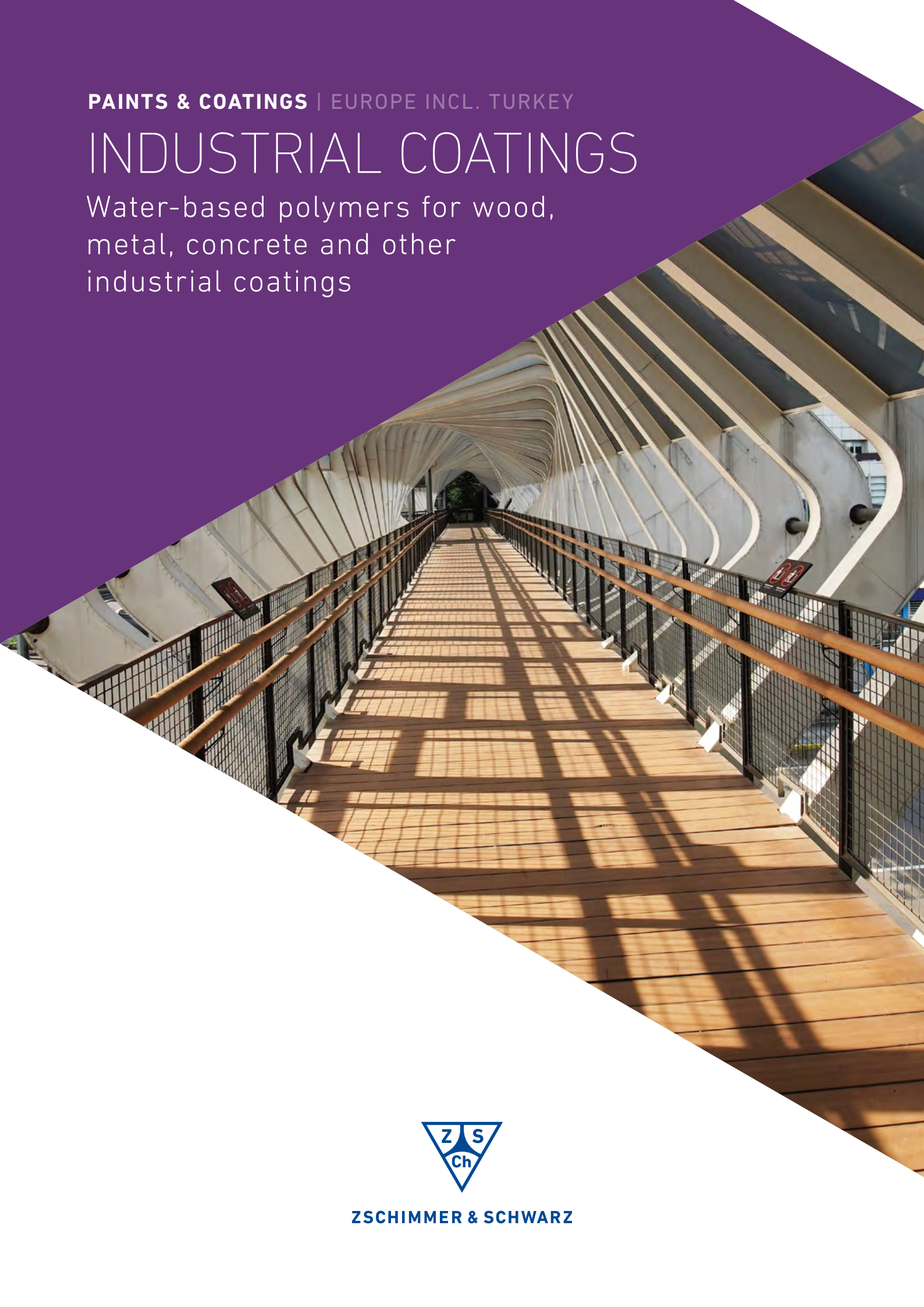


PAINTS & COATINGS | EUROPE INCL. TURKEY

INDUSTRIAL COATINGS

Water-based polymers for wood,
metal, concrete and other
industrial coatings



ZSCHIMMER & SCHWARZ



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CHEMISTRY TAILOR-MADE

Zschimmer & Schwarz is a global supplier of chemical auxiliaries and specialties headquartered in Lahnstein near Koblenz, Germany. The family business was founded in Chemnitz in 1894 and is positioned across industries with different business divisions.

Our core business is the development, production and supply of tailor-made chemical auxiliaries for the leather, fur, ceramic, textile and chemical fibre industries. Manufacturers of cleaning agents, personal care products, paints and coatings, lubricants and industrial applications all over the world trust in the company's chemical specialties as well.

