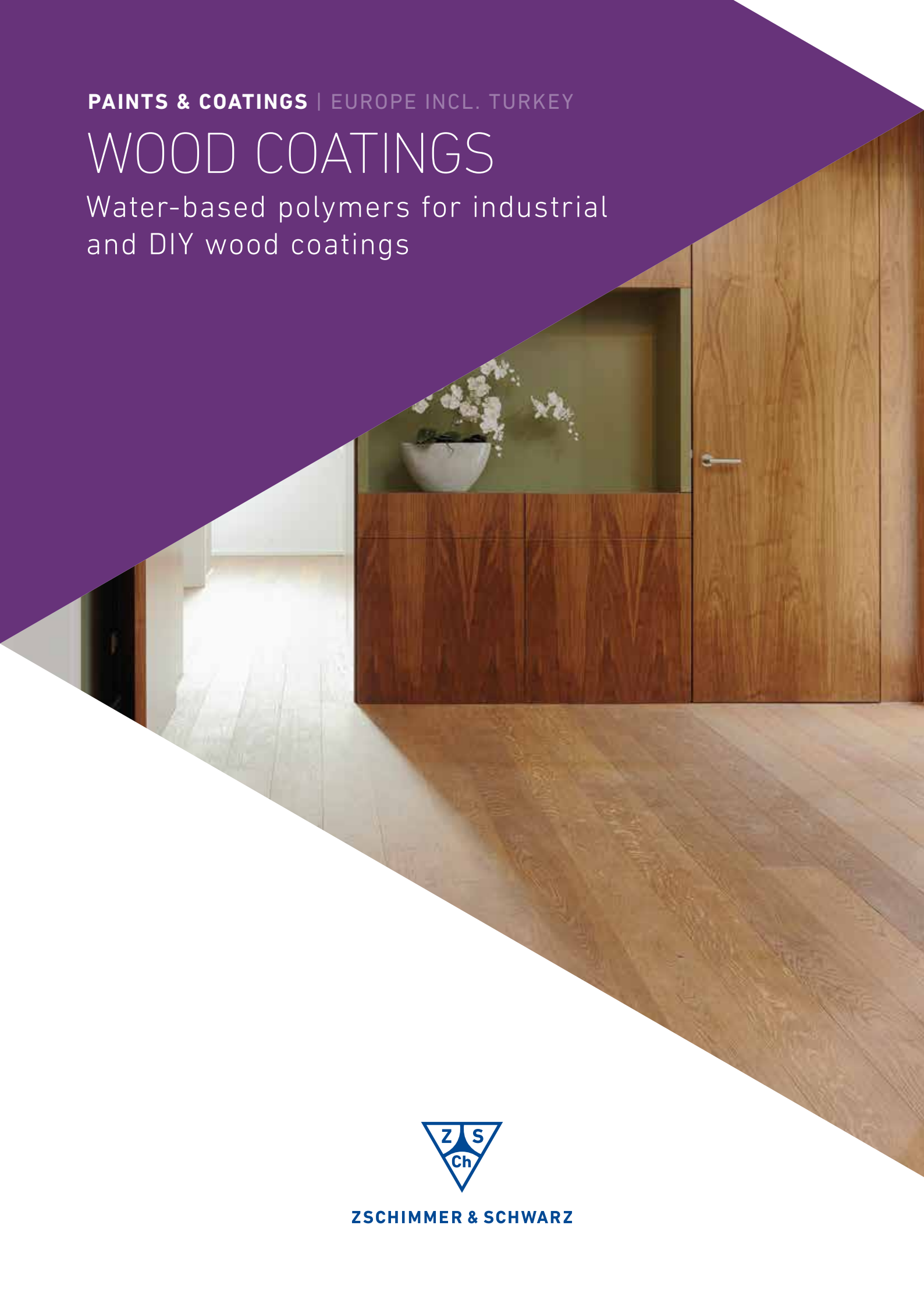


PAINTS & COATINGS | EUROPE INCL. TURKEY

WOOD COATINGS

Water-based polymers for industrial
and DIY wood coatings



ZSCHIMMER & SCHWARZ



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.

