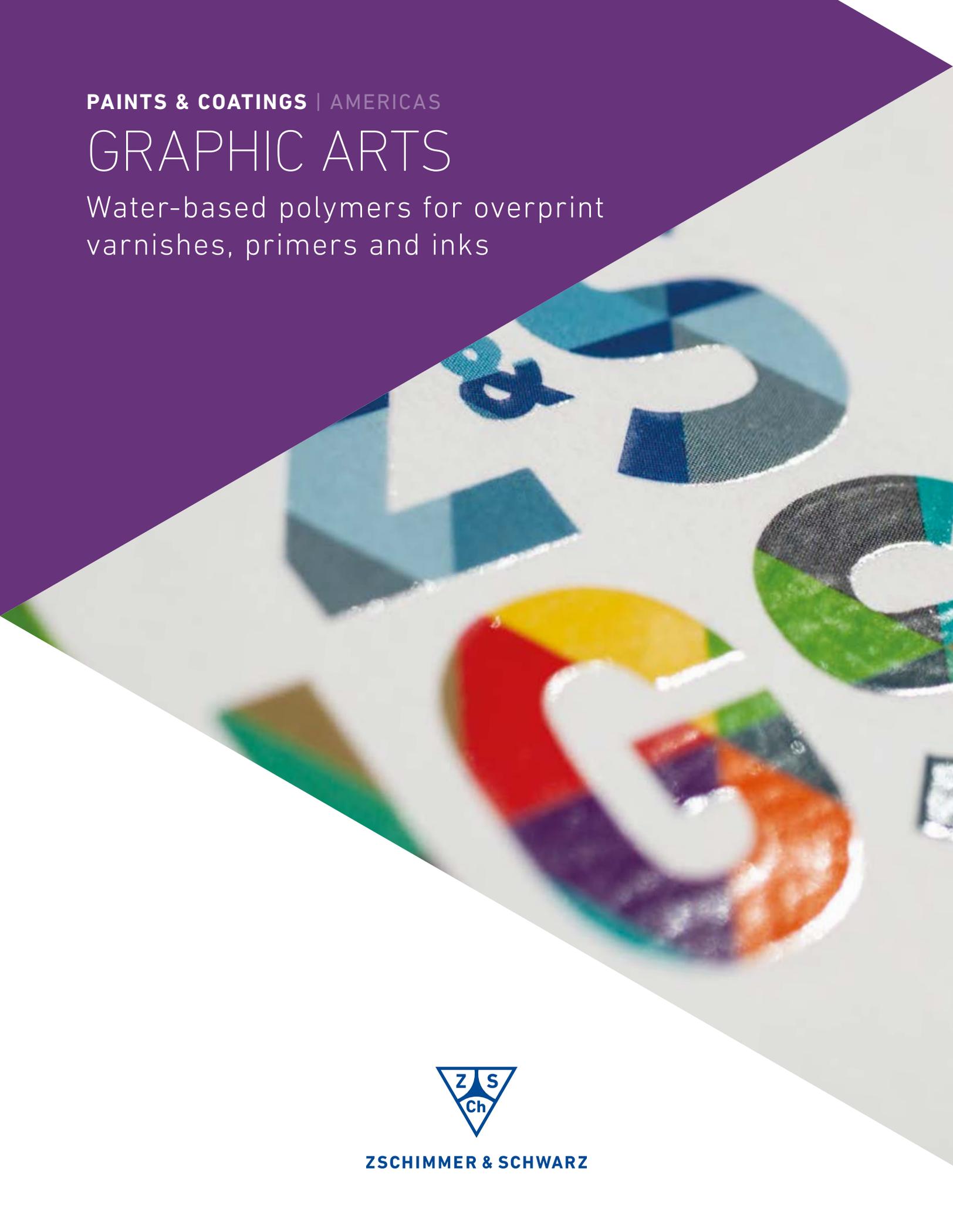


**PAINTS & COATINGS** | AMERICAS

# GRAPHIC ARTS

Water-based polymers for overprint  
varnishes, primers and inks



**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 fiber 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.

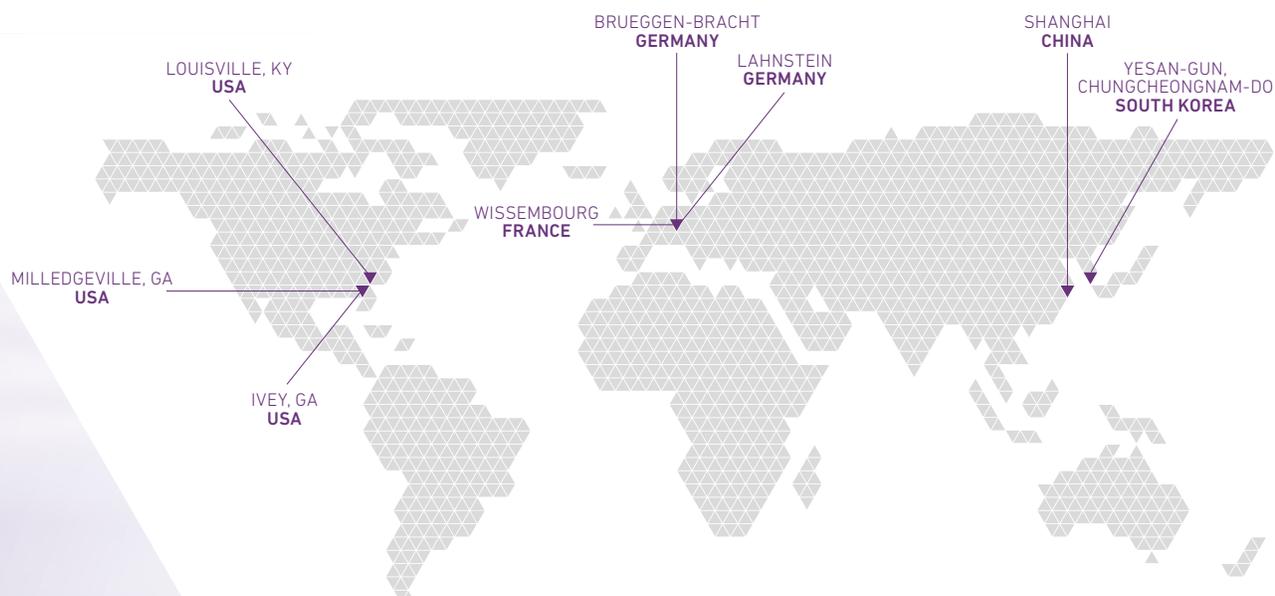
## A FAMILY BUSINESS WITH A GLOBAL FORMULA FOR SUCCESS

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 optimized 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.





# GRAPHIC ARTS

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 polymerization 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.

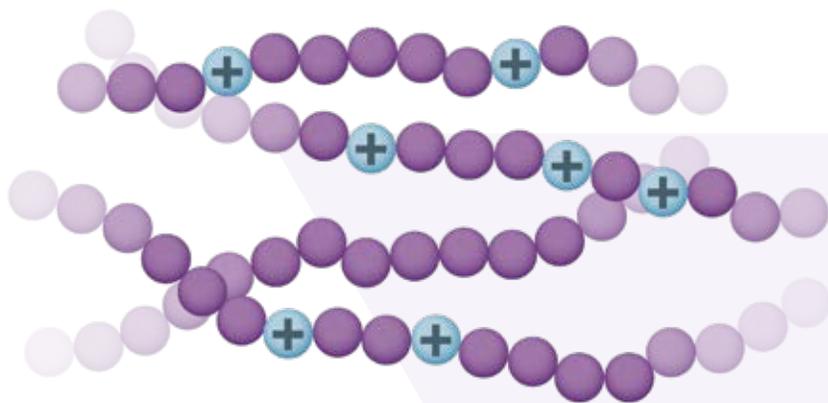
# CATIONIC TECHNOLOGY

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.