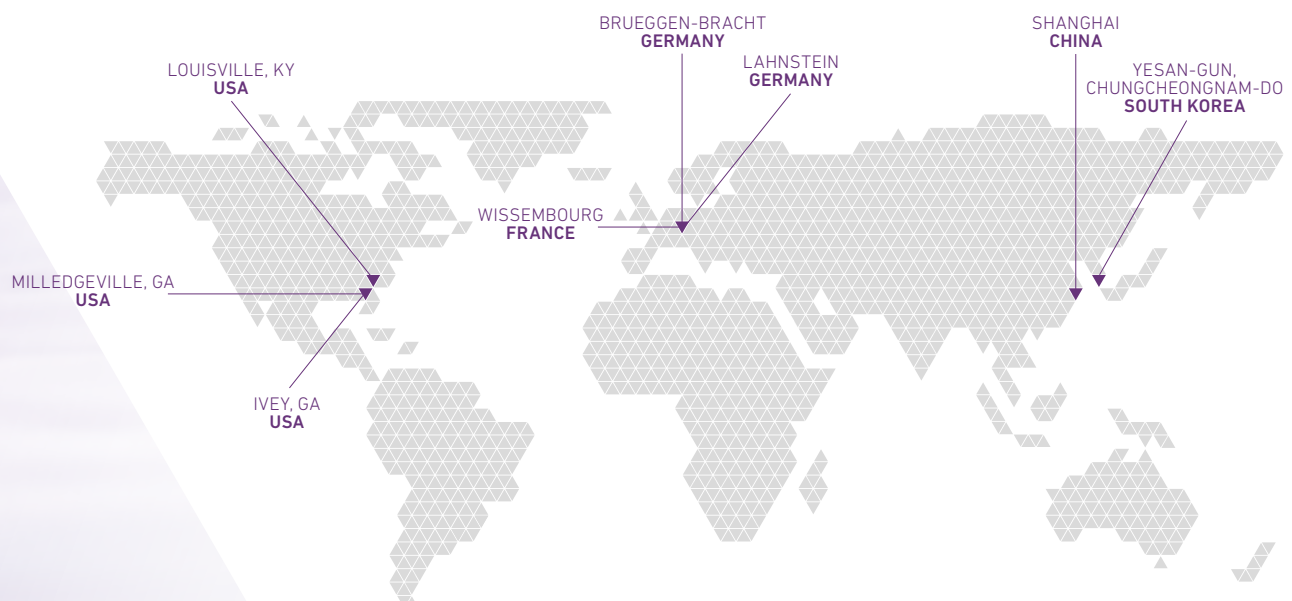
A FAMILY BUSINESS WITH A GLOBAL FORMULA FOR SUCCESS

The corporate group Zschimmer & Schwarz comprises 28 companies in 16 countries on five continents, 21 of which have their own production facilities. Our customers can always rely on a uniform quality standard worldwide and equally on the high service orientation of our local experts.

BRINGING YOUR IDEAS TO THE SURFACE

The portfolio of the Paints & Coatings Division serves a wide range of end-use applications from the industrial coatings and graphic arts sectors. We offer technologies and materials for the treatment and coating of surfaces such as wood, paper, metal, textile and concrete for best results. Innovative polymer technologies, tailored to the application and requirements of our customers, provide the necessary "plus" in the formulation. As specialists in environmentally conscious, water-based polymers, we offer optimised customer solutions with the highest standards of quality and cost-effectiveness, which we are producing at our sites in Europe, North America and Asia.

Whether it's raw materials or tailored and ready-to-use customer solutions – we will help you find the right products. We will happily accompany you on the way to your formulation in order to jointly create added value for your customer.





TECHNOLOGIES

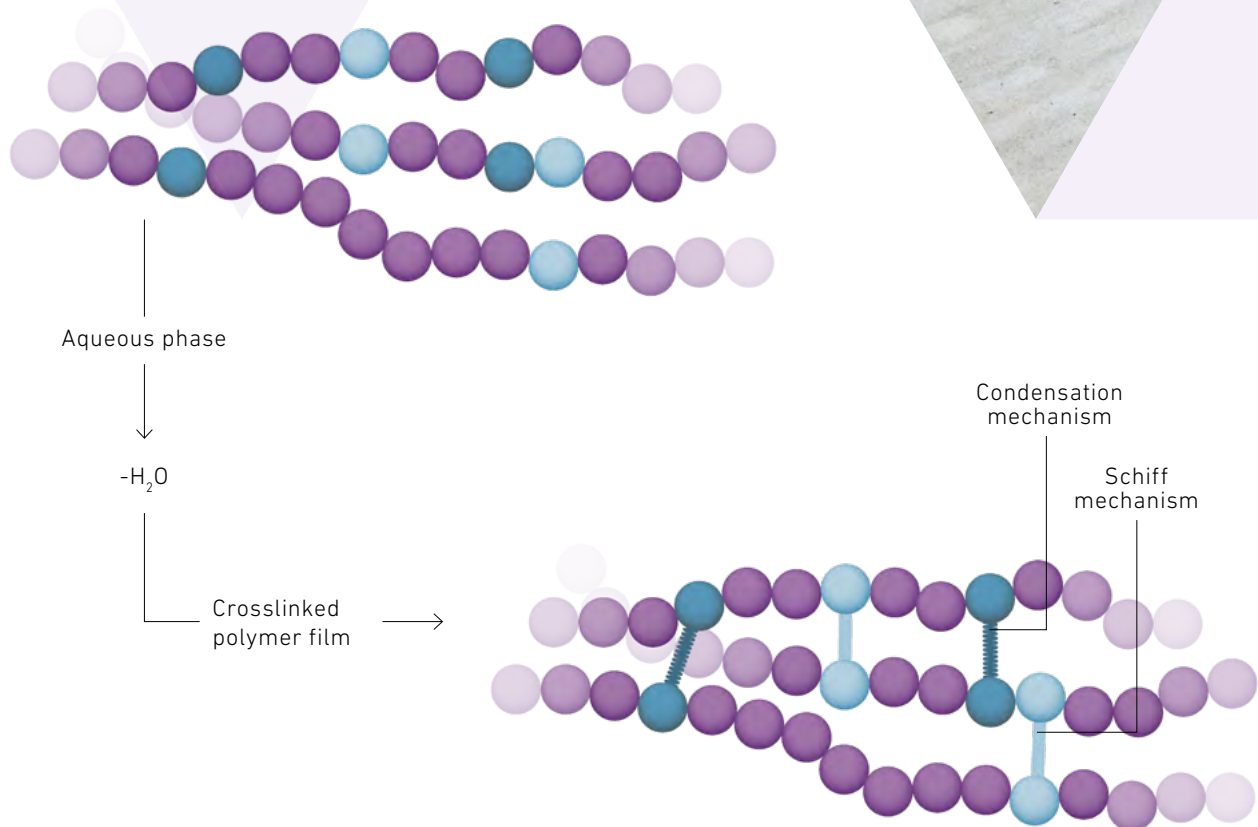
Appearance, durability, haptics: industrial substrates like wood, metal or concrete are subject to the highest demands, which can usually only be met by a high-performance coating. For formulations that meet these challenges, Zschimmer & Schwarz offers water-based polymers as universal binders and for special applications.

