



Habikor®

High performance corrosion inhibitors

Habikor® – protecting your values

Habich GmbH manufactures Habikor® inorganic anticorrosive pigments designed to protect metal surfaces. Based on electrochemical and chemical reactions they dramatically slow down the corrosion process and can be used in various organic and inorganic coating systems. Their activity varies depending on the selected coating system, the film thickness, the pigment loading and the substrate. Optimal performance depends on selecting the ideal combination of pigments and their concentration.



Habikor® pigments

The corrosion preventing mechanisms are related to pigment surface area, protection starting earlier the larger the surface area is. Therefore if required, Habikor® pigments are micronized. This also leads to improved dispersibility.

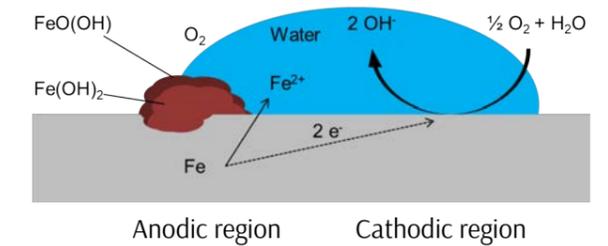
Some Habikor® pigments are organically modified. This improves their application properties as the sensitive initial phase can be reduced drastically.

Habikor® pastes

Habikor® pastes are easy to use, pre-milled, binder-free pigment slurries. They can often be added to the formulation without additional grinding. Habikor® pastes reduce manufacturing costs and improve the flexibility of customers' production. These products do not form dust and therefore contribute to cleaner work places.

Corrosion

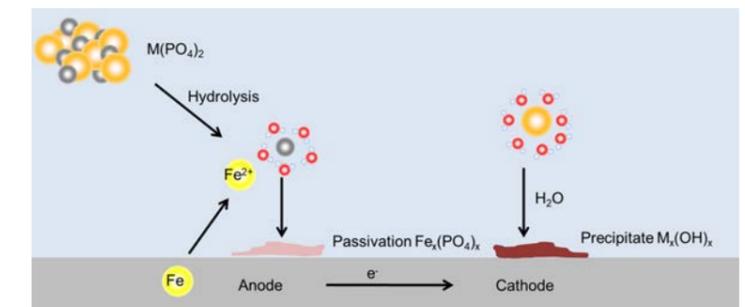
Metals tend to their most thermodynamically stable state (e.g. iron oxide). Corrosion is an electrochemically driven process where the metal degrades due to reaction with its environment. This reaction transforms the metal into its lowest energy state. The electrochemical process is the same as the reaction mechanism of a galvanic cell. The presence of water, oxygen and salts usually accelerate the degradation process, also called corrosion.



Corrosion inhibitors protect your values by deferring corrosion

Anodic inhibitors

Anodic inhibitors act by a reducing anodic reaction. The inhibitors react with the initially formed corrosion product, creating a cohesive and insoluble film on the metal surface and thereby protecting it from further corrosion. The anodic reaction is affected by the corrosion inhibitors, reducing the corrosion potential of the metal.



Cathodic inhibitors

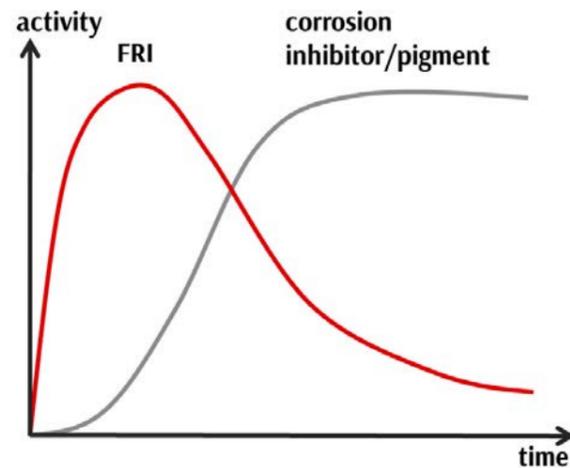
Cathodic inhibitors oxidize preferentially and prevent the underlying metal from oxidizing. These inhibitors contain metal ions able to initiate a cathodic reaction due to their alkalinity. They produce insoluble compounds which form a compact and adherent film. The cathodic inhibitors form a barrier.



