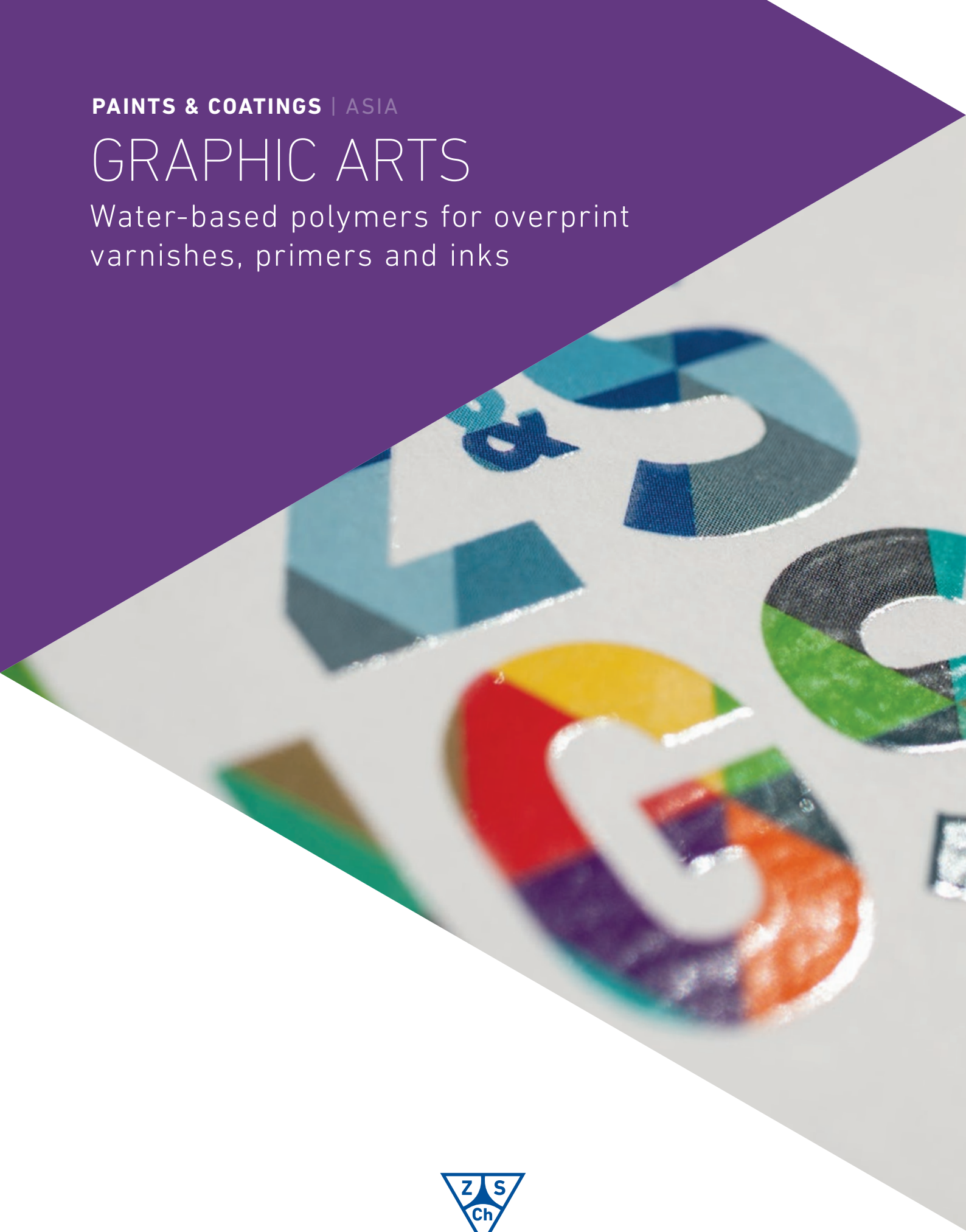
PAINTS & COATINGS | ASIA

GRAPHIC ARTS

Water-based polymers for overprint varnishes, primers and inks



ZSCHIMMER & SCHWARZ

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CHEMISTRY TAILOR-MADE

Zschimmer & Schwarz is a global supplier of chemical auxiliaries and specialities 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 specialities as well.

