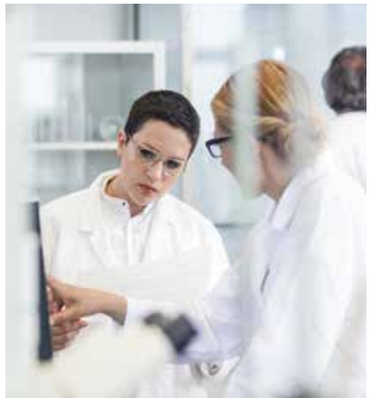
Color your Coatings

MONOLITE™ /MONASTRAL™ & HEUCODUR® & VANADUR® & TICO® & HEUCO® FIT LR

heubach

COMPETENCE IN COLOR



Pigments and Pigment preparations for every application

Paints and coatings decorate and protect the objects they cover. With industrial applications as varied as aerospace, automotive, coil, architectural and refinishing, paint formulations need to meet any number of technical criteria, including ease of application, opacity and durability to name but a few. Heubach offers a wide range of pigments and pigment preparations, both organic and inorganic, to meet these demands and more.

Organic Pigments for Coatings

The **MONOLITE™ / MONASTRAL™** portfolio comprises a wide range of organic pigments for coating systems including OEM, Refinish and high-end industrial applications.

Excellent overpainting as well as solvent, weather and light fastness make the high-performance grades such as Pigment Blue 60, Pigment Green 36, Pigment Red 168, Pigment Red 254 and 264 suitable for even the most critical coating systems.

The organic grades with medium levels of fastness are ideally suited for standard formulations. For example, they can be used in combination with the **HEUCODUR® Yellow** pigments as lead chromate replacements yielding outstanding hiding power, gloss and chroma.

Product Name / Color Index	Technical Information			Application Fields					Full Shade	Reduction 1:25 TiO_2
	Specific Surface [m²/g] (DIN 66132)	Fastness to Overpainting	Heat Resistance [°C]	Automotive Coatings	General Industrial Coatings	Decorative Coatings	Coil Coatings	Powder Coatings		
MONOLITE™ Yellow 115101 Pigment Yellow 151	16	5 [1]	170 [3]	●●	●●	●●				
MONOLITE™ Yellow 107407 NEW Pigment Yellow 74	14	4 [2]	140 [4]		●●	●●				
MONOLITE™ Yellow 107408 NEW Pigment Yellow 74	25	3 - 4 [2]	140 [4]		●●	●●				
MONOLITE™ Yellow 115401 Pigment Yellow 154	11	4 - 5 [1]	160 [3]	●●	●●	●●		●		
MONOLITE™ Yellow 108304 [5] Pigment Yellow 83	20	5 [2]	150 [4]		●●	●●				
MONOLITE™ Yellow 113901 Pigment Yellow 139	19	5 [1]	180 [3]	●●	●●	●●	●●	●●		
MONOLITE™ Orange 200504 Pigment Orange 5	11	3 - 4 [2]	160 [4]		●●	●●				
MONOLITE™ Red 316802 NEW Pigment Red 168	26	4 - 5 [1]	180 [3]	●●	●●	●●				
MONOLITE™ Red 325401 Pigment Red 254	23	5 [1]	200 [3]		●●	●●	●	●		
MONOLITE™ Red 325402 Pigment Red 254	19	5 [1]	200 [3]	●●	●●	●	●●	●		
MONOLITE™ Red 326401 Pigment Red 264	80	5 [1]	200 [3]	●●	●●		●●			
MONOLITE™ Red 312202 Pigment Red 122	66	5 [1]	180 [3]	●●	●●	●●	●●	●		
MONOLITE™ Red 301901 Pigment Violet 19	74	5 [1]	200 [3]	●●	●●	●●	●●			
MONOLITE™ Blue CSN-N Pigment Blue 15:1	65	5 [1]	190 [3]	●●	●●	●●				
MONOLITE™ Blue 515100 NEW Pigment Blue 15:1	62	5 [1]	200 [3]	●●	●●	●●	●			
MONOLITE™ Blue 515102 NEW Pigment Blue 15:1	65	5 [1]	190 [3]		●●	●●				
MONOLITE™ Blue 515303 Pigment Blue 15:3	54	5 [1]	180 [3]	●●	●●	●●	●	●		
MONOLITE™ Blue 515400 Pigment Blue 15:4	40	5 [1]	180 [3]		●●		●●			
MONOLITE™ Blue 515402 NEW Pigment Blue 15:4	50	5 [1]	190 [3]		●●	●	●●	●		
MONOLITE™ Blue 3R-H Pigment Blue 60	35	5 [1]	220 [3]	●●	●●					
MONOLITE™ Blue 3RX-H Pigment Blue 60	81	5 [1]	220 [3]	●●	●●					
MONOLITE™ Green 600734 Pigment Green 7	47	5 [1]	200 [3]	●●	●●	●●	●●	●		
MONOLITE™ Green 600735 Pigment Green 7	53	5 [1]	200 [3]	●●	●●	●●	●●	●		
MONASTRAL™ Green GN-C Pigment Green 7 / Green 36	45	5 [1]	180 [3]	●●	●●	●●	●●			
MONASTRAL™ Green GNX-C Pigment Green 7 / Green 36	45	5 [1]	180 [3]	●●	●●	●●	●●			
MONASTRAL™ Green LAG-C Pigment Green 7	44	5 [1]	200 [3]	●●	●●	●●	●●			
MONASTRAL™ Green GBX-C Pigment Green 7	41	5 [1]	200 [3]	●●	●●	●●	●●			
MONASTRAL™ Green 6Y-C Pigment Green 36	48	5 [1]	180 [3]	●●	●●	●●	●●			

