Sb,Ti)O ₂	P.Y. 53	0,2	17	800



HEUCODUR® - Chromium Rutile Pigments

Nickel and chrome rutiles are available in a large variety of color shades and can be custom formulated to meet specific applications and requirements.

Excellent dispersibility and less shear sensitive colors are offered with the HEUCODUR® chromium and nickel rutile line.

Name	Mass Tone	Tint (1:1)	Pigment	Color Index	Av. Primary Particle Size [µm] ¹⁾	Oil Absorption [ml/100g] ²⁾	Heat Resistance [°C] ³⁾
HEUCODUR® Yellow 3R			(Cr,Sb,Ti)O ₂	P.Br. 24	0,1 - 0,2	20	< 600
HEUCODUR® Yellow 252			(Cr,Sb,Ti)O ₂	P.Br. 24	0,1	19	800
HEUCODUR® Yellow G 9239			(Cr,Sb,Ti)O ₂	P.Br. 24	0,1	19	800
HEUCODUR® Yellow 5R			(Cr,Sb,Ti)O ₂	P.Br. 24	0,2 - 0,3	17	< 800
HEUCODUR® Yellow 255			(Cr,Sb,Ti)O ₂	P.Br. 24	0,2	18	800
HEUCODUR® Yellow 256			(Cr,Sb,Ti)O ₂	P.Br. 24	0,3	17	800
HEUCODUR® Yellow 6R			(Cr,Sb,Ti)O ₂	P.Br. 24	0,3	17	< 800
HEUCODUR® Yellow 259			(Cr,Sb,Ti)O ₂	P.Br. 24	0,4	16	800
HEUCODUR® Yellow G 9202			(Cr,Sb,Ti)O ₂	P.Br. 24	0,4	16	800
HEUCODUR® Yellow 265			(Cr,Sb,Ti)O ₂	P.Br. 24	0,4	16	800

HEUCODUR® (Inverse) Spinel Pigments

HEUCODUR® - (Inverse) Spinel Pigments

Cobalt blue pigments are generated in the typical spinel crystal modification. The color shades range from a red shade blue (HD 550 and 552) to a green shade blue (HD 559 and HD 4G) by increasing the trivalent chromium content in the crystal structure. The hiding power increases correspondingly with increased chromium content as seen in HD 5-100 and HD 559.

HEUCODUR® Blue 550 is a high strength P.Bl. 28 with a strong red shade hue.

Cobalt titanium green pigments have a structure typical of an inverse spinel. Cobalt blue and green pigments prevent warpage in polyolefins.



Name	Mass Tone	Tint (1:1)	Pigment	Color Index	Av. Primary Particle Size [μm] ¹⁾	Oil Absorption [ml/100g] ²⁾	Heat Resistance [$^{\circ}\text{C}$] ³⁾
HEUCODUR® Blue 550			CoAl_2O_4	P.Bl. 28	0,2	30	800
HEUCODUR® Blue 551			CoAl_2O_4	P.Bl. 28	0,7	27	800
HEUCODUR® Blue 552			CoAl_2O_4	P.Bl. 28	0,1	29	800
HEUCODUR® Blue 2R			CoAl_2O_4	P.Bl. 28	0,2	30	< 600
HEUCODUR® Blue 545			$\text{Co(Al,Cr)}_2\text{O}_4$	P.Bl. 36	0,2 - 0,3	17	< 800
HEUCODUR® Blue 5-100			$\text{Co(Al,Cr)}_2\text{O}_4$	P.Bl. 36	0,2 - 0,3	17	< 800
HEUCODUR® Blue 4G			$\text{Co(Al,Cr)}_2\text{O}_4$	P.Bl. 36	0,2 - 0,3	15	< 800
HEUCODUR® Blue 559			$\text{Co(Al,Cr)}_2\text{O}_4$	P.Bl. 36	0,2	14	800
HEUCODUR® Green 5G			$(\text{Co,Ni,Zn})_2(\text{Ti,Al})\text{O}_4$	P.G. 50	0,4 - 0,5	17	< 800
HEUCODUR® Green 654			$(\text{Co,Ni,Zn})_2(\text{Ti,Al})\text{O}_4$	P.G. 50	0,4	18	800

HEUCODUR® - Browns & Blacks

Iron chromite brown pigments produce colors from a warm chocolate brown as seen in HD 855 to a dark, blue shade brown seen in HD 869.

The black pigments here fall into two distinct classes. HD 920 and HD 940 are spinels that absorb in the visible region, but reflect at wavelengths in the near infrared. The acid soluble iron content is kept low. These pigments are used to prevent heat build-up that may be caused by sun light or IR radiation. HD 953-1, HD 9-100 and HD 955 are black pigments based on copper and cobalt, respectively and absorb in the IR region.