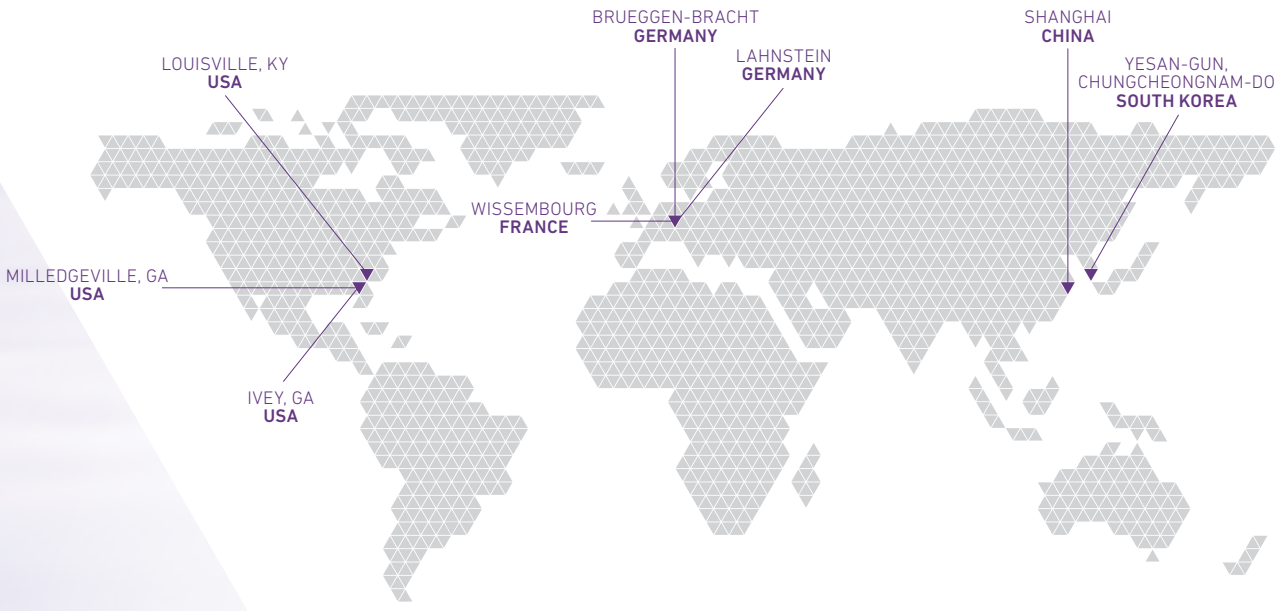
A FAMILY BUSINESS WITH A GLOBAL FORMULA FOR SUCCESS

The corporate group Zschimmer & Schwarz comprises 28 companies in 16 countries on five continents, 20 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

High-quality print products with the highest demands on appearance and durability require optimally matched binder systems. As experts in environmentally friendly aqueous dispersions, Zschimmer & Schwarz offers tailor-made products for a wide variety of formulations in the graphic arts sector through precise control of the polymerisation process.

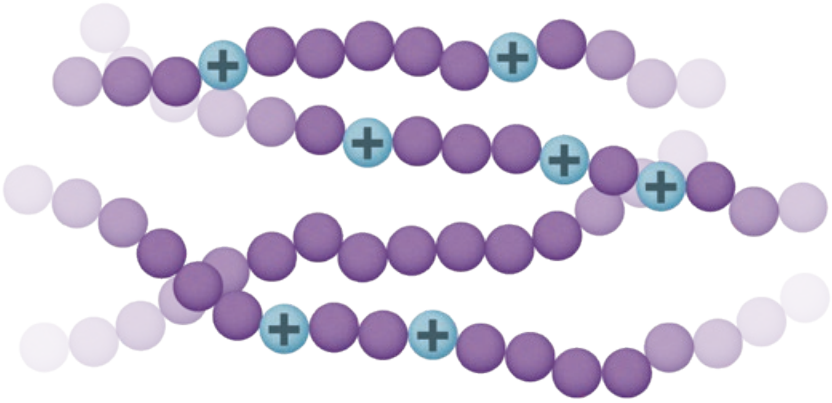
Since visually appealing and durable results can often only be achieved in a multi-layer build-up with primer or overprint varnish, Zschimmer & Schwarz has also developed water-based polymers for this purpose, which we adapt to your applications on request.