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## FEATURES & BENEFITS

- ▶ Excellent adhesion to various problematic surfaces
  - ▶ Film shows excellent ink receptiveness
  - ▶ Superior stain blocking
  - ▶ Forms soft to medium-hard films
  - ▶ Colorless and glossy films
  - ▶ Suitable for highly pigmented and low-VOC systems
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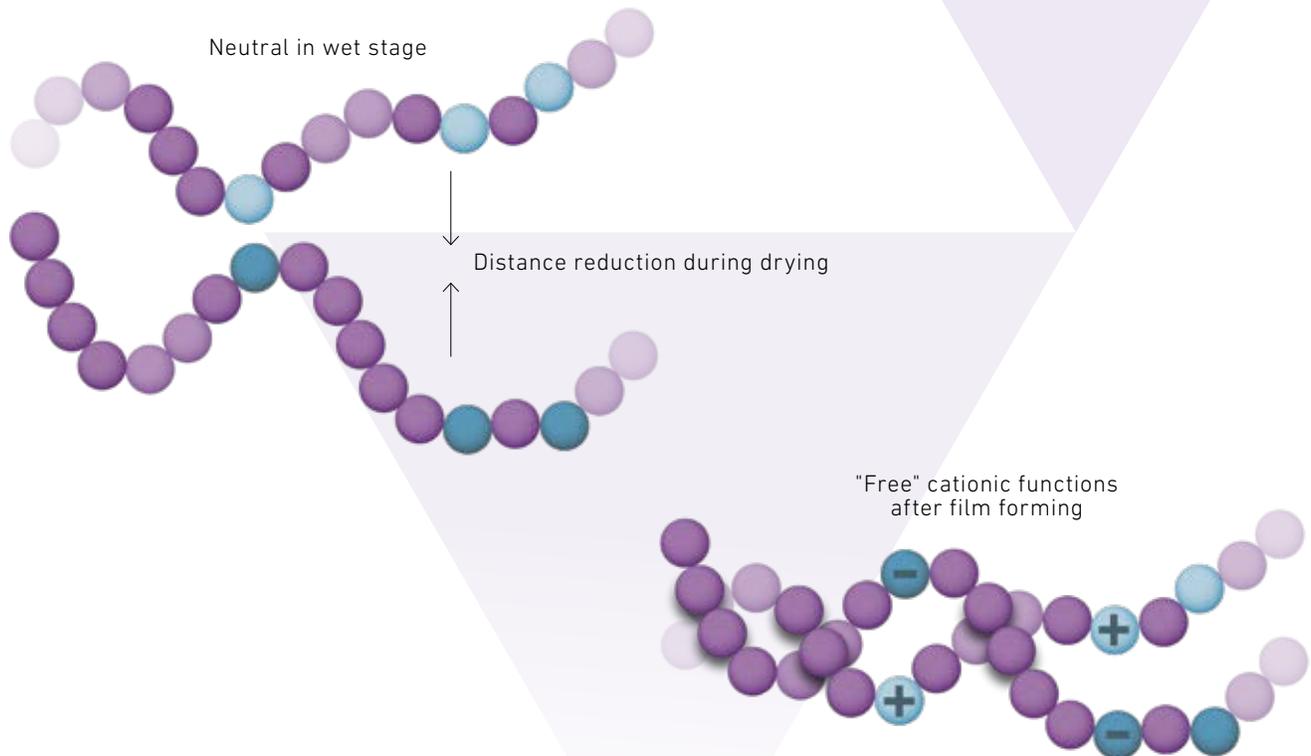
# INTERPENETRATING POLYMER NETWORK (IPN)

The IPN involves two different ionic structures in the same polymer network at a neutral pH value. Overall, the polymer exhibits an anionic behavior 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 metallized 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 metallized substrates
- ▶ High compatibility with other resins and additives
- ▶ Low VOC requirements to formulate coatings