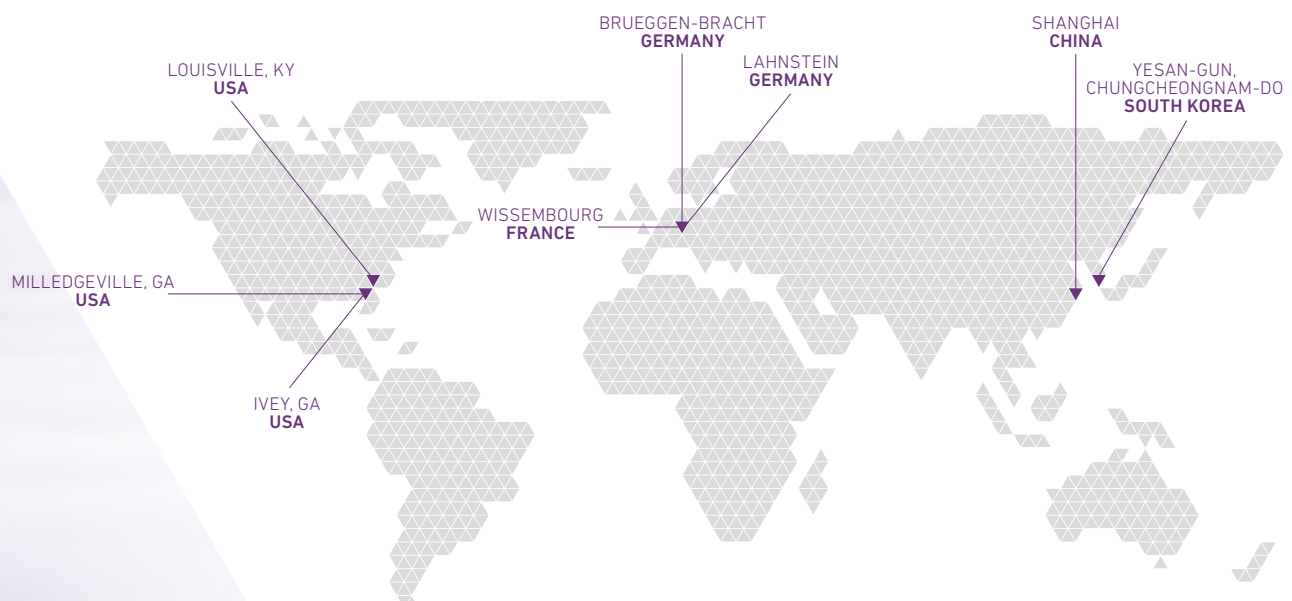
A FAMILY BUSINESS WITH A GLOBAL FORMULA FOR SUCCESS

The corporate group Zschimmer & Schwarz comprises 30 companies in 17 countries on five continents, 22 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.







WOOD COATINGS

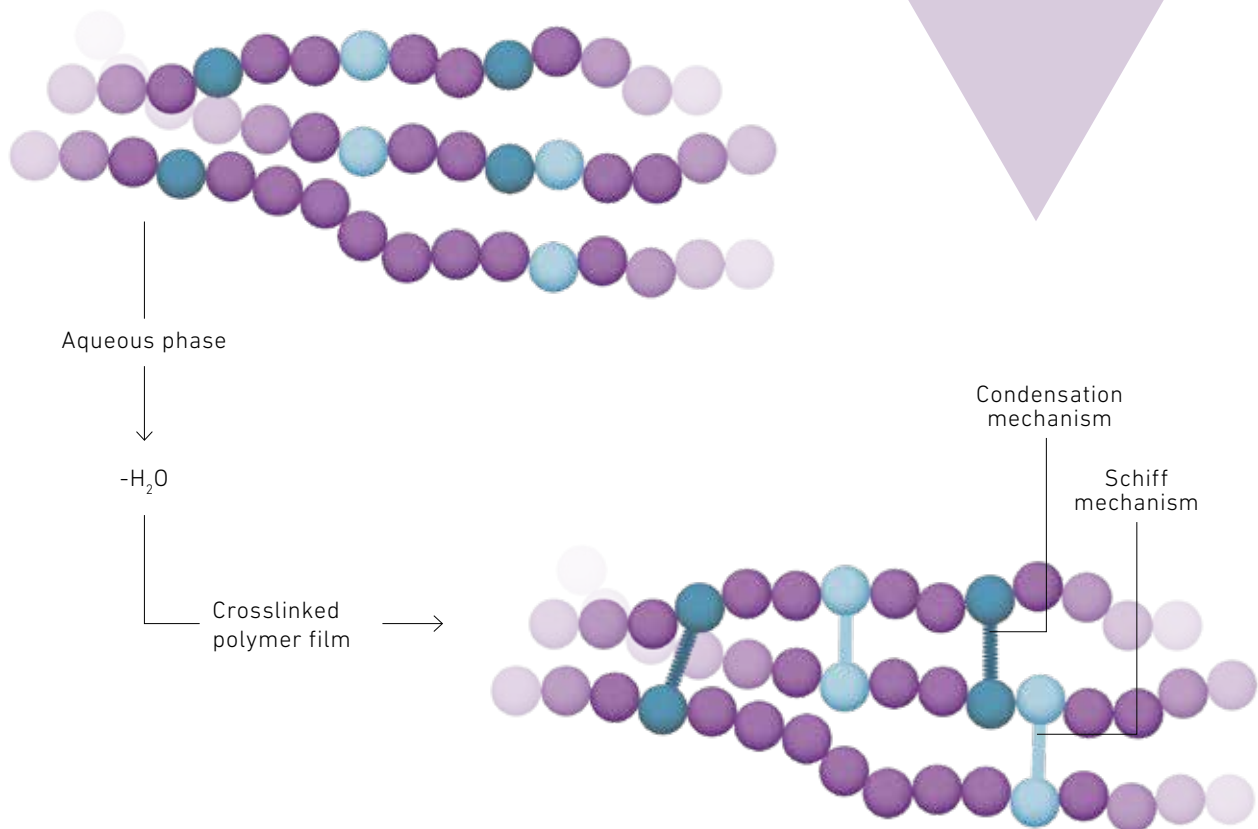
Appearance, haptics, durability: wood products are subject to the highest demands, which can usually only be met by a high-performance coating. For formulations that meet these challenges, Zschimmer & Schwarz offers water-based polymers as universal binders and for special applications.