CATIONIC TECHNOLOGY

Zschimmer & Schwarz offers polycationic systems with an optimal acidic pH range and high charge density. Cationic resins provide excellent adhesion to various critical anionic surfaces and form an excellent ink-receptive layer. By complexing anionic structures such as water-soluble soils, these products show outstanding stain blocking. On porous substrates, the small particle size also leads to good penetration into the substrate, which further improves adhesion and protection. These properties make these polymers especially well suited for use in various applications in the graphic arts sector.

FEATURES & BENEFITS

- Excellent adhesion to various problematic surfaces
- Film shows excellent ink receptiveness
- Superior stain blocking
- Forms soft to medium-hard films
- Colourless and glossy films
- Suitable for highly pigmented and low-VOC systems

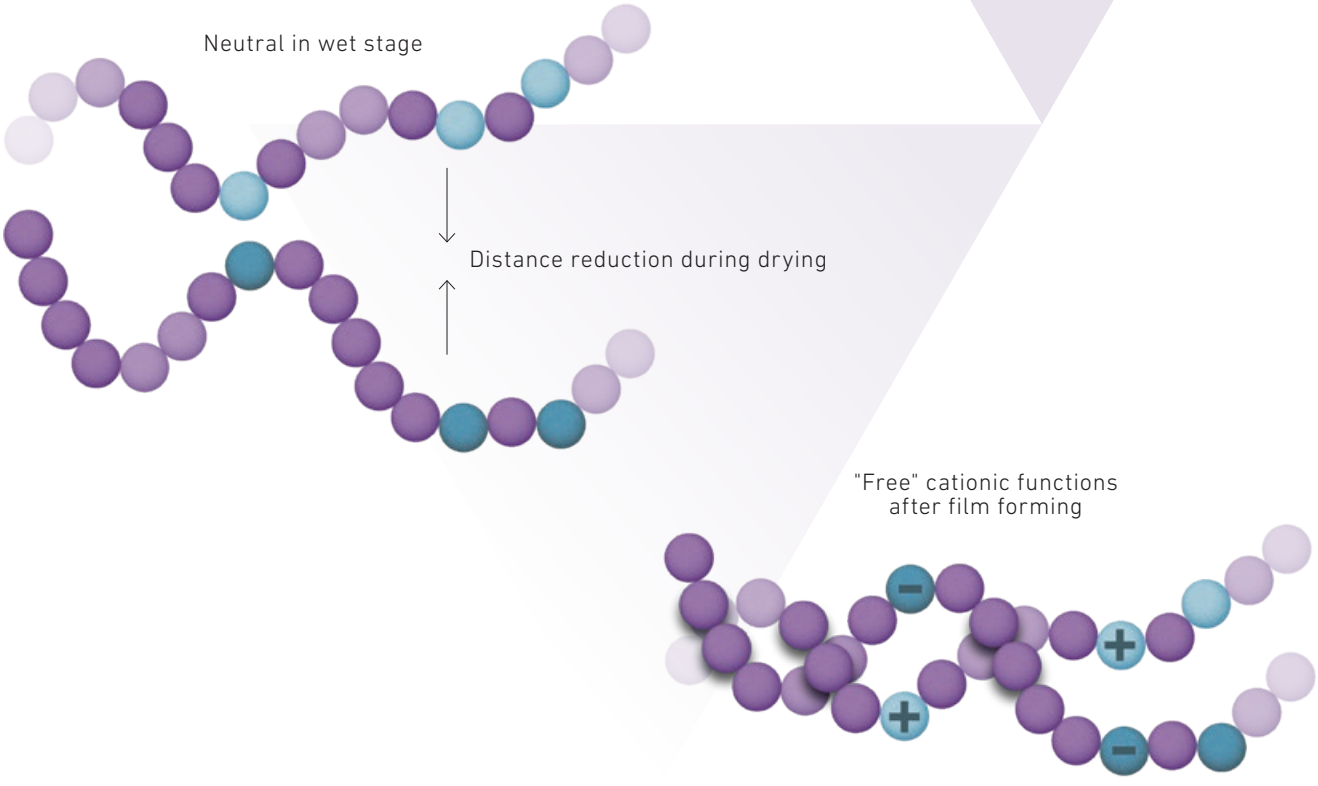


INTERPENETRATING POLYMER NETWORK (IPN)

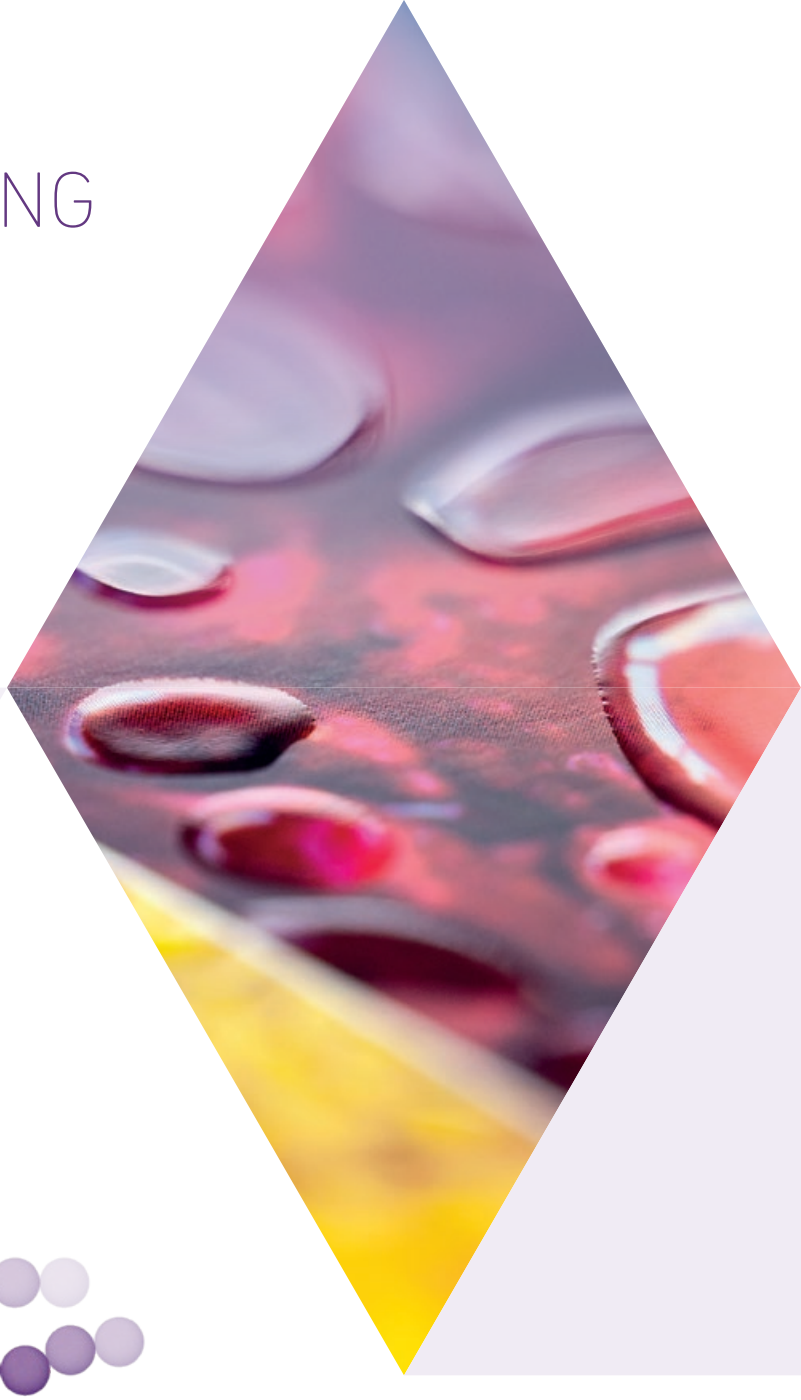
The IPN involves two different ionic structures in the same polymer network at a neutral pH value. Overall, the polymer exhibits an anionic behaviour and can thus be formulated like an anionic polymer. Cationic functionalities then form during drying, providing excellent stain and dye blocking without the compatibility problems common to cationic polymers. Adhesion to various substrates such as paper and board, labels as well as metallised substrates is also improved. At the same time, VOC requirements for the formulation remain low.