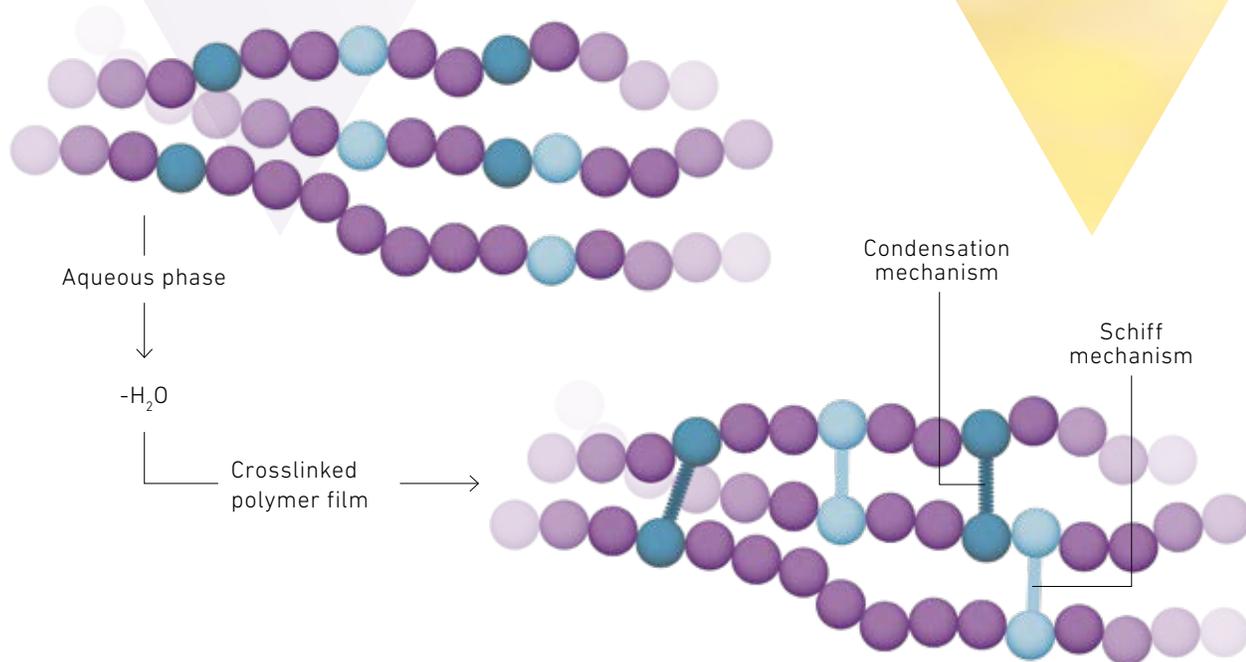


# SELF-CROSSLINKING TECHNOLOGY

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



# ALKALI-SOLUBLE TECHNOLOGY – RESIN SOLUTIONS



Our alkali-soluble polymers are based on polyacrylic and poly-methacrylic 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.