SELF-CROSSLINKING TECHNOLOGY

Our portfolio includes polymer dispersions with up to two crosslinking mechanisms on the same polymer backbone. The self-crosslinking of the polymers takes place only during film formation by drying at room temperature. In this way, the typical properties of a crosslinked polymer can be achieved without limiting storage stability.

FEATURES & BENEFITS

- ▶ Increased chemical resistance
- ▶ Stain resistance
- ▶ Water resistance
- ▶ Good adhesion properties
- ▶ Room-temperature curing with long-term shelf stability



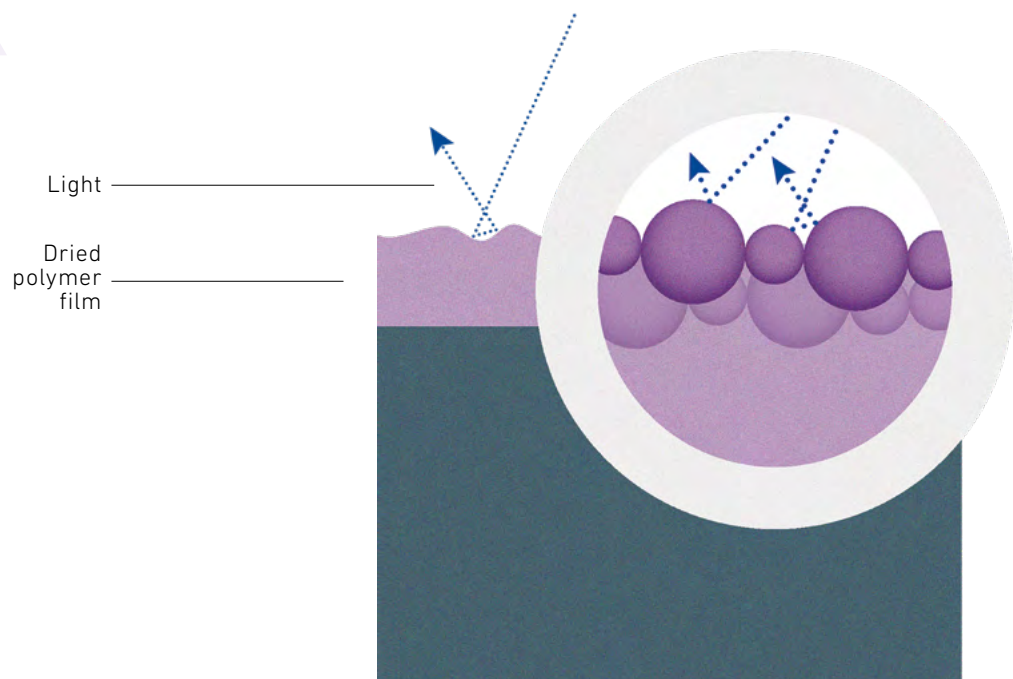
INHERENTLY MATTE TECHNOLOGY

Using a proprietary process, Zschimmer & Schwarz offers an inherently matte acrylate polymer. After drying, a film with low gloss, high flexibility and excellent stability is formed. This technology also provides excellent adhesion to various substrate types.

The polymer is a matte binder and not a “liquid matting agent”, meaning it can be formulated as a conventional (water-based) acrylic polymer, replacing the binder. It can be used as a single binder or in a blend with polyurethanes, has low foaming, and no or low addition of VOCs is required to formulate coatings. The time- and labour-consuming incorporation of solid matting agents is completely eliminated, making the formulation much simpler, more stable and more economical. Unlike conventional matting agents, the matte polymer also has excellent transparency.

FEATURES & BENEFITS

- ▶ No incorporation of matting agents necessary
 - ▶ Easy to formulate
 - ▶ Stable – no settling of the polymer
 - ▶ Lower process costs
 - ▶ Excellent transparency
-