Habikor® FRI – Flash Rust Inhibitors

Flash rust occurs quickly at the early stages of paint application and drying in water-based coatings. Most of the time, the corrosion products are soluble and capable of migrating within the coating and result in stains or spots. Therefore flash rust inhibitors are added to water-based coatings to suppress corrosion during the drying process.

In addition to our Habikor® anticorrosive pigments we offer liquid Habikor® FRI products to prevent your finish from flash rust.



Key benefits

- high efficiency at low dosage
- easy to use
- can be incorporated at any stage of production of paint
- low odor
- suitable for high gloss application
- does not support foam formation

- no negative impact on the efficiency of the long-term corrosion inhibitor
- very good compatibility
- high storage stability
- neutral colour
- VOC-free



	Habikor® FRI 1000	Habikor® FRI 1001
Density [g/cm³]	1.1	1.1
pH-Value	~ 9	~ 10
Inhibitor load: w/w [%]	0.2 – 2.0	0.2 – 2.0

Corrosion inhibitors protect your products by deferring corrosion

Habikor® FRI additives are liquid flash rust inhibitors designed to use in aqueous paint applications. These additives are effective in any aqueous product which has direct contact to unprotected steel surfaces.

The liquid, almost odorless, easy to use inhibitors demonstrate an excellent flash rust inhibiting performance on various steel substrates. Habikor® FRI additives do not negatively influence the performance of anticorrosive pigments.

Habikor® FRI 1000

A highly effective conventional, VOC-free liquid flash rust inhibitor.

Habikor® FRI 1001

A liquid, highly efficient, **nitrite-free** additive, ideal to formulate environmental friendly water-based primers and DTM paints.

These flash rust inhibitors can be incorporated at any stage of the production of water-based paints.

Habikor® FRI 1000

- 0.2 % flash rust inhibitor by total formular weight
- DFT: 60 µm
- Water-based 1 K acrylic primer system
- Test: 20°C, 50 % humidity
- Substrate: cold rolled steel panels

Blanc	Habikor® FRI 1000	Competitor 1	Competitor 2

Habikor® FRI 1001

- 0.2 % flash rust inhibitor by total formular weight
- DFT: 60 µm
- Water-based 1 K acrylic primer system
- Test: 20°C, 50 % humidity
- Substrate: cold rolled steel panels

Blanc	Habikor® FRI 1001	Competitor 3	Competitor 4

Habikor® ZOP 7000

A high performance organic corrosion inhibitor for various applications. Habikor ZOP 7000® is an organic corrosion inhibitor which provides early passivation of the metal substrate. It can be used alone, or synergistically with inorganic inhibitors to provide superior long term corrosion protection on a variety of metals. It is effective at low dosage and can be used in both solvent and water systems for pigmented and clear systems. It also can be used for transparent coatings.

NEW

Anticorrosive pigments based on silicate and phosphosilicate

Habikor® SI is a calcium doped silicate pigment which was developed as a non-toxic alternative to chromates for coil coating. The effect consists in the ion exchange of calcium ions bound to amorphous silicate carrier material against hydrogen ions. Habikor® SI shows excellent performance in polyester and polyurethanes-based formulations.

Habikor® CS is a non-toxic, zinc-free anticorrosive pigment. It is based on a modified calcium phosphosilicate, co-precipitated with further calcium compounds. Habikor® CS provides its best corrosion protection in water-borne resins but it can also be used in solvent-borne paints. In combination with adhesion promoting pigments such as Habikor® CP 4295 synergisms can be achieved (page 10).