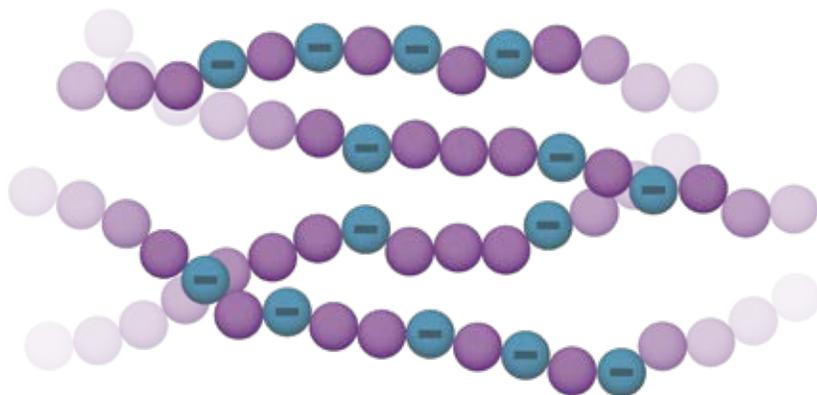
## FEATURES & BENEFITS

### 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



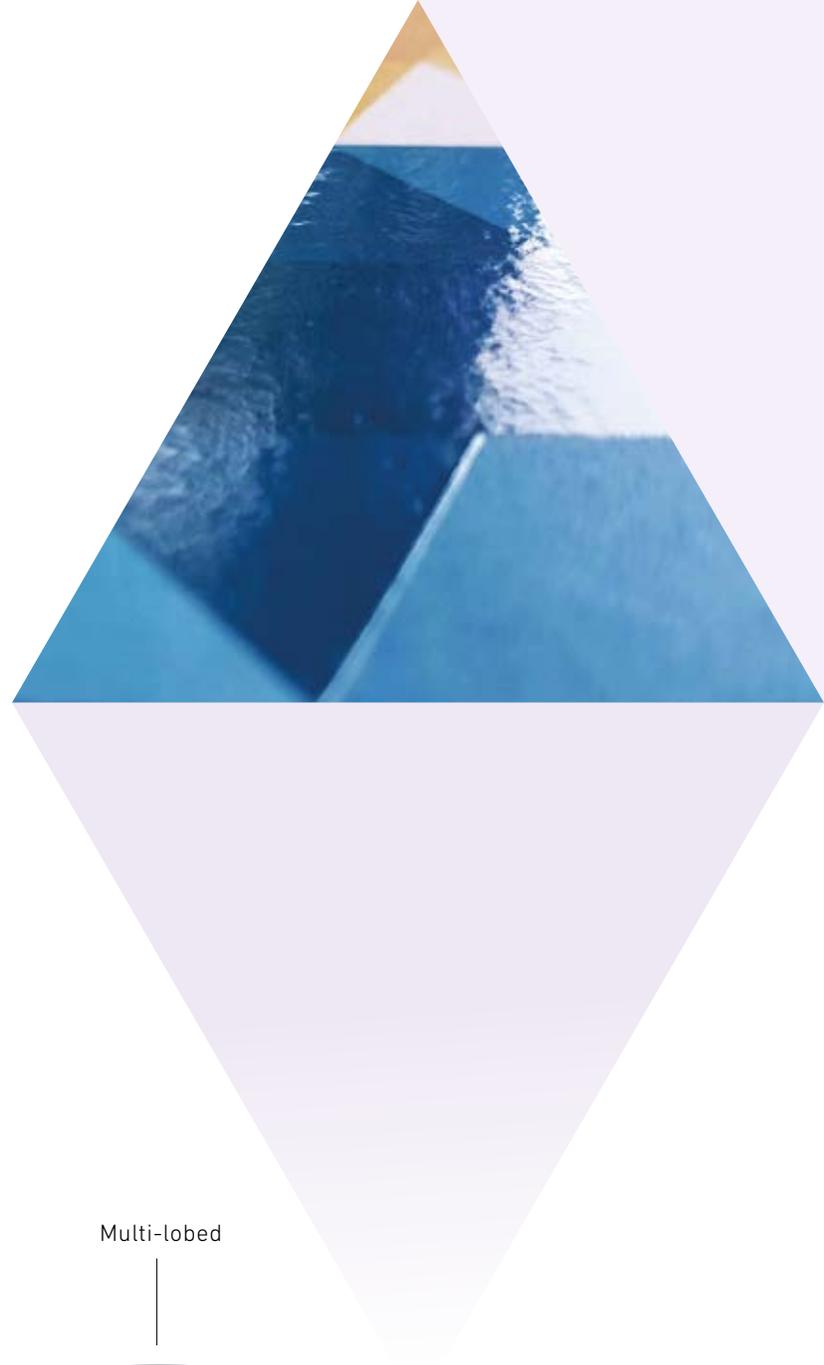
# MULTIPHASE TECHNOLOGY

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.

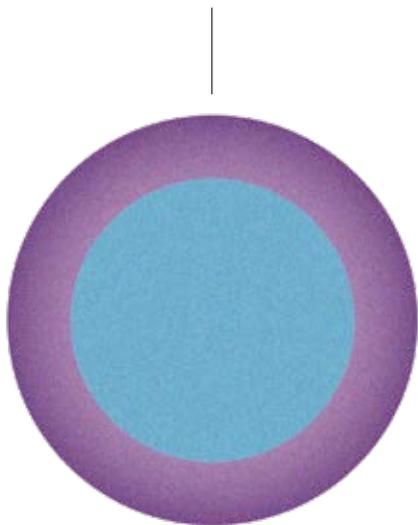
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## FEATURES & BENEFITS

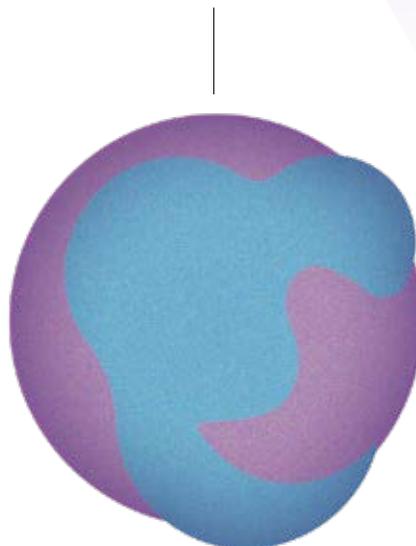
- ▶ Very low to zero emulsifier content
  - ▶ Good balance between hardness, chemical resistance and film forming
  - ▶ Excellent adhesion to multiple substrates
  - ▶ FDA-approved for indirect food contact
  - ▶ Swiss Ordinance-approved
- 