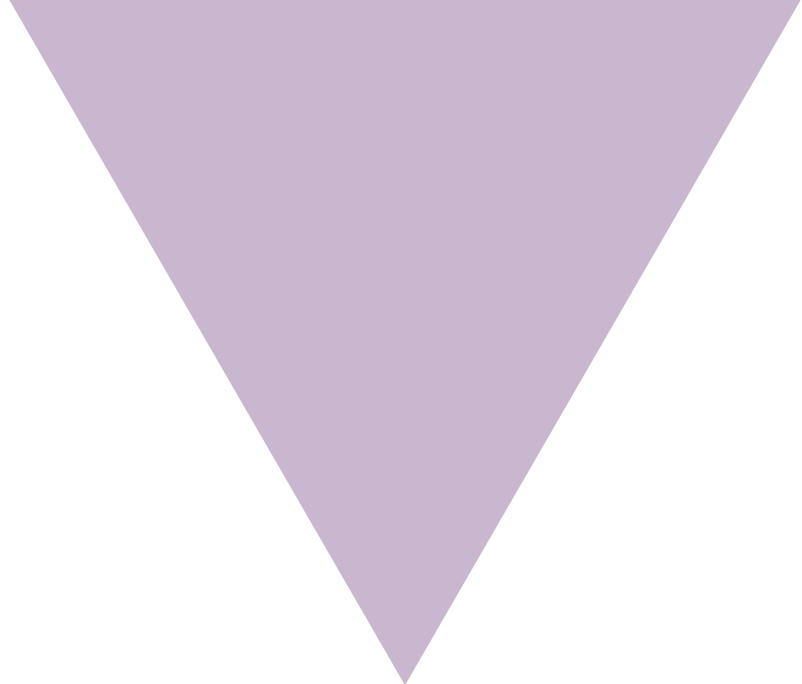
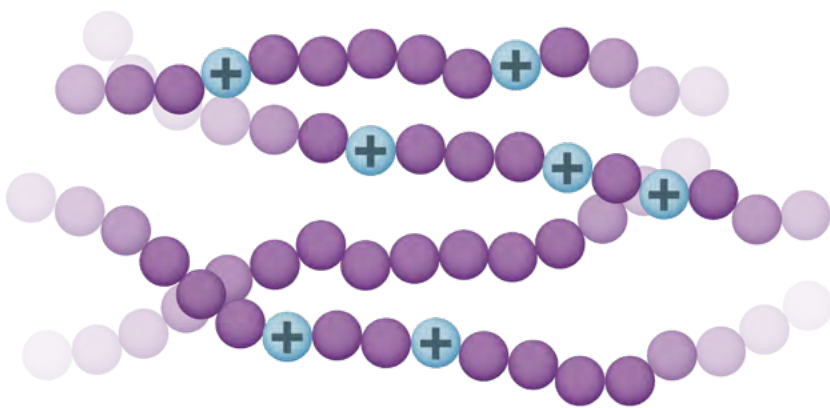


CATIONIC TECHNOLOGY

Zschimmer & Schwarz offers polycationic systems with an optimal acidic pH range and high charge density. By complexing anionic structures such as wood extractives or water-soluble soils, these products show outstanding stain blocking. Excellent adhesion to various critical anionic surfaces and metals can also be achieved by cationic resins. On porous substrates, the small particle size leads to good penetration into the substrate, which further improves adhesion and protection. These properties make these polymers especially well suited for use in isolation primers on wood.

FEATURES & BENEFITS

- ▶ Excellent adhesion to various problematic surfaces
 - ▶ Superior stain blocking
 - ▶ Forms soft to medium-hard films
 - ▶ Colourless and glossy films
 - ▶ Suitable in highly pigmented and low-VOC systems
 - ▶ Stable in acidic formulas (pH 3–6)
 - ▶ Less discolouration of wood due to low pH
-

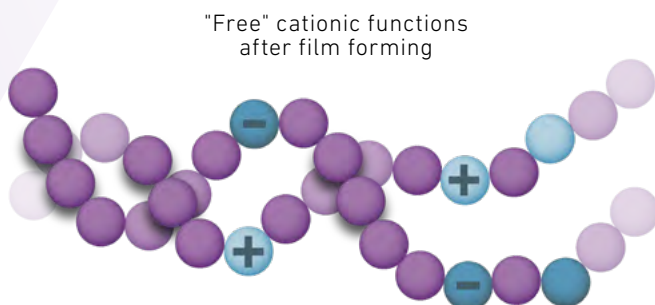
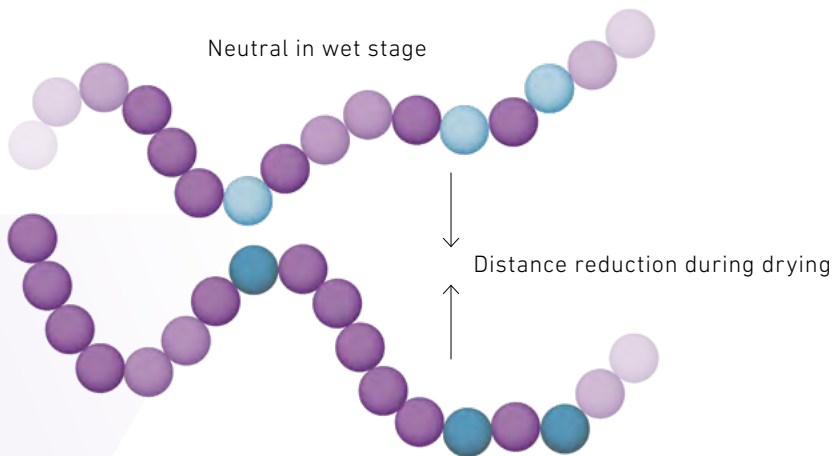


INTERPENETRATING POLYMER NETWORK (IPN)

The IPN involves two different ionic structures in the same polymer network at a neutral pH value. Overall, the polymer exhibits an anionic behaviour and can thus be formulated like an anionic polymer. Cationic functionalities then form during drying, providing excellent tannin, stain and dye blocking without the compatibility problems common to cationic polymers. Adhesion to various substrates such as aluminium, PVC or wood is also improved. At the same time, no or low addition of VOCs is required to formulate coatings.