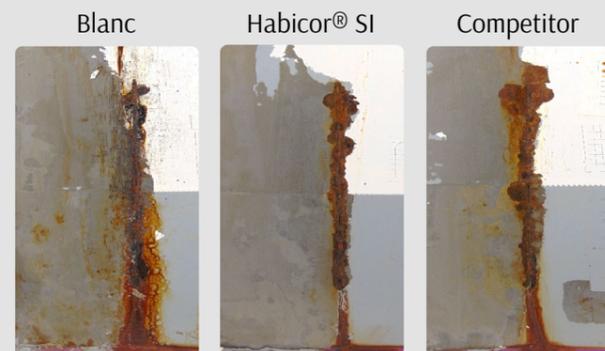
Habikor® ZS is a non-toxic, modified zinc strontium phosphosilicate corrosion inhibitor used in the wide range of protective coatings. Habikor® ZS is recommended for usage in the huge range of resin systems, solvent-borne and water-borne ones. Habikor® ZS is also effective in thin film applications like coil coatings.



Habikor®	Density [g/ml]	Bulk density [kg/l]	Residue on sieve 325 mesh [%]	Average particle size [µm]	Oil absorption [g/100g]	Loss on ignition [%]	Conductivity [µS/cm]	pH-Value
SI Calcium doped silicate	2.1	0.3	<1.0	3.5	75	2.0	<1500	7.0
CS Modified calcium phosphosilicate	2.7	0.3	<0.1	3.0	40	4.8	<300	9.8
ZS Modified zinc strontium phosphosilicate	3.3	0.7	<0.1	6.8	20	7.9	<200	8.2

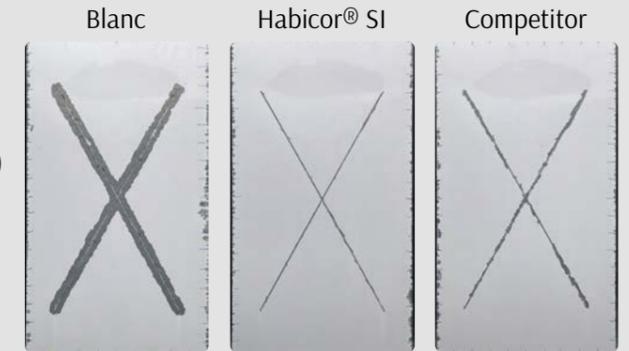
Habikor® SI

- Solvent-borne 2-pack epoxy
- 7 % of anticorrosive pigment
- Substrate: cold rolled steel panel Q-Panel
- DFT: primer 40µm, top coat 60µm
- 528 h in SST (ASTM B-117)



Habikor® SI

- Solvent-borne heat curing polyester-melamine system (coil coating)
- 7,5% of anticorrosive pigment
- Substrate: zinc magnesium galvanized (ZMG) steel panel
- DFT: primer 5µm, top coat 20µm
- 500 h in SST (ASTM B-117)



Habikor® CS

- Water-borne 2 pack polyester resin
- 8 % anticorrosive pigment
- Substrate: cold rolled steel (Q-Panel)
- DFT: 100 µm
- 200 h in SST (ASTM B-117)



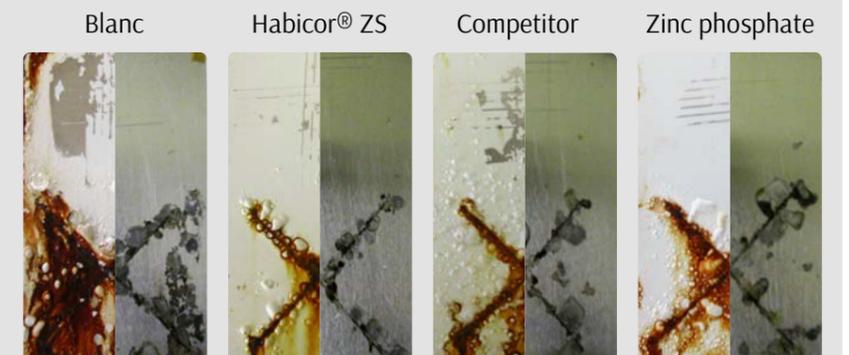
Habikor® CS

- Solvent-borne 2 pack polyurethane resin
- 8 % of anticorrosive pigment
- Substrate: zinc aluminium galvanized steel
- DFT: primer 10 µm, top coat 15 µm
- 1000 h Salt Spray (ASTM B-117)



Habikor® ZS

- Solvent-borne short oil alkyd resin
- 8 % anticorrosive pigment
- Substrate: cold rolled steel (Q-Panel)
- DFT: 40 µm
- 660 h in SST (ASTM B-117)



Anticorrosive pigments based on zinc phosphate

Habikor® ZP 3850/3860 are very compatible with many water and solvent-based resins, due to their low solubility compared to chromates.