Due to the limitation of printing process, some slight variations between the color as illustrated may be observed.

●● Recommended ● Potential Use

[1] Pigments were tested in an alkyd/melamine system with 30 minutes baking time at 160°C.
[2] Pigments were tested in a 2C-acrylate system with 30 minutes baking time at 80°C.
[3] Pigments were tested in an alkyd/melamine system.
[4] Pigments were tested in a 2C-acrylate system.
[5] Diarylide pigments should not be used at processing temperatures exceeding 200°C due to potential cleavage to 3,3' - dichlorobenzidine (DCB) under these conditions.

Inorganic Pigments for Coatings

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.

Product Name / Color Index	Av. Primary Particle Size [µm] [1]	Oil Absorption [ml/100g] [2]	Heat Resistance [°C] [3]	Automotive Coatings	General Industrial Coatings	Decorative Coatings	Coil Coatings	Powder Coatings	Full Shade	Reduction 1:1 TiO_2
HEUCODUR® Yellow G 9064 Pigment Yellow 53	~ 0.8	~ 17	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 152 Pigment Yellow 53	~ 1.1	~ 17	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 156 Pigment Yellow 53	~ 1.2	~ 16	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 8G Pigment Yellow 53	~ 1.0	~ 16	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow G 9082 Pigment Yellow 53	~ 1.3	~ 15	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow G 9116 Pigment Yellow 53	~ 0.6	~ 17	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 3R Pigment Brown 24	~ 0.5	~ 20	600	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 253 Pigment Brown 24	~ 0.8	~ 19	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 2530 ** Pigment Brown 24 NEW	~ 0.7	~ 19	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 252 Pigment Brown 24	~ 0.9	~ 19	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow G 9239 Pigment Brown 24	~ 0.6	~ 19	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 255 Pigment Brown 24	~ 0.9	~ 18	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 2550 ** Pigment Brown 24	~ 1.0	~ 19	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 6R Pigment Brown 24	~ 1.1	~ 17	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 256 Pigment Brown 24	~ 1.4	~ 17	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 2570 Pigment Brown 24 NEW	~ 0.9	~ 19	800	●●	●●	●●	●●	●●		