Core-shell



Multi-lobed

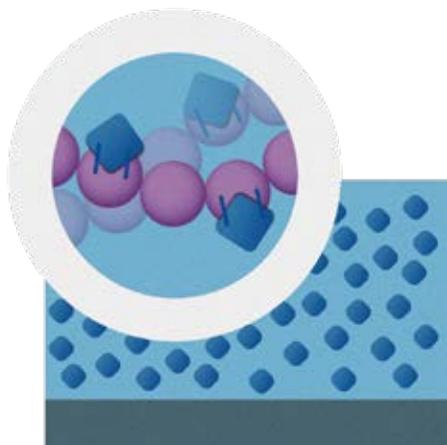


# WAX-HYBRID TECHNOLOGY

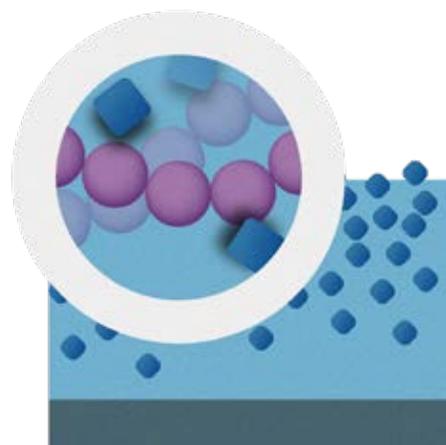
Our wax-hybrid technology is a patented process for combining wax and acrylate in a single polymer network. This prevents the wax from migrating to the surface as it dries, resulting in a more uniform film composition that improves the appearance and performance of the coating. The hybrid polymer exhibits anionic behavior 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 utilized.

## 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



Wax hybrid



Conventional wax

# PRODUCT PORTFOLIO

## OPV, PRIMER AND INKS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	PH	MFFT [°C]
SYNPRINT AC 5111	Multiphase acrylic copolymer	Anionic	44	7.1	90
SYNPRINT AC 5151	Multiphase acrylic copolymer	Anionic	43	7.5	20
SYNPRINT AC 6054	IPN acrylic polymer	Anionic	40	8.0	10
SYNPRINT AC 7150	Alkali-soluble acrylic polymer	Anionic	30	7.0	90
SYNPRINT AC 9010	Self-crosslinking acrylic polymer	Anionic	42	7.5	45
SYNPRINT AC 9037	Self-crosslinking acrylic polymer	Anionic	42	7.5	25
SYNPRINT AC 9039	Self-crosslinking acrylic polymer	Anionic	42	7.5	15

## FEATURES & BENEFITS

OPV  
PRIMER  
PAPER & BOARD  
METALLIZED  
SUBSTRATES  
PP/PE/PET/PVC

Hard emulsion, fast drying, APEO-free, low odor, compliant with Swiss Ordinance, FDA-approved for indirect food contact



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, compliant with Swiss Ordinance, FDA-approved for indirect food contact



Excellent adhesion to multiple substrates, low heat seal temperature requirements, high compatibility with other resins and additives, good ink receptiveness and anchoring



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 odor, compliant with Swiss Ordinance, FDA-approved for indirect food contact



Self-crosslinking, excellent chemical and alkali resistance, excellent water submersion resistance, film has very high gloss, hardness with good printability, low VOC requirements to formulate coating



Self-crosslinking, excellent water submersion resistance, excellent adhesion to multiple substrates, film has very high gloss, flexibility with good printability, zero VOC requirements to formulate coating



Self-crosslinking, excellent household stain resistance, excellent alkali submersion resistance, excellent water submersion resistance, very good adhesion to multiple substrates, film has very high gloss, flexibility with good printability, zero VOC requirements to formulate coating



▲ = Highly recommended    ▲ = Recommended

# PRODUCT PORTFOLIO

## ADDITIVES FOR OPV, PRIMER AND INKS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	PH	MFFT [°C]
<b>WAX</b>					
SYNTRAN® WA 1065	Wax-hybrid acrylic	Nonionic / anionic	38	9.2	35
<b>OPAQUE POLYMERS</b>					
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
<b>GRINDING RESINS</b>					
SYNTRAN® DR 7011	Alkali-soluble acrylic polymer	Anionic	25	7.7	20
SYNTRAN® DR 7015	Alkali-soluble acrylic polymer	Anionic	30	7.5	100
SYNTRAN® DR 7055	Alkali-soluble acrylic polymer	Anionic	25	8.0	66
SYNTRAN® DR 7060	Alkali-soluble acrylic polymer	Anionic	25	7.0	70
SYNTRAN® DR 7102	Carboxylated acrylic copolymer	Anionic	35	6.7	100

## FEATURES & BENEFITS

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.

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Polymeric surfactant technology designed to improve wetting and incorporation of pigments or additives into water-based pigment concentrates and coatings. Used as a grinding resin in pigment dispersions, it improves color development of organic pigments and carbon black.

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

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



Chemistry tailor-made

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