Habikor® ZA has improved protective properties compared to zinc phosphate due to its higher phosphate content and better interaction with the carboxylate groups of the resin and the metal substrate.

Habikor® ZN is an organically modified basic zinc phosphate. With increased hydroxyl ion content, the pH of the coating can be stabilized and the electron donation at the anode can be suppressed. Due to the organic modification of a higher activity of the pigment and improved adhesion of the coating, e.g. alkyd resins can be achieved.

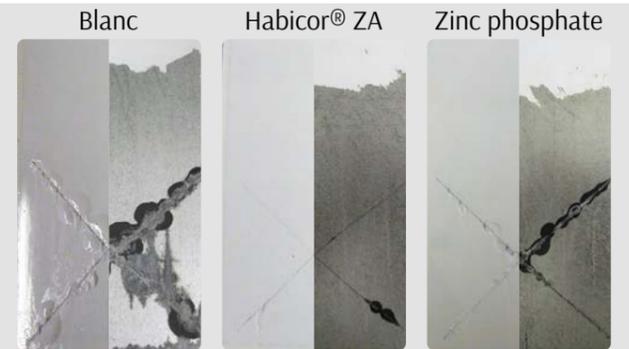
Habikor® ZO is an organically coated basic zinc phosphate, which shows a better protection behavior than zinc phosphate in PU and alkyd resins. In combination with Habikor® CP 4295 the product provides excellent protection on aluminum substrates.

Habikor® ZM has improved corrosion protection performance due to the presence of molybdate anions, which, as anodic passivators, are not dissimilar to chromate ions.

Habikor®	Density [g/ml]	Bulk density [kg/l]	Residue on sieve 325 mesh [%]	Average particle size [µm]	Oil absorption [g/100g]	Loss on ignition [%]	Conductivity [µS/cm]	pH-Value
ZP 3850 Zinc phosphate tetrahydrate	3.7	0.8	<0.2	3.7	20	13.2	<250	7.2
ZP 3860 Zinc phosphate dihydrate	3.7	0.8	<0.2	4.0	20	10.7	<250	7.0
ZA Modified zinc aluminium polyphosphate	2.6	0.6	<0.02	3.1	25	10.2	<200	6.9
ZA 3120 Zinc aluminium orthophosphate	2.75	0.3-0.5	<0.05	3.5-5.0	37.5	11.0-14.0	<300	5.5-6.8
ZN Organic modified basic zinc phosphate	3.9	0.6	<0.2	4.3	25	6.8	<250	6.8
ZO Organic coated basic zinc phosphate	3.6	0.7	<0.2	3.0	30	7.6	<250	7.6
ZM Multiphase pigment, based on basic zinc phosphate	3.6	2.9	<0.2	2.7	20	10.0	<250	8.0

Habikor® ZA

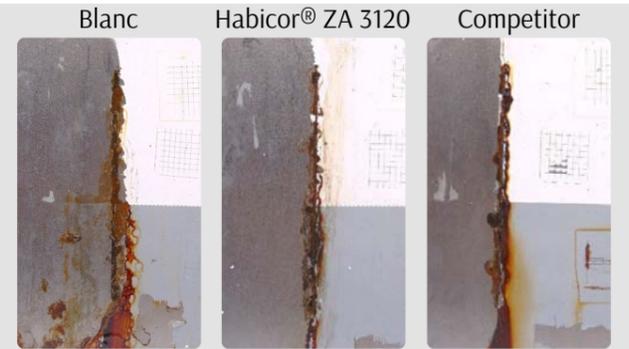
- Solvent-borne 2 pack polyurethane resin
- 8 % of anticorrosive pigment
- Substrate: zinc aluminium galvanized steel
- DFT: primer 10 µm, top coat 15 µm
- 1000 h in SST (ASTM B-117)