SELF-CROSSLINKING TECHNOLOGY

Our portfolio includes polymer dispersions with two different 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



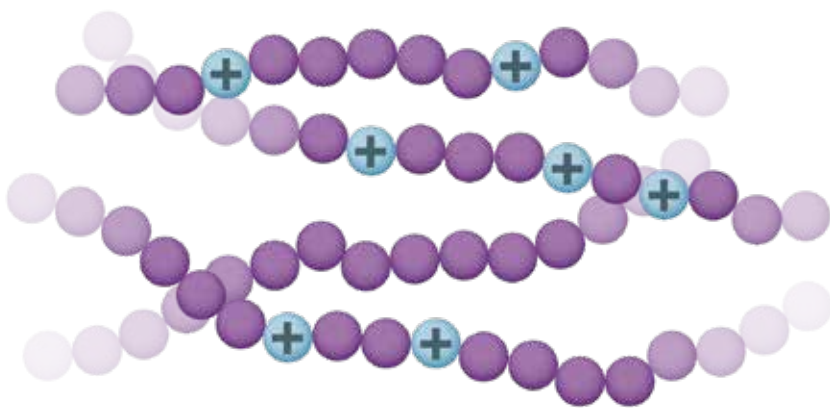


CATIONIC TECHNOLOGY

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 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 for highly pigmented and low-VOC systems
 - ▶ Protective films with good sanding resistance
 - ▶ Less discolouration of wood due to low pH
-