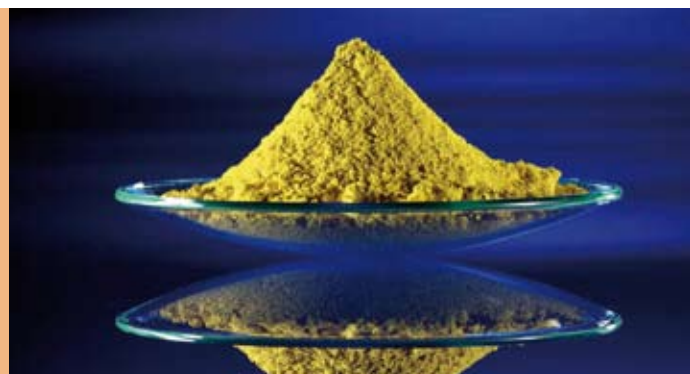


Name	Mass Tone	Tint (1:1)	Pigment	Color Index	Av. Primary Particle Size [μm] ¹⁾	Oil Absorption [ml/100g] ²⁾	Heat Resistance [°C] ³⁾
HEUCODUR® Brown 855			(Fe,Cr)O ₃	P.Br. 29	0,3 x 0,1	25	600
HEUCODUR® Brown 869			(Fe,Cr)O ₃	P.Br. 29	0,2	25	700
HEUCODUR® Black 920			Fe(Fe,Cr) ₂ O ₄	P.Br. 35	0,2	20	800
HEUCODUR® Black 940			Fe(Fe,Cr) ₂ O ₄	P.Br. 35	0,4	22	800
HEUCODUR® Black 953-1			Cu(Cr,Fe) ₂ O ₄	P.Bk. 28	0,3	16	800
HEUCODUR® Black 963			CuCr ₂ O ₄	P.Bk. 28	0,5 - 0,6	18	< 800
HEUCODUR® Black 9-100			Cu(Cr,Fe) ₂ O ₄	P.Bk. 28	0,5 - 0,6	17	< 800
HEUCODUR® Black 955			Co(Cr,Fe) ₂ O ₄	P.Bk. 27	0,5	18	800

VANADUR™

VANADUR™ 1010 is a green shade bismuth vanadate pigment (P.Y. 184) with outstanding application properties like improved opacity, high gloss, excellent weather and light fastness and good tinting strength.

VANADUR™ 1010 leads to easier dispersibility and improved tinting strength in solvent borne and waterborne systems as well as aqueous dispersions.



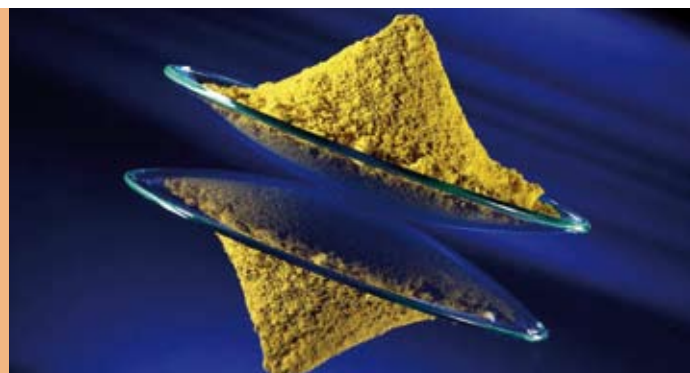
Name	Mass Tone	Tint (1:1)	Color Index	Av. Primary Particle Size [μm] ¹⁾	Oil Absorption [ml/100g] ²⁾	Heat Resistance [$^{\circ}\text{C}$] ⁴⁾	Alkali Resistance ⁶⁾
VANADUR™ 1010			P.Y. 184	0,4	24	< 200	5

VANADUR™ PLUS

VANADUR™ PLUS 9010 & VANADUR™ PLUS 9060 are two Silica encapsulated green & red shade bismuth vanadate pigments.

For some application stability properties of bismuth vanadate regarding heat, SO₂ or alkali resistance are not sufficient. Especially plastic applications require a stable color shade even at very high temperatures.

To fulfill these requirements Heubach developed highly stabilized bismuth vanadate pigments. Due to the encapsulation, these pigments show improved application properties like extreme heat resistance and improved acid, alkali and SO₂ resistance.



Name	Mass Tone	Tint (1:1)	Color Index	Av. Primary Particle Size [μm] ¹⁾	Oil Absorption [ml/100g] ²⁾	Heat Res. in HDPE (5 min) [$^{\circ}\text{C}$] ⁵⁾	Alkali Resistance ⁶⁾
VANADUR™ PLUS 9010			P.Y. 184	0,2	40	300	5
VANADUR™ PLUS 9060			P.Y. 184	0,2	40	260	5

¹⁾ according to ISO 13320-1

²⁾ according to DIN EN ISO 787/5

³⁾ AA10/CIC/104

⁴⁾ Pigments were tested in an alkyd / melamine system with 30 minutes baking time. Temperature range 140 $^{\circ}\text{C}$ to 200 $^{\circ}\text{C}$.

⁵⁾ AA10/ATA/A353

⁶⁾ Pigments were stirred 24h in hydroxide solution at room temperature

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Our product specific and application information are based upon our current knowledge. They are non-binding and cannot be taken as a guarantee. The processing company must establish the suitability of individual products itself. As their use lies beyond our knowledge and control, we cannot accept any liability relating to the use of our products in particular applications. In addition to that, the legal rights of third parties must always be considered. The specification agreed between the customer and ourselves is the basis upon which our general sales and delivery conditions are set and is the deciding factor concerning any liabilities. Our standard specification is then valid if no specification has been agreed upon between the customer and ourselves.

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