FEATURES & BENEFITS

- ▶ Enables cationic functionalities in anionic formulations
- ▶ Excellent tannin, stain and dye blocking
- ▶ Excellent adhesion to multiple substrates
- ▶ High compatibility with other resins and additives
- ▶ No or low addition of VOCs required to formulate coatings



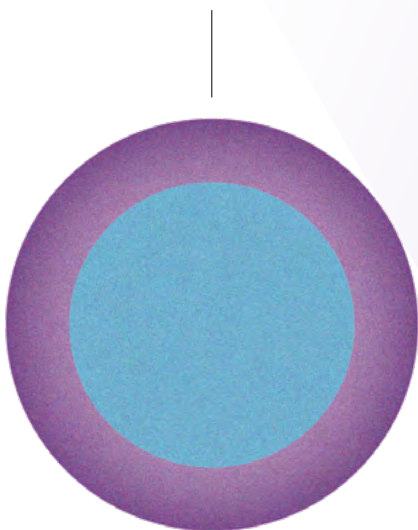
MULTIPHASE TECHNOLOGY

Using a two-step synthesis process, multiphase technology combines two different types of polymers in the same polymer network. This allows a balanced combination and thereby an overall improvement of the physical properties of the two polymers. A very good hardness and chemical resistance balanced with a moderate film-forming temperature benefits applications in the wood sector in particular. This process also means that no or only a small amount of emulsifiers is required. This helps with water resistance and the protective performance of the polymers. Metal applications additionally benefit from the possibility to keep the polarity of the overall film low by balancing the polymer phases.

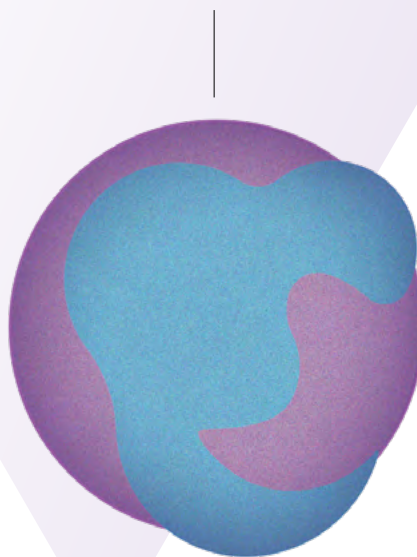
FEATURES & BENEFITS

- ▶ Very low to zero emulsifier content
 - ▶ Good balance between hardness, chemical resistance and film forming
 - ▶ Excellent adhesion to multiple substrates
 - ▶ Compliant with Swiss Ordinance for indirect food contact
-

Core-shell



Multi-lobed

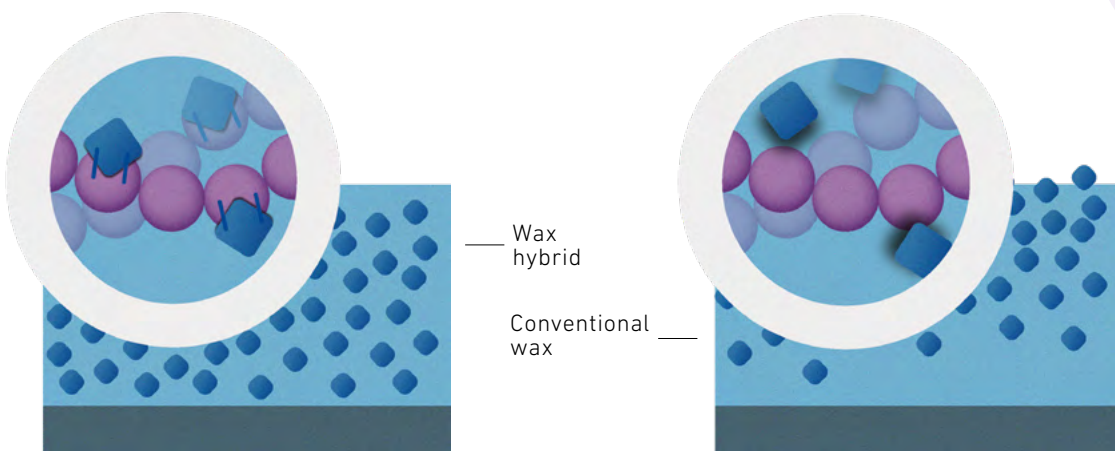


WAX-HYBRID TECHNOLOGY

Our wax-hybrid technology is a patented process for combining wax and acrylate in a single polymer network. This prevents the wax from migrating to the surface as it dries, resulting in a more uniform film composition that improves the appearance and performance of the coating. The hybrid polymer exhibits anionic behaviour and broad compatibility with other water-based polymers. The positive properties of waxes, such as increased slip or abrasion resistance and improved water resistance, can thus be optimally utilised.

FEATURES & BENEFITS

- ▶ Wax grafted to the polymer network
- ▶ Even distribution in liquid and dried form
- ▶ Enhanced wear resistance
- ▶ Improved water resistance
- ▶ Soft and flexible, good response to buffing for scratch repair and gloss
- ▶ Slip resistance



ALKALI-SOLUBLE TECHNOLOGY – RESIN SOLUTIONS

Our alkali-soluble polymers are based on polyacrylic and polymethacrylic acids with high electrostatic repulsion. They are available with different acid numbers, molar weights and glass transition temperatures as a clear solution in water.

The resin solutions offer excellent dispersibility of pigments and high compatibility and stability in various formulation types. This provides improved wetting and increased gloss of formulations. Unlike dispersing additives, these resins form a hard, water-soluble film at room temperature and are thus part of the binder. In addition, adhesion can be positively influenced on some substrates.