FEATURES & BENEFITS

- Enables cationic functionalities in anionic formulations
- Excellent stain and dye blocking
- Excellent adhesion to multiple substrates like paper and board, labels as well as metallised substrates
- High compatibility with other resins and additives
- Low VOC requirements to formulate coatings



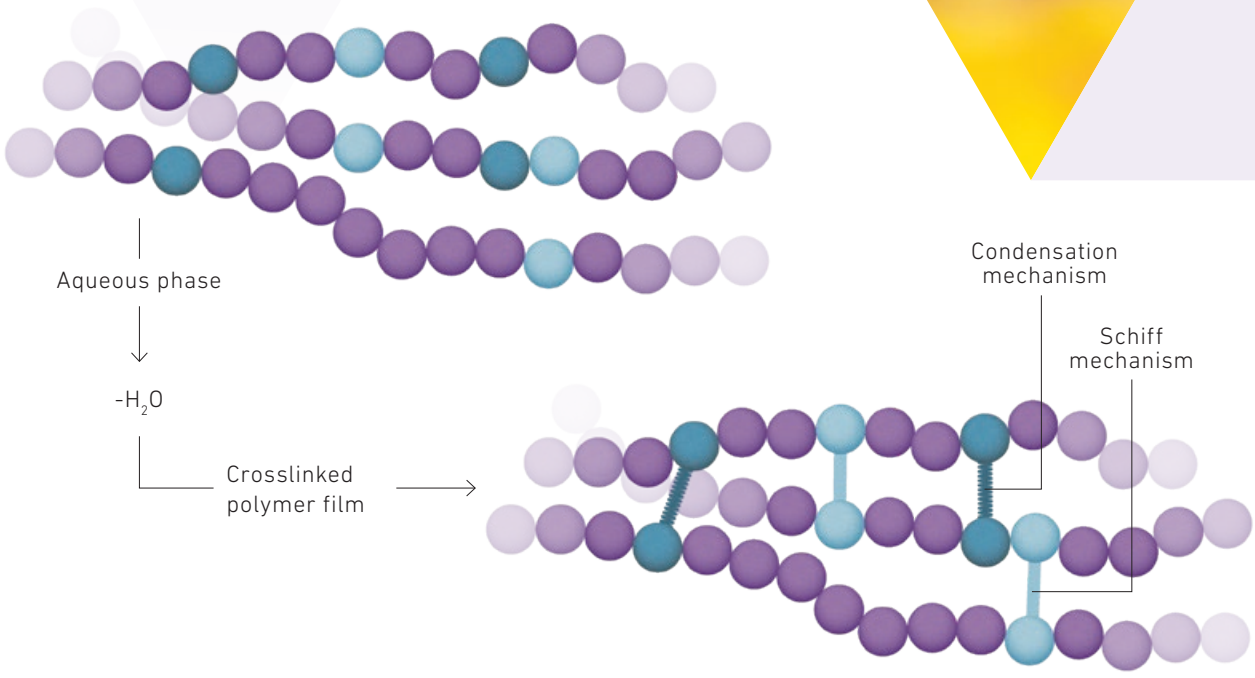
SELF-CROSSLINKING TECHNOLOGY



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. High-performance coatings as well as overprint varnishes benefit from this in particular.