Product Name / Color Index	Av. Primary Particle Size [µm] [1]	Oil Absorption [ml/100g] [2]	Heat Resistance [°C] [3]	Automotive Coatings	General Industrial Coatings	Decorative Coatings	Coil Coatings	Powder Coatings	Full Shade	Reduction 1:1 TiO_2
HEUCODUR® Yellow 259 Pigment Brown 24	~ 1.5	~ 16	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow 2590 Pigment Brown 24 NEW	~ 1.3	~ 20	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow G 9202 ** Pigment Brown 24	~ 1.7	~ 16	800	●●	●●	●●	●●	●●		
HEUCODUR® Yellow G 9180 ** Pigment Brown 24	~ 1.7	~ 16	800	●●	●●	●●	●●	●●		

Product Name / Color Index	Av. Primary Particle Size [µm] [1]	Oil Absorption [ml/100g] [2]	Heat Resistance [°C] [3]	Automotive Coatings	General Industrial Coatings	Decorative Coatings	Coil Coatings	Powder Coatings	Full Shade	Reduction 1:3 TiO_2
HEUCODUR® Blue 550 Pigment Blue 28	~ 0.9	~ 30	800	●●	●●	●●	●●	●●		
HEUCODUR® Blue 551 Pigment Blue 28	~ 0.9	~ 27	800	●●	●●	●●	●●	●●		
HEUCODUR® Blue 552 Pigment Blue 28	~ 0.9	~ 29	800	●●	●●	●●	●●	●●		
HEUCODUR® Blue 2R Pigment Blue 28	~ 1.1	~ 30	600	●●	●●	●●	●●	●●		
HEUCODUR® Blue 5-100 Pigment Blue 36	~ 0.9	~ 17	800	●●	●●	●●	●●	●●		
HEUCODUR® Blue 4G Pigment Blue 36	~ 0.2	~ 15	800	●●	●●	●●	●●	●●		
HEUCODUR® Green 5G * Pigment Green 50	~ 0.1	~ 17	800	●●	●●	●●	●●	●●		

Product Name / Color Index	Av. Primary Particle Size [µm] [1]	Oil Absorption [ml/100g] [2]	Heat Resistance [°C] [3]	Automotive Coatings	General Industrial Coatings	Decorative Coatings	Coil Coatings	Powder Coatings	Full Shade	Reduction 1:5 TiO_2
HEUCODUR® Brown 869 Pigment Brown 29	~ 0.6	~ 25	700	●●	●●	●●	●●	●●		
HEUCODUR® Black 953-1 Pigment Black 28	~ 1.2	~ 16	800	●●	●●	●●	●●	●●		
HEUCODUR® Black 9-100 Pigment Black 28	~ 1.5	~ 17	800	●●	●●	●●	●●	●●		
HEUCODUR® Black 955 Pigment Black 27	~ 1.4	~ 18	800	●●	●●	●●	●●	●●		

[1] according to ISO 13320-1
[2] according to DIN EN ISO 787/5
[3] Visual judgement of the powder after 30 min. calcination. (AA-00170)

●● Recommended ● Potential Use

Due to the limitation of printing process, some slight variations between the color as illustrated may be observed.

* In accordance with CLP Regulation No. 1272/2008 this product is classified as dangerous substances with Hazard Classes and Category Codes: Skin Sens. 1; H317 / Carc. 1A; H350i / STOT RE 2; H373

** Specified only for Plastics.

VANADUR® 1010 and **VANADUR® 2108** are green shade bismuth vanadate pigments with outstanding application properties like improved opacity, high gloss, excellent weather and light fastness and good tinting strength. They are easily dispersible and can be used in solventbased as well as in waterborne systems including aqueous dispersions.

VANADUR® pigments are especially suitable for automotive and industrial coatings due to their outstanding durability and fastness properties.

VANADUR® PLUS 9010 is a Silica encapsulated green shade bismuth vanadate pigment.