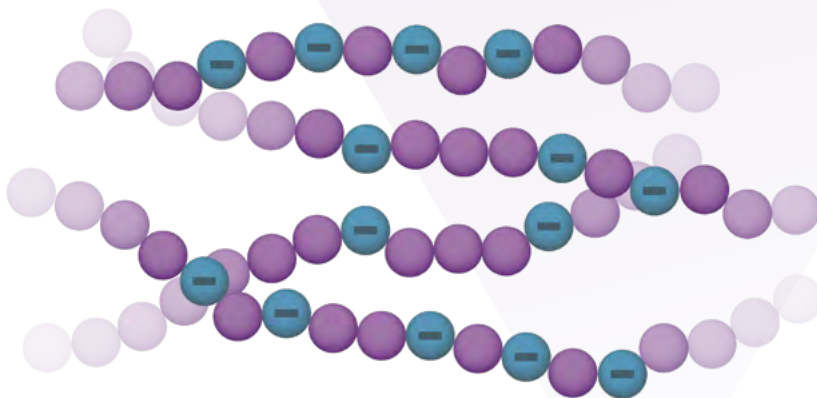
FEATURES & BENEFITS

Dispersing

- ▶ Excellent wetting and dispersibility of pigments
- ▶ High compatibility and stability in multiple formulation types
- ▶ Improves the wetting of formulations
- ▶ Improves gloss

Binding

- ▶ Formation of a hard, water-soluble film at room temperature
-





PRODUCT PORTFOLIO

WOOD COATINGS – INDUSTRIAL AND DIY

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	Tg [°C]
SYNTRAN® AC 2902	Inherently matte self-crosslinking acrylic polymer	Anionic	45	7.5	30	30
SYNTRAN® AC 4101	Cationic acrylic copolymer	Cationic	35	5.7	< 10	16
SYNTRAN® AC 4102	Cationic acrylic copolymer	Cationic	35	5.6	22	35
SYNTRAN® AC 5115	Multiphase acrylic copolymer	Anionic	43	7.5	20	N/A
SYNTRAN® AC 5917	Self-crosslinking multiphase acrylic polymer	Anionic	46	7.0	7	N/A
SYNTRAN® AC 5922	Self-crosslinking multiphase acrylic polymer	Anionic	44	7.0	0	N/A
SYNTRAN® AC 5923	Self-crosslinking multiphase acrylic polymer	Anionic	40	7.5	30	N/A
SYNTRAN® AC 6045	IPN acrylic polymer	Anionic	41	7.5	8	8
SYNTRAN® AC 6050	IPN acrylic polymer	Anionic	40	8.0	27	N/A
SYNTRAN® AC 6130	IPN acrylic copolymer	Anionic	40	8.8	52	68

FEATURES & BENEFITS

TOPCOATS/MULTILAYER
PRIMER/BASECOATS
ISOLATION PRIMER
JOINERY
OUTDOOR
FLOORS
FURNITURE

Very low- to satin-gloss lacquers with excellent water and blocking resistance, high transparency on dark substrates, excellent grain wetting and appearance on wood, excellent adhesion to multiple substrates; single binder or combination partner for inherently matte polyurethanes, non-matte PUDs and acrylic polymers, very low grain raise; OH-functional, can be further crosslinked with suitable isocyanates to improve scratch and chemical resistance

▲ ▲ ▲ ▲ ▲ ▲

Excellent universal stain-blocking properties: tannin, dye, nicotine, generally water-soluble ingredients; excellent adhesion

▲ ▲ ▲ ▲

Excellent universal stain-blocking properties: tannin, dye, nicotine, generally water-soluble ingredients; excellent adhesion

▲ ▲ ▲ ▲

Excellent adhesion to various substrates, fast drying, mixable with water-based alkyds

▲ ▲ ▲ ▲

Coatings for joinery, excellent outdoor and blocking resistance, extremely low water absorption, excellent transparency at high film thickness, good adhesion, fast drying, combination partner for hard acrylics to reduce the MFFT, combination partner for PUDs for exterior applications

▲ ▲ ▲ ▲ ▲ ▲

For decorative interior and exterior coatings with very low VOC content, high and low build stains and impregnations, low water absorption, good block resistance and exterior durability, excellent penetration into the wood substrate, good adhesion, excellent pigment wetting, combination partner for harder acrylics to improve adhesion and flexibility and to reduce the MFFT, combination partner for PUDs

▲ ▲ ▲ ▲ ▲ ▲

Coatings with excellent stain resistance (red wine, coffee, mustard) in white pigmented coatings (industrial and decorative), very good alcohol resistance; it forms very hard and scratch-resistant but also flexible films with high to medium gloss and good sandability; combination partner for PUDs, no impairment of the clarity of PUDs, easy to formulate

▲ ▲ ▲ ▲ ▲ ▲

Very good tannin, stain and dye blocking, excellent adhesion to multiple substrates, good water resistance and drying, easy to formulate, for very low-VOC formulations, suitable also for flexible substrates (e.g. textile) and for outdoor-resistant primers

▲ ▲ ▲ ▲ ▲

Very good tannin, stain and dye blocking, excellent adhesion to multiple substrates, good water resistance and drying, easy to formulate, for very low-VOC formulations, suitable also for flexible substrates (e.g. textile) and for outdoor-resistant primers

▲ ▲ ▲ ▲ ▲

Excellent adhesion, hardness and scratch resistance, very good water and grease resistance, good resistance to coffee and red wine in white coatings, clear when wet, reddish colour on wood in clear coatings, blending partner to SYNTRAN® AC 5922 and to SYNTRAN® AC 6045 in tannin- and stain-blocking applications