FEATURES & BENEFITS

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



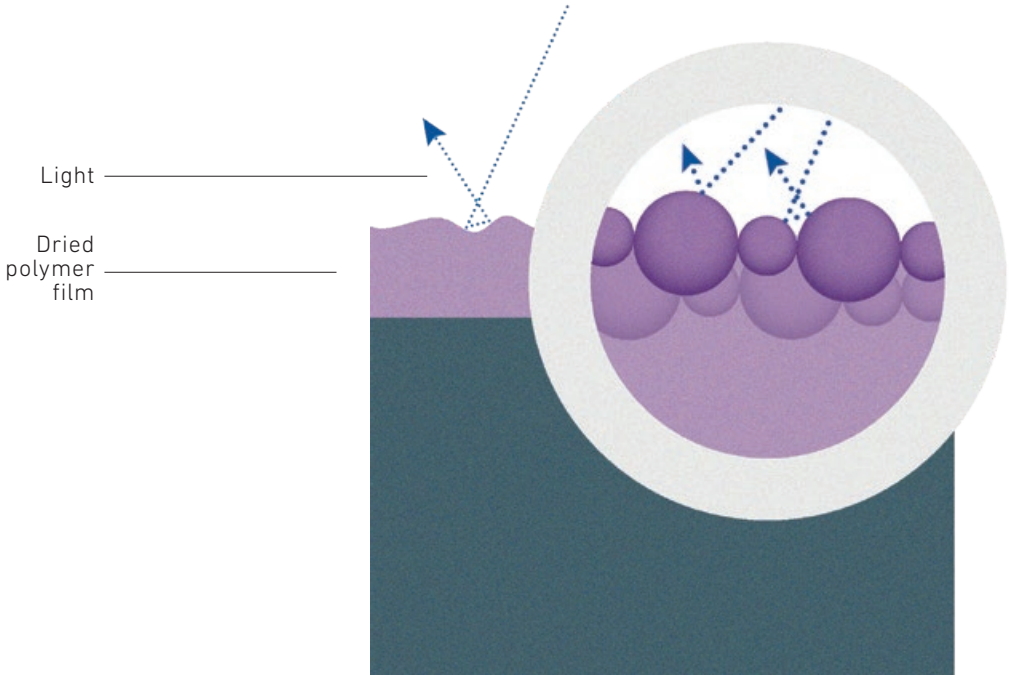
INHERENTLY MATTE TECHNOLOGY

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 and has low foaming and low VOC requirements. 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

- Easy to formulate with low foaming
- Low VOC demand
- Stable – no settling of the polymer

