

PAINTS & COATINGS | AMERICAS

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 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.

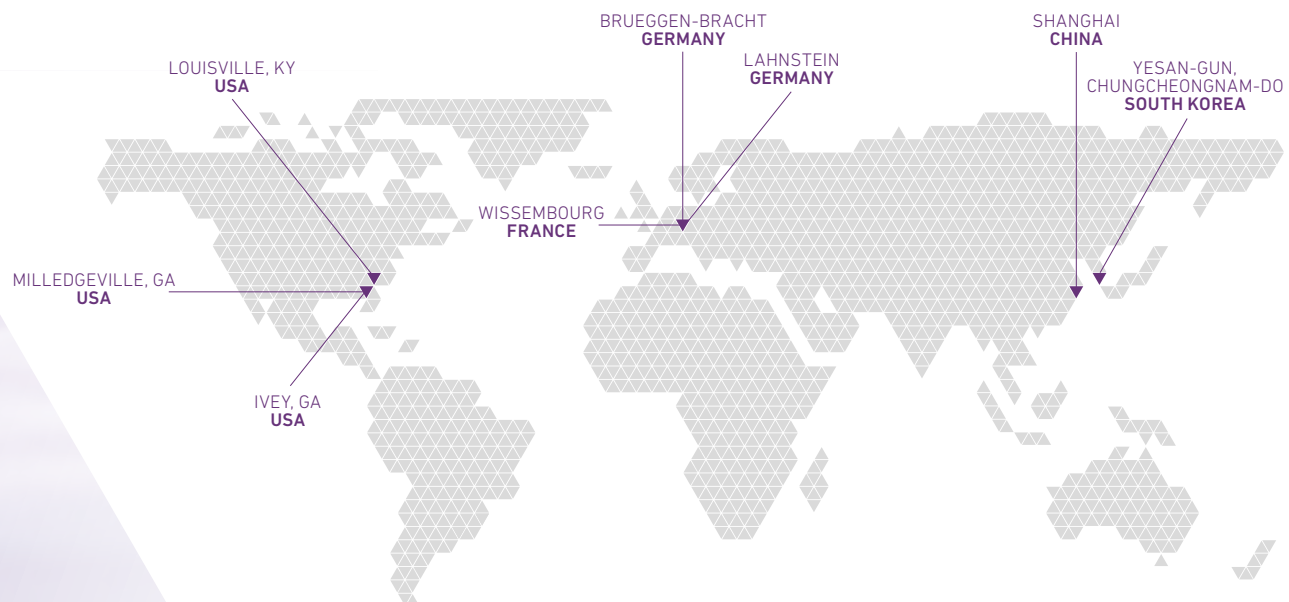
A FAMILY BUSINESS WITH A GLOBAL FORMULA FOR SUCCESS

The corporate group Zschimmer & Schwarz comprises 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 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.