NEW

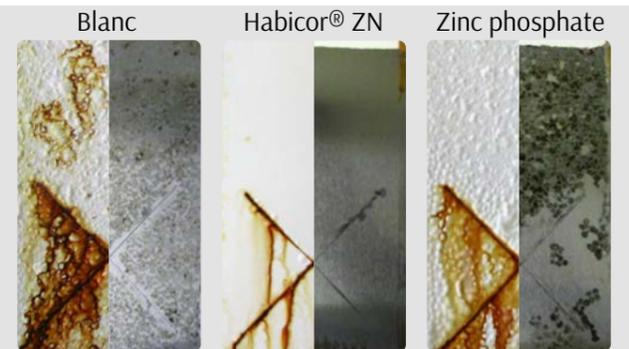
Habikor® ZA 3120

- Solvent-borne 2 pack epoxy
- 7 % of anticorrosive pigment
- Substrate: cold rolled steel (Q-Panel)
- DFT: primer 40µm, 60µm top coat
- 648 h in SST (ASTM B-117)



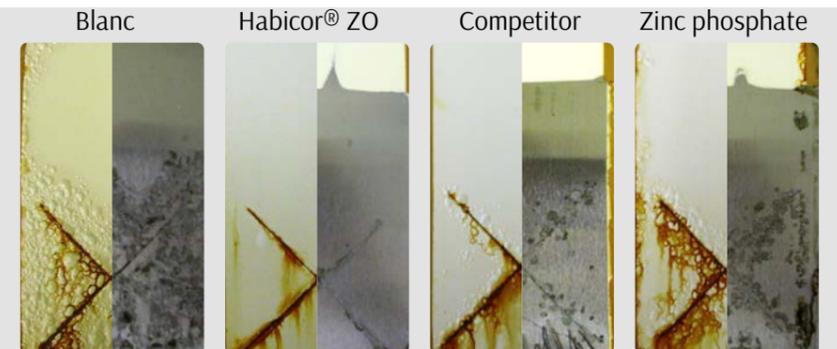
Habikor® ZN

- Water-borne epoxy modified alkyd resin
- 8 % of anticorrosive pigment
- Substrate: cold rolled steel (Q-Panel)
- DFT: primer 60 µm
- 265 h in SST (ASTM B-117)



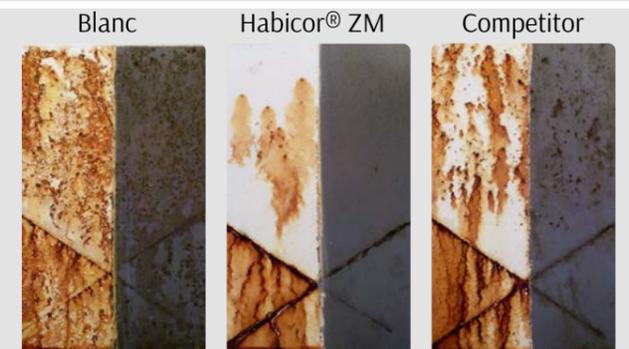
Habikor® ZO

- Water-borne 1 pack polyurethane resin
- 8 % anticorrosive pigment
- Substrate: cold rolled steel (Q-Panel)
- DFT: 110 µm
- 300 h in SST (ASTM B-117)



Habikor® ZM

- Solvent-borne low molecular weight polyester resin
- 8 % of anticorrosive pigment
- Substrate: cold rolled steel (Q-Panel)
- DFT: primer 15 µm
- 165 h in SST (ASTM B-117)



Orthophosphates and Polyphosphates

Habikor® AZ is an anticorrosive pigment based on zinc modified aluminum triphosphate for water and solvent-based applications. It has a very good adhesion and impact resistance. This product can not only be used in steel products, it also can be used for aluminum and zinc plates.

Habikor® SP is an anticorrosive pigment for water and solvent-based applications. This product is effective not only on steel products, it also can be used on ferrous and non-ferrous substrates like aluminum.