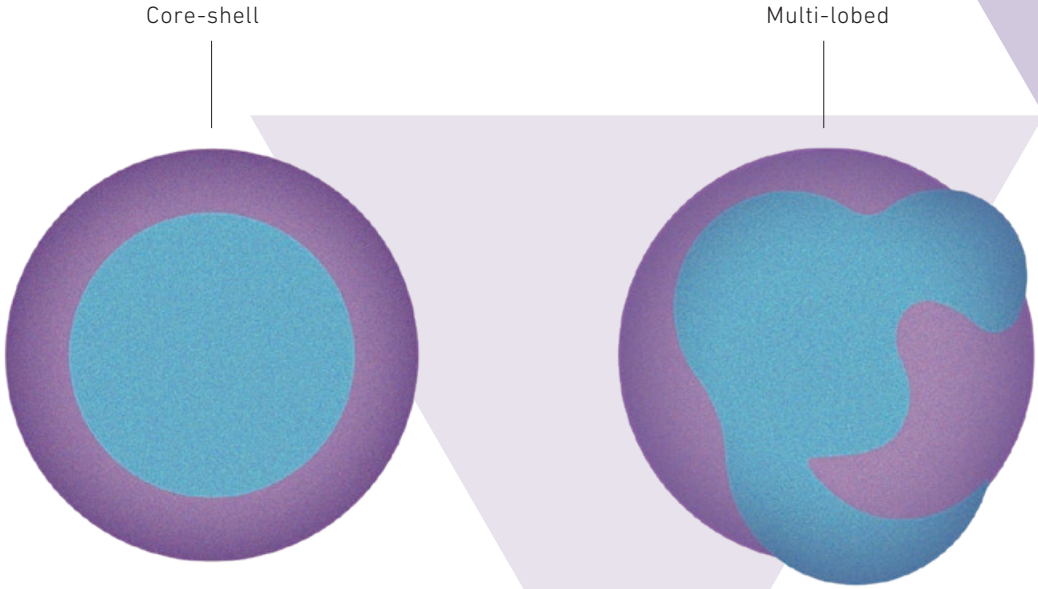


MULTIPHASE TECHNOLOGY

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. 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.

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

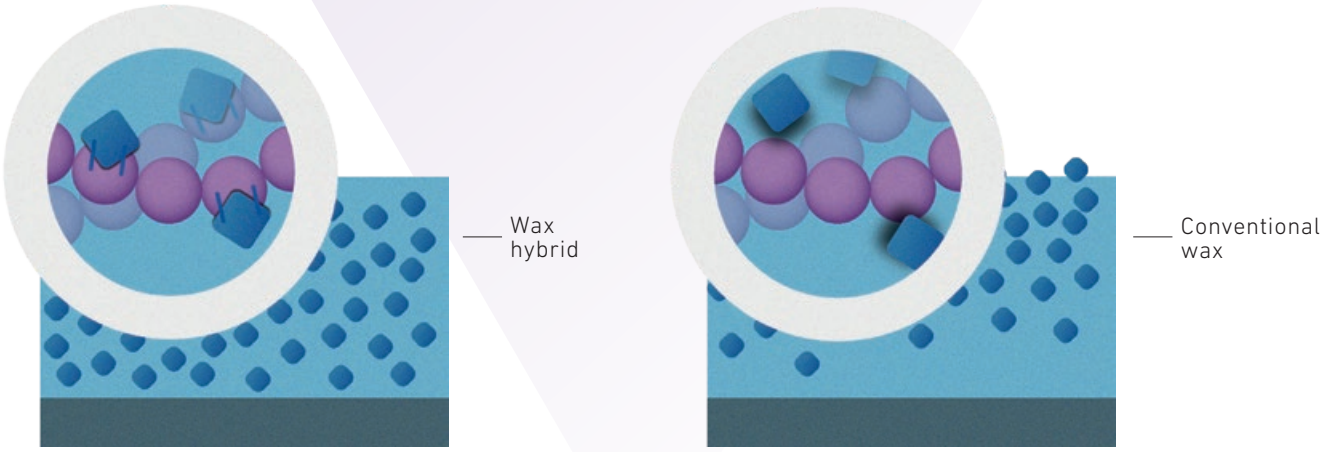


WAX-HYBRID TECHNOLOGY

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

- 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.