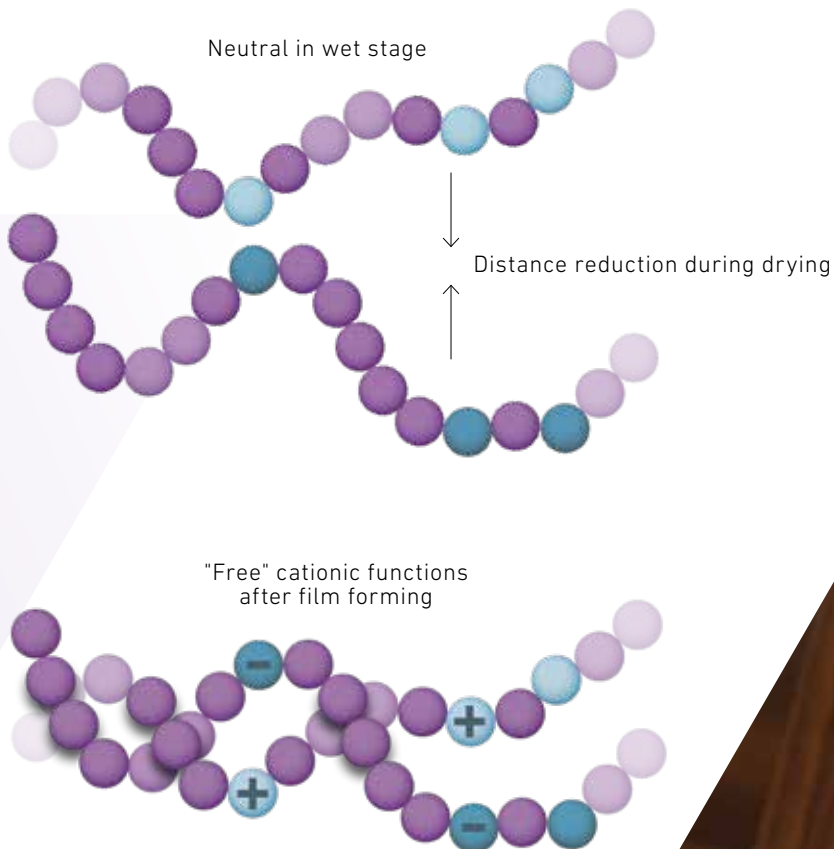


INTERPENETRATING POLYMER NETWORK (IPN)

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, VOC requirements for the formulation remain low.

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
 - ▶ Low VOC requirements to formulate coatings
-



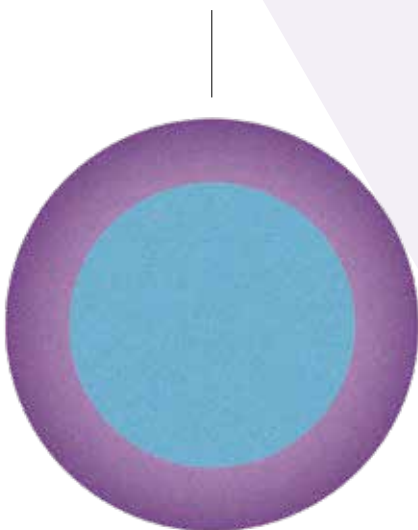
MULTIPHASE TECHNOLOGY

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. Thus, some of these products are approved for indirect food contact in compliance with the FDA and Swiss Ordinance.

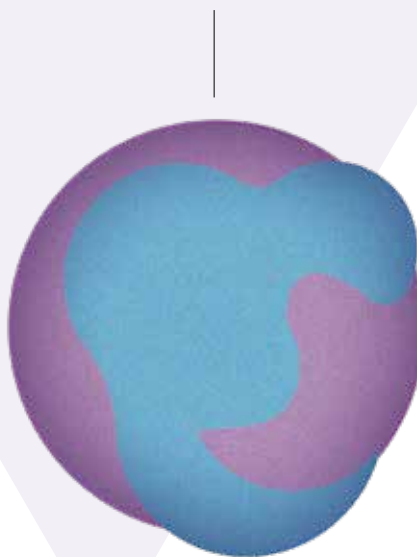
FEATURES & BENEFITS

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

Core-shell



Multi-lobed

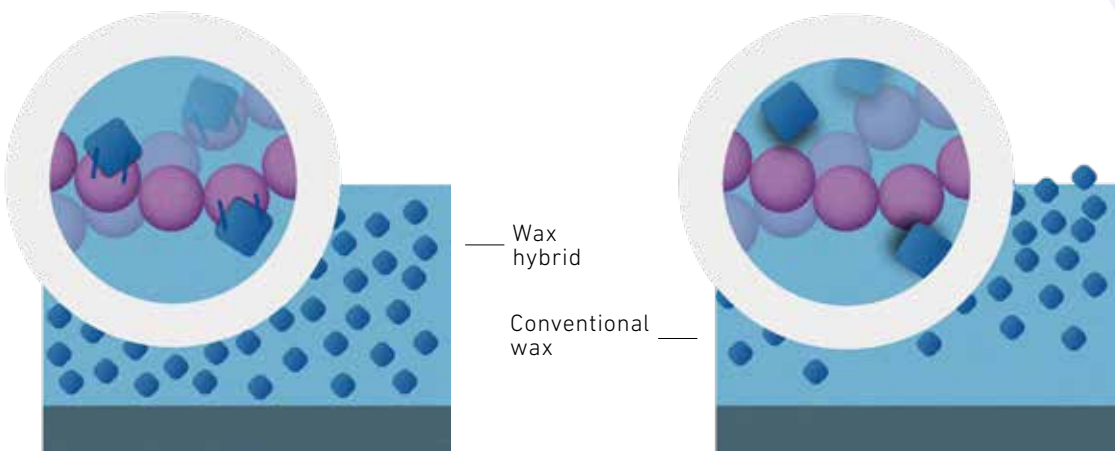


WAX-HYBRID TECHNOLOGY

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.