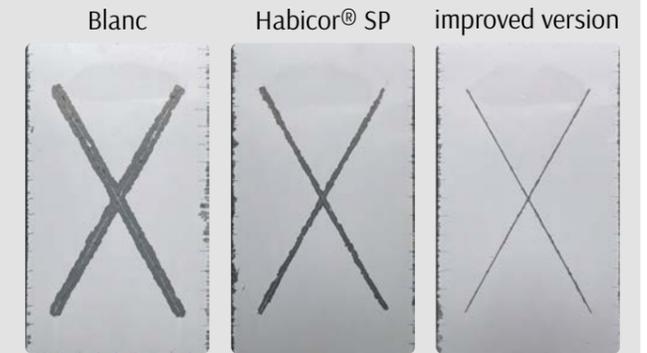
Habikor® CP 4295 is an anticorrosive pigment providing adhesion promotion properties. The chemical constitution of Habikor® CP 4295 is chromium(III) phosphate. This pigment will often be used in combination with other Habikor® pigment and inhibitors.

Habikor®		Density [g/ml]	Bulk density [kg/l]	Residue on sieve 325 mesh [%]	Average particle size [µm]	Oil absorption [g/100g]	Loss on ignition [%]	Conductivity [µS/cm]	pH-Value
AZ	Zinc modified aluminium triphosphate	2.5	2.9	<0.02	30	35	3	<250	6.2
SP	Strontium aluminium polyphosphate hydrate	2.8	3.0	<0.1	23	39	3	<1800	4.5
CP 4295	Chromium (III) phosphate	2.4	0.6	<0.2	1.6	65	27.2	<500	5.9



Habikor® SP

- Solvent-borne heat curing polyester-melamine system (coil coating)
- 7.5% of anticorrosive pigment
- Substrate: zinc magnesium galvanized (ZGM) steel panel
- DFT: primer 5µm, top coat 20µm
- 500 h in SST (ASTM B-117)



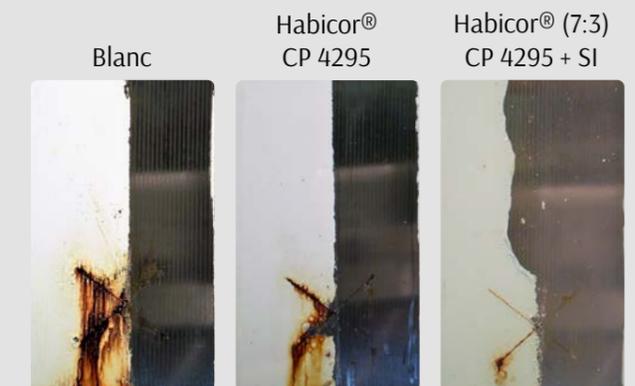
Habikor® CP 4295

- Solvent-borne heat curing polyester-melamine system (coil coating)
- 5 % of anticorrosive pigment
- Substrate: zinc aluminium galvanized steel panels with phosphate pretreatment
- DFT: primer 6 µm, top coat 20 µm
- 1000 h in SST (ASTM B-117)



Habikor® CP 4295 + Habikor® SI

- Solvent-borne short oil alkyd resin
- 8 % of anticorrosive pigment
- Substrate: cold rolled steel (Q-Panel)
- DFT: 55 µm
- 300 h in SST (ASTM B-117)



Application Guide

	Phosphates									Other Inhibitors								
	Habikor®	Silicate	Phosphosilicate		Zinc phosphates		Modified zinc phosphates			Polyphosphates		Ortho phosphates	Molybdate	Chromates			Flash rust inhibitor	
	SI	CS	ZS	ZP 3850	ZP 3860	ZA	ZN	ZO	AZ	SP	CP 4295	ZM	SR ATD	ZTC	ZPC	BA-AT	FRI 1000	FRI 1001
Solvent-based coatings	Medium and long oil alkyds		++	+++	++	++	++	++	+++	++	++	++	++		+++	++		
	2-Part epoxies	+		++	++	++	+++	+	+	+++	+++	+	++		+++	++		
	Epoxy ester		++	++	++	++	+	++			+++	++	+	++	+++	++		
	High solid epoxies			++	++	++	+	+++	+	+++	+++	+	+	+++	++	++		
	High solid polyurethanes		++	++	++	++	+++		++	++	++	+	+	+++	++	++		
	Polyurethanes	+	+++	++	+	++	+++		+++	++	++	++		+++	++	++		
Water-based coatings	Alkyd emulsions		++	++	++	++	+	++	++	+++		+	+	+	+	++	+++	+++
	Acrylics and modified acrylics	+	++	++	++	++		+	++	++		+++	+		+	++	+++	+++
	2-Part epoxies	++	+++	++	++	++	+		++	++	++	++	+		+	++	+++	+++
	2-Part polyurethanes		++	++		+	++		++			+	+		+	++	+++	+++
	Polyesters		+++	++			+	+				+		+	+	++	+++	+++
	Epoxy esters		+++	+	++	++		++	+			+	+		+	++	+++	+++
Specialities	Powder coatings	+		+						+	+++							
	Wash primer		++		+				++		+++		++	+++				
	Coil coatings	+++	++		+++	+	+	+	+++	+++			+++					
Excellent	+++																	
Good	++																	
Possible	+																	