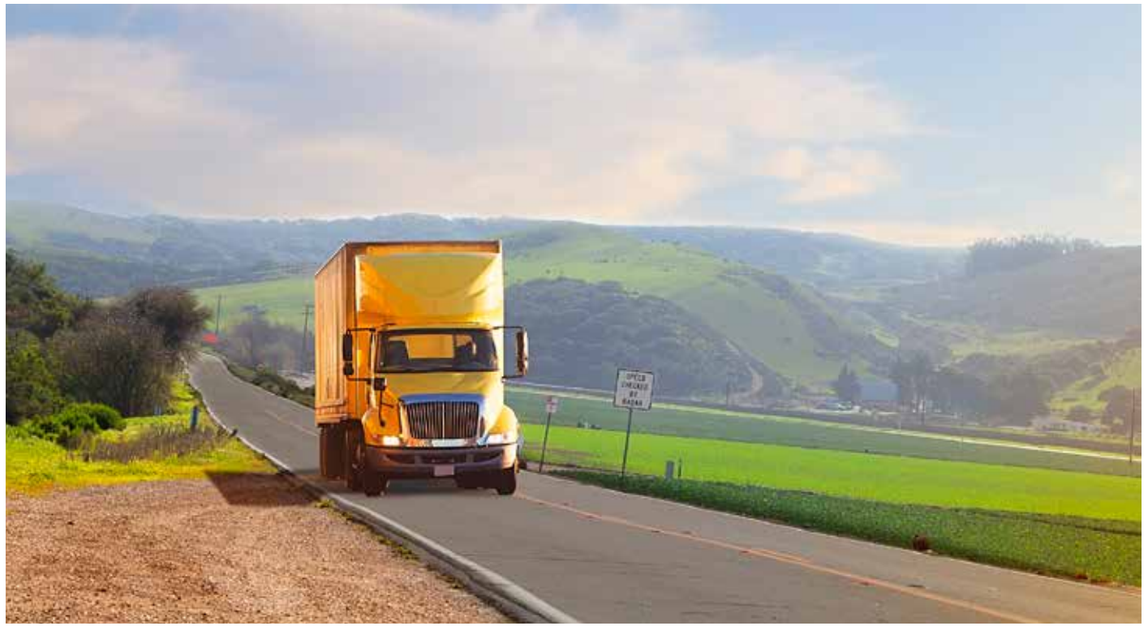
For some applications stability properties of bismuth vanadate regarding heat, SO_2 or alkali resistance are not sufficient. Especially plastic applications require a stable color shade even at very high temperatures.

Product Name / Color Index	Av. Primary Particle Size [µm] [1]	Oil Absorption [ml/100g] [2]	Heat Resistance [°C]	Automotive Coatings	General Industrial Coatings	Decorative Coatings	Coil Coatings	Powder Coatings	Full Shade	Reduction 1:1 TiO_2
VANADUR® 2108 Pigment Yellow 184 zinc-free	~ 0.7	~ 20	200 [3]	●●	●●	●●	●	●		
VANADUR® 1010 Pigment Yellow 184	~ 0.7	~ 24	200 [3]	●●	●●	●●	●	●		
VANADUR® PLUS 9010 Pigment Yellow 184	~ 0.7	~ 40	300 [4]	●●	●●	●●	●●	●●		

[1] according to ISO 13320-1
[2] according to DIN EN ISO 787/5
[3] Pigments were tested in an alkyd / melamine system 30 minutes baking time Temperature range 140°C to 200°C.
[4] Heat Res. in HDPE (5 min) on extruder. (AA-00366)

Due to the limitation of printing process, some slight variations between the color as illustrated may be observed.

●● Recommended ● Potential Use



Hybrid Pigments for Coatings

TICO®s are a unique class of high performance yellow, orange and red pigment preparations.
These titanium based colorants exhibit maximum gloss, opacity, strength and durability, which cannot be achieved with today's well established blends between organic high performance pigments and white / yellow titanium or bismuth vanadate pigments.

TICO® stands for Titanium Color made by a proprietary co-finishing process to attach the organic colorants to the surface of titanium carrier pigments.