▲ ▲ ▲ ▲

▲ = Highly recommended ▲ = Recommended

PRODUCT PORTFOLIO

WOOD COATINGS – INDUSTRIAL AND DIY

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	Tg [°C]
SYNTRAN® AC 7016	Alkali-soluble acrylic copolymer	Anionic	39	5.5	20	36
SYNTRAN® AC 7018	Alkali-soluble acrylic copolymer	Anionic	25	8.0	0	15
SYNTRAN® AC 9034	Self-crosslinking acrylic polymer	Anionic	40	7.8	50	55
SYNTRAN® AC 9131	Self-crosslinking acrylic polymer	Anionic	42	7.2	15	29
SYNTRAN® APU 1602	Acrylic modified aliphatic poly-urethane dispersion	Anionic	39	8.0	12	N/A

METAL COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	Tg [°C]
SYNTRAN® AC 5923	Self-crosslinking multiphase acrylic polymer	Anionic	40	7.5	30	N/A
SYNTRAN® AC 7080	Acrylic polymer solution	Anionic	40	2.2	N/A	107
SYNTRAN® AC 9131	Self-crosslinking acrylic polymer	Anionic	42	7.2	15	29

FEATURES & BENEFITS

TOPCOATS/MULTILAYER
PRIMER/BASECOATS
ISOLATION PRIMER
JOINERY
OUTDOOR
FLOORS
FURNITURE

Clear and pigmented primers for roller coater and spray applications, wood stains, insulating coatings, adhesion primers under UV systems; very good insulation of water-soluble substances, excellent water resistance and good oil resistance

▲ ▲ ▲ ▲ ▲

Highly transparent wood stains and primers for industrial applications for room temperature and forced drying, excellent film clarity and compatibility with dyes and pigment preparations, well dilutable with alcohols

▲ ▲ ▲

General-purpose acrylic polymer, excellent early and final water resistance, good chemical resistance, dry heat resistance and hardness; light colour on "dark oak"; low grain raise in primer applications

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Self-crosslinking, excellent alkali- and water-submersion resistance, excellent adhesion to multiple substrates; film has very high gloss and flexibility and very good early water resistance; no VOCs required to formulate coating

▲ ▲ ▲

Excellent abrasion and good chemical resistance with suitability for 1K parquet coatings, highly compatible with other acrylic polymers and can be used as sole binder or in combination with other acrylic binders to improve abrasion resistance, very good combination partner to acrylic matte polymers with low increase in gloss level

▲ ▲ ▲ ▲ ▲

FEATURES & BENEFITS

PRIMER
METAL TOPCOAT
DIRECT TO METAL (DTM)

Easy to formulate, excellent compatibility with pigment pastes, very hard and scratch-resistant but also flexible films, high- to medium-gloss formulations, very good adhesion to different metals; DTM on non-ferrous substrates

▲ ▲

Surfactant-free with outstanding binding effect on metal, very good chemical resistance including diesel and E10 fuel, can also be used to formulate a rust converter

▲ ▲

Self-crosslinking, excellent alkali- and water-submersion resistance, excellent adhesion to multiple substrates; film has very high gloss and flexibility; no VOCs required to formulate coating; corrosion protection can be improved using inhibitor packages

▲ ▲

▲ = Highly recommended ▲ = Recommended

PRODUCT PORTFOLIO

ARCHITECTURAL COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	Tg [°C]
SYNTRAN® AC 4101	Cationic acrylic copolymer	Cationic	35	5.7	<10	16
SYNTRAN® AC 4102	Cationic acrylic copolymer	Cationic	35	5.6	22	35
SYNTRAN® AC 6045	IPN acrylic polymer	Anionic	41	7.5	8	8
SYNTRAN® AC 6050	IPN acrylic polymer	Anionic	40	8.0	27	N/A

CONCRETE COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	Tg [°C]
SYNTRAN® AC 5917	Self-crosslinking multiphase acrylic polymer	Anionic	46	7.0	7	N/A
SYNTRAN® AC 5923	Self-crosslinking multiphase acrylic polymer	Anionic	40	7.5	30	N/A
SYNTRAN® AC 6130	IPN acrylic copolymer	Anionic	40	8.8	52	68
SYNTRAN® AC 9120	Self-crosslinking acrylic polymer	Anionic	43	7.0	45	57
SYNTRAN® AC 9131	Self-crosslinking acrylic polymer	Anionic	42	7.2	15	29

FEATURES & BENEFITS

ROOFING
ISOLATION PRIMER

Excellent universal stain-blocking properties: tannin, dye, nicotine, generally water-soluble ingredients; excellent adhesion



Excellent universal stain-blocking properties: tannin, dye, nicotine, generally water-soluble ingredients; excellent adhesion



Excellent anti-migration properties, especially for use in white roof coatings, excellent adhesion to multiple substrates, good water resistance and drying, easy to formulate, for very low-VOC primers



Excellent anti-migration properties, especially for use in white roof coatings, excellent adhesion to multiple substrates, good water resistance and drying, easy to formulate, for very low-VOC primers



FEATURES & BENEFITS

PRIMER
TOPCOAT
SEALER & DECORATIVE
POOL DECKS

Self-crosslinking, excellent alkali- and water-submersion resistance, excellent adhesion to multiple substrates; film has very high gloss and flexibility; no VOCs required to formulate coating; early water and blush resistance can be improved through formulation



Self-crosslinking, excellent alkali- and water-submersion resistance, excellent adhesion to multiple substrates; film has very high gloss and flexibility; no VOCs required to formulate coating; early water and blush resistance can be improved through formulation