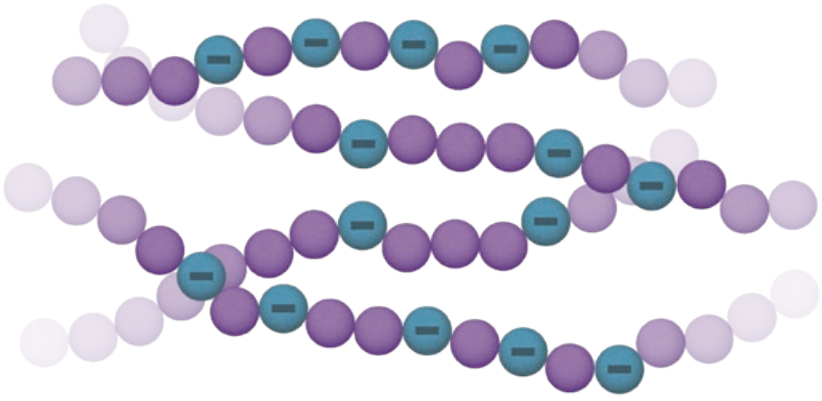
FEATURES & BENEFITS

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

RESINS FOR OPV, PRIMER AND INKS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]
SYNPRINT AC 2920	Inherently matte self-crosslinking acrylic polymer	Anionic	45	7.5	30
SYNPRINT AC 1101	Acrylic copolymer	Anionic	45	8.5	< 0
SYNPRINT AC 1104	Acrylic copolymer	Anionic	48	8.6	80
SYNPRINT AC 1107	Acrylic copolymer	Anionic	48	8.0	70
SYNPRINT AC 4110	Cationic acrylic copolymer	Cationic	35	5.7	< 10
SYNPRINT AC 5111	Multiphase acrylic copolymer	Anionic	44	7.0	> 90
SYNPRINT AC 5121	Multiphase acrylic copolymer	Anionic	44	7.1	20
SYNPRINT AC 5151	Multiphase acrylic copolymer	Anionic	43	7.5	20
SYNPRINT AC 6054	IPN acrylic polymer	Anionic	41	7.5	8
SYNPRINT AC 7056	Alkali-soluble acrylic copolymer	Anionic	39	5.5	20
SYNPRINT AC 7110	Alkali-soluble acrylic polymer	Anionic	30	7.0	70
SYNPRINT AC 9016	Self-crosslinking acrylic polymer	Anionic	41	8.0	61
SYNPRINT AC 9113	Self-crosslinking acrylic polymer	Anionic	42	7.2	15

FEATURES & BENEFITS	OPV	PRIMER	PAPER & BOARD	METALLISED SUBSTRATES	PLASTIC FILMS
Inherently matte polymer for very low- to medium-gloss OPVs and printing inks; it forms a low-gloss film without the additional use of waxes or powdered matting agents and gives a slightly soft touch to the surface with excellent blocking and water resistance; compatible with both organic and inorganic pigment pastes, does not affect the colour of the ink	▲		▲	△	
Good levelling, good adhesion and flexibility	▲		▲		
Excellent gloss, improved water resistance and blocking resistance	▲		▲		
Very good adhesion on laminated PVC substrate, for high-gloss formulations	▲		▲		
Excellent adhesion to a wide variety of substrates, excellent bonding of anionic inks, universal stain-blocking properties, APEO- and cosolvent-free, for low-VOC formulations		△	▲	△	
Hard emulsion, fast drying, APEO-free, low odour, compliant with Swiss Ordinance	▲		▲		
Good levelling, good adhesion on paper and board, very flexible, low odour, compliant with Swiss Ordinance	▲		▲		
Very high gloss, flexibility with excellent printability, high compatibility with waxes and other additives, excellent adhesion to flexible films and foils, zero VOC requirements to formulate coating	▲	▲	▲	▲	▲
Excellent adhesion to multiple substrates, low heat seal temperature requirements, high compatibility with other resins and additives, good ink receptiveness and anchoring		▲	▲	▲	
Good adhesion on metallised foil, excellent blocking resistance and water resistance		▲		▲	
Excellent pigment dispersing ability, high gloss and holdout, excellent ink transfer and printability, good compatibility with acrylic emulsions, easy to use in ink and OPV, APEO-free, low odour, compliant with Swiss Ordinance and FDA regulations	▲		▲		
Very good adhesion on laminated PVC substrate, for low-gloss formulations	▲		▲		▲
Excellent adhesion to multiple substrates such as PET, film has high gloss and flexibility with good printability, excellent let-down binder for water-based printing inks, zero VOC requirements	▲	▲		▲	▲

▲ = Highly recommended △ = Recommended

PRODUCT PORTFOLIO

ADDITIVES FOR OPV, PRIMER AND INKS

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 1065	Wax-hybrid acrylic	Nonionic / anionic	38	9.1	35
GRINDING RESINS					
SYNTRAN® DR 7060	Alkali-soluble acrylic polymer	Anionic	25	7.0	70
SYNTRAN® DR 7101	Alkali-soluble acrylic polymer	Anionic	30	7.0	70

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.	
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).	
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.	
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.	

Chemistry tailor-made

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-myen
Yesan-gun, Chungcheongnam-do | KR
T +82 31 389 8846
info@khaiel.com | khaiel.com
zschimmer-schwarz.com

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

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