Product Name	Weather Fastness [1]	Fastness to Overpainting [2]	Heat Resistance [°C] [3]	Automotive Coatings	General Industrial Coatings	Decorative Coatings	Coil Coatings	Powder Coatings	Full Shade	Reduction 1:3 TiO_2
TICO® Yellow 588 N NEW	5	5	170	●●	●●	●●	●	●		
TICO® Yellow 591	5	5	200	●	●	●	●	●●		
TICO® Yellow 594 [4]	5	5	200	●●	●●	●		●		
TICO® Yellow 595 N NEW	5	2	140	●	●●	●●		●		
TICO® Yellow 597 N [4] NEW	5	4 - 5	170	●●	●●	●●		●		
TICO® Yellow 622 N [4] NEW	5	4 - 5	200	●●	●●	●●	●	●		
TICO® Yellow 623	5	5	170	●●	●●	●		●●		
TICO® Orange 640 N NEW	5	4 - 5	220	●●	●●	●●	●●	●		
TICO® Red 642 [4]	5	5	230	●●	●●	●	●	●		
TICO® Red 645	5	5	220	●●	●●	●	●●	●		
TICO® Red 655 N NEW	5	5	220	●●	●●	●●	●	●		

[1] Weather Fastness: Data on resistance to artificial xenon weathering (DIN EN ISO 16474-2, procedure A, cycle 1) is determined in a water based 2-layer test system after 2000 hours weathering time. Rating of change in color in accordance with DIN EN ISO 105-A02.
[2] Overpainting: Bleeding was rated, of a white alkyd-melamine topcoat on a pigmented 2-comp. acrylate base coat in accordance with DIN EN ISO 105-A02.
[3] Heat resistance: Pigment was exposed at different temperatures up to 250°C in an alkyd-melamine baking system for 30 minutes. Temperature, above which, a noticeable shade change can be observed.
[4] Pigments partially contain P.Y. 83 and should not be used at processing temperatures exceeding 200°C due to potential cleavage to 3,3' - dichlorobenzidine (DCB) under these conditions.

Pigment Preparations for Coatings

The search for a solution to replace lead chromates/ molybdate reds led to the development of specifically designed dry pigment preparations. These multiple pigment preparations in powder form have been developed alongside the special market requirements in a targeted fashion.

Thus they permit smart i.e. rapid and cost-effective formulation such as **HEUCO® FIT LR** dry pigment preparations.
In selecting the pigments, the focus was on a good balance of the colorimetric properties and the hiding power in the near-full shade color range.

So **HEUCO® FIT LR** is the ideal extension to the customized **HEUCOSIN™** pigment preparations which are adjusted to the most commonly used RAL shades.

Product Name	Technical Information			Application Fields					Full Shade	Reduction 2:1 TiO_2
	Weather Fastness [1]	Fastness to Overpainting [2]	Heat Resistance [°C] [3]	Automotive Coatings	General Industrial Coatings	Decorative Coatings	Coil Coatings	Powder Coatings		
HEUCO® FIT LR Yellow 1006401 [4]	4	5	150		●●	●				
HEUCO® FIT LR Yellow 1006402 [4]	3 - 4	4	150		●●	●●				
HEUCO® FIT LR Yellow 1007001 [4]	4	5	150		●●	●				
HEUCO® FIT LR Yellow 1007002 [4]	4	4	150		●●	●●				
HEUCO® FIT LR Red 3022001	4 - 5	5	170		●●	●				
HEUCO® FIT LR Red 3022002	4 - 5	5	170		●●	●●				

Due to the limitation of printing process, some slight variations between the color as illustrated may be observed.

●● Recommended ● Potential Use

[1] Weather Fastness: Data on resistance to artificial xenon weathering (DIN EN ISO 16474-2, procedure A, cycle 1) is determined in a 2-comp. polyurethane test system after 2000 hours weathering time. Rating of change in color in accordance with DIN EN ISO 105-A02.
[2] Overpainting: Bleeding was rated, of a white alkyd-melamine topcoat on a pigmented 2-comp. acrylate base coat in accordance with DIN EN ISO 105-A02.
[3] Heat Resistance: Pigment was exposed at different temperatures up to 250°C in a 2-comp. acrylate base coat for 30 minutes. Temperature, above which, a noticeable shade change can be observed.
[4] Pigments partially contain P.Y. 83 and should not be used at processing temperatures exceeding 200°C due to potential cleavage to 3,3' - dichlorobenzidine (DCB) under these conditions.

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