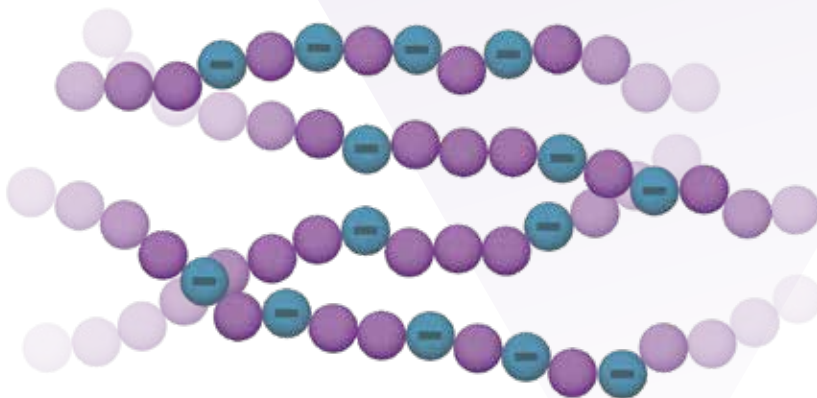
FEATURES & BENEFITS

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

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	PH	MFFT [°C]
DJ17016-09	Multiphase acrylic copolymer	Anionic	43	7.5	20
SYNTRAN® AC 4102	Cationic acrylic copolymer	Cationic	35	5.7	22
SYNTRAN® AC 4103	Cationic acrylic copolymer	Cationic	35	5.6	40
SYNTRAN® AC 5922	Self-crosslinking multiphase acrylic polymer	Anionic	44	7.0	0
SYNTRAN® AC 6130	IPN acrylic copolymer	Anionic	40	8.8	50
SYNTRAN® APU 1602	Acrylic modified aliphatic polyurethane dispersion	Anionic	39	8.0	12

ADDITIVES FOR WOOD COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	PH	MFFT [°C]
WAX					
SYNTRAN® WA 1001	Hard polyethylene wax emulsion	Nonionic / anionic	35	9.5	
SYNTRAN® WA 1005	Hard polyethylene wax emulsion	Nonionic / anionic	35	8.7	
SYNTRAN® WA 1065	Wax-hybrid acrylic	Nonionic / anionic	38	9.2	35
OPAQUE POLYMERS					
SYNTRAN® OP 1133	"Opaque polymer", non-film-forming polymer	Anionic	35	7.0	80
SYNTRAN® OP 1134	"Opaque polymer", non-film-forming polymer	Anionic	40	2.5	80
GRINDING RESINS					
SYNTRAN® DR 7015	Alkali-soluble acrylic polymer	Anionic	30	7.5	100
SYNTRAN® DR 7061	Alkali-soluble acrylic polymer	Anionic	25	7.2	77

FEATURES & BENEFITS

	TOPCOATS/MULTILAYER	PRIMER/BASECOATS	ISOLATION PRIMER	JOINERY	OUTDOOR FLOORS	FURNITURE
Good tannin, stain and dye blocking, excellent adhesion to various substrates, including flexible films and foils, fast drying	▲	▲				▲
Excellent universal stain-blocking properties: tannin, dye, nicotine, generally water-soluble ingredients; excellent adhesion		▲	▲		▲	▲
Excellent universal stain-blocking properties for water-soluble wood extractives, nicotine and dyes, excellent adhesion, fast drying		▲			▲	▲
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 reduce the MFFT, combination partner for PUDs	▲	▲		▲	▲	▲
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	▲				▲	▲
Very good abrasion resistance and good chemical resistance	▲	▲		▲	▲	▲

▲ = Highly recommended ▲ = Recommended

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 and UV stability (non-yellowing).

This polymer can be used to replace a certain percentage of titanium dioxide in white paints, printing and inkjet inks, maintaining the same coverage with improved brightness and hardness.

This polymer can be used to replace a certain percentage of titanium dioxide in white paints and printing inks, maintaining the same coverage with improved brightness and hardness.

Polymeric surfactant technology designed to provide excellent wetting and incorporation of pigments or additives into water-based coatings.

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 colour development of organic pigments and carbon black.



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.
188 Pingfu Road, Building 3, Rm308
Shanghai 200231 | 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
zschimmer-schwarz.com
khaiel.com