Excellent solvent resistance and abrasion resistance, fast drying, high crosslinking density, improved compatibility, low solvent demand



Self-crosslinking, excellent household stain resistance, outstanding hot tire and Beta-dine resistance, excellent water-submersion resistance, very hard and high-gloss film with good printability; low addition of VOCs required to formulate coating



Self-crosslinking, excellent household stain resistance, small particle size for deep penetration into concrete, excellent water-submersion resistance, excellent adhesion to multiple substrates; film has very high gloss; no VOCs required to formulate coating



▲ = Highly recommended ▲ = Recommended

PRODUCT PORTFOLIO

PLASTIC COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	Tg [°C]
SYNTRAN® AC 2902	Inherently matte self-crosslinking acrylic polymer	Anionic	45	7.5	30	30
SYNTRAN® AC 5917	Self-crosslinking multiphase acrylic polymer	Anionic	46	7.0	7	N/A
SYNTRAN® AC 5923	Self-crosslinking multiphase acrylic polymer	Anionic	40	7.5	30	N/A

ADDITIVES

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]
WAXES					
SYNTRAN® WA 1001	Hard polyethylene wax emulsion	Nonionic / anionic	35	9.5	N/A
SYNTRAN® WA 1005	Hard polyethylene wax emulsion	Nonionic / anionic	35	8.7	N/A
SYNTRAN® WA 1065	Wax-hybrid acrylic	Nonionic / anionic	38	9.2	35
GRINDING RESINS					
SYNTRAN® DR 7061	Alkali-soluble acrylic polymer	Anionic	25	7.1	77
SYNTRAN® DR 7101	Alkali-soluble acrylic polymer	Anionic	30	7.0	70

RUBBER COATINGS
RIGID PLASTICS

FEATURES & BENEFITS

Very low- to satin-gloss lacquers with excellent water and blocking resistance, high transparency and good adhesion on ABS; to be used as single binder or in combination with PUDs and acrylic polymers; OH-functional and can be further crosslinked with suitable isocyanates to improve scratch and chemical resistance



Excellent outdoor and blocking resistance, extremely low water absorption, excellent transparency at high film thickness, good adhesion, fast drying, combination partner for hard acrylics to reduce the MFFT, combination partner for PUDs for exterior applications



Easy to formulate, excellent compatibility with pigment pastes, very hard and scratch-resistant but also flexible films, high- to medium-gloss formulations, very good adhesion to ABS



FEATURES & BENEFITS

Hard and high melting polyethylene wax emulsion, melting range 122–139 °C; abrasion and scratch resistance, anti-blocking. It can improve the friction resistance and anti-blocking properties of the surface.

Hard and high melting polyethylene wax emulsion, melting range 130–140 °C; abrasion and scratch resistance, anti-blocking; excellent compatibility with all known water-based polymer dispersions

Patented acrylic olefin graft technology. This unique incorporation of olefin onto the backbone of the acrylic provides a high coefficient of static friction, slip resistance, burnishing resistance, internal mar resistance and UV stability (non-yellowing).

Polymeric surfactant technology designed to provide excellent wetting and incorporation of pigments or additives into water-based coatings; used as a grinding resin in pigment dispersions, it improves the colour development of organic pigments, carbon black and titanium dioxide

Polymeric surfactant technology designed to improve dispersibility and colour development of water-based pigment concentrates and coatings and can be used for both inorganic and organic pigment dispersions. Used as a grinding resin, it shows excellent rheology control and storage stability with multiple pigment types. Compliant with Swiss Ordinance and FDA for indirect food contact.

▲ = Highly recommended ▲ = Recommended



Chemistry tailor-made

► EUROPE

Zschimmer & Schwarz

Interpolymer Sàrl
6 rue Marie Curie
67160 Wissembourg | FR
T +33 3 88 54 96 96 | F +33 3 88 54 96 99
info.zif@zschimmer-schwarz.com
zschimmer-schwarz.com

Zschimmer & Schwarz

GmbH & Co KG Chemische Fabriken
Max-Schwarz-Strasse 3-5
56112 Lahnstein | DE
T +49 2621 12-0 | F +49 2621 12-407
info@zschimmer-schwarz.com
zschimmer-schwarz.com

Lefatex Chemie GmbH

Stiegstrasse 64
41379 Brueggen-Bracht | DE
T +49 2157 8789-0 | F +49 2157 8789-19
sale@lefatex.de
lefatex.com

► AMERICA

Zschimmer & Schwarz

Interpolymer Inc.
7501 Distribution Dr.
Louisville, KY 40258 | US
T +1 800 451 8177 | F +1 502 933 3394
info.zius@zschimmer-schwarz.com
zschimmer-schwarz.com

Zschimmer & Schwarz, Inc.

70 GA Highway 22 W
Milledgeville, GA 31061 | US
T +1 478 454 1942 | F +1 478 453 8854
info.zsus@zschimmer-schwarz.com
zschimmer-schwarz.com

► ASIA

Zschimmer & Schwarz

Interpolymer (Shanghai) Co., Ltd.
Building 1, Rm401, 4277 Yindu Road
Shanghai 201108 | CN
T +86 21 5409 8070 | F +86 21 5409 8069
info@interpolymer.com.cn
zschimmer-schwarz.com

Interpolymer Korea Co., Ltd.

812 Ohchu-ri, Goduck-myeon
Yesan-gun, Chungcheongnam-do | KR
T +82 31 389 8846
info@khaiel.com | khaiel.com
zschimmer-schwarz.com

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