Chromate-based anticorrosive pigments

Habikor® chromate-based anticorrosive pigments fulfil the desire of our customers for high quality corrosion protection pigments. These pigments will only be used where other technologies cannot reach the requested technical and safety protection level.

Whether in aerospace coating, coil coating, automotive coating or in shipbuilding, wherever this pigment class is used, no compromises concerning corrosion protection can be accepted because of safety reasons or long-term warranty periods.

Part of the extraordinary technical properties of these products is that they offer a high protective level independent of substrate and binder.



Habikor®	Density [g/ml]	Bulk density [kg/l]	Residue on sieve 325 mesh [%]	Average particle size [µm]	Oil absorption [g/100g]	Loss on ignition [%]	Conductivity [µS/cm]	pH-Value	
BA	Barium chromate	4.5	0.8	<0.1	1.0	16	<1	280	7.3
SR ATD	Strontium chromate	3.9	0.5	<0.1	4.5	18	<1	950	8.0
ZPC	Zinc potassium chromate	3.7	0.4	<0.1	5.0	30	<1	1500	7.0
ZTC	Zinc tetra-oxychromate	3.4	0.3	<1.0	4.0	45	<1	850	7.0

Habikor® pastes

Habikor® pastes are among the best anticorrosive pastes worldwide. They are high solids, binder-free pigment slurries based on our Habikor® pigments range and are supplied in a range of media suitable for solvent-borne, water-thinnable and aqueous systems.

Benefits

- no hazardous dust
- pre-dispersed and milled slurries
- easy dosing and incorporation
- up to 75 % w/w solid

Solvents

- Xylene
- Solvent Naphtha
- Water
- Other solvents on request

Resins

- On request



Following the trend to make the handling of sensitive products more save, Habich GmbH offers the opportunity to manufacture semi finished primer or primers for you. Contact us for more details.

Habikor®	Pigment	Content of pigment [%]	Solvent	Density [g/ml]	Resin-based	Fineness	
						[µm]	Hegmann
Paste 14	Strontium Chromate	70	Xylene	1.9	No	< 20	6-7
Paste 21	Strontium Chromate	70	Naphtha Light	1.9	No	< 10	7-8
Paste 180	Strontium Chromate	70	2-Heptanone	1.7	No	< 10	7-8
Paste 40	Barium Chromate	75	Naphtha Light	2.0	No	< 20	6-7
Paste 3	Barium Chromate	75	Xylene	2.0	No	< 25	6
Paste 105 SR	Strontium Chromate	55	Water	1.6	No	< 15	7

Further pigment slurries can be developed on request.

Habich supports your creativity

Habich GmbH is a globally recognized manufacturer of special inorganic pigments. Our product portfolio includes, in addition to inorganic coloured pigments and coloured pigment preparations, a broad range of inorganic corrosion protection pigments, pigment slurries and pigment pastes.

As a 6th generation Austrian family business we stand for reliability and sustainability in our business relationships. For more than 175 years, customer satisfaction and customer success are our main objectives. Flexibility and innovative strength characterize our abilities.

Thanks to our highly motivated, chemically and technically trained employees we also can provide tailor made solutions to meet any situation.



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