TECHNOLOGIES

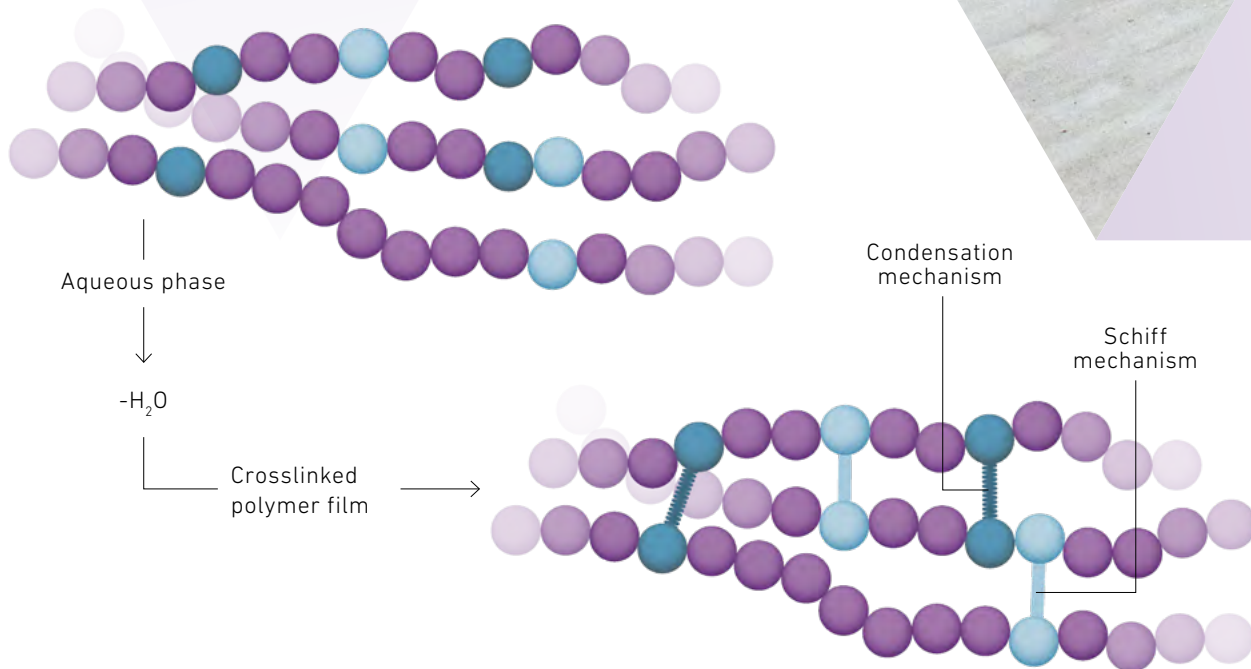
Appearance, durability, haptics: industrial substrates like wood, metal or concrete are subject to the highest demands, which can usually only be met by a high-performance coating. For formulations that meet these challenges, Zschimmer & Schwarz offers water-based polymers as universal binders and for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



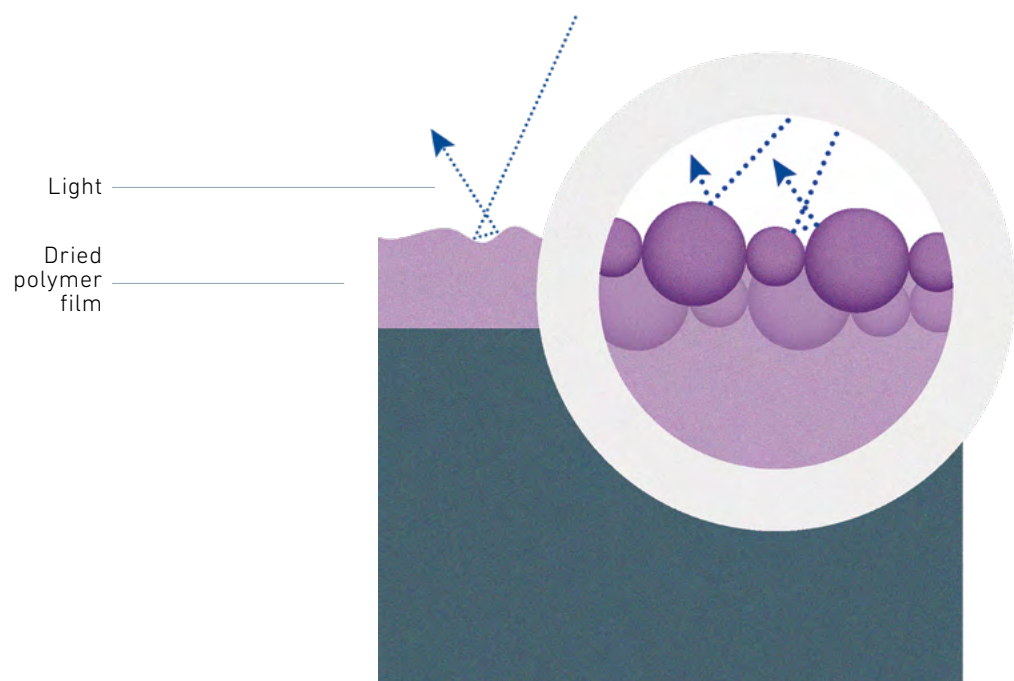
INHERENTLY MATTE TECHNOLOGY

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 labor-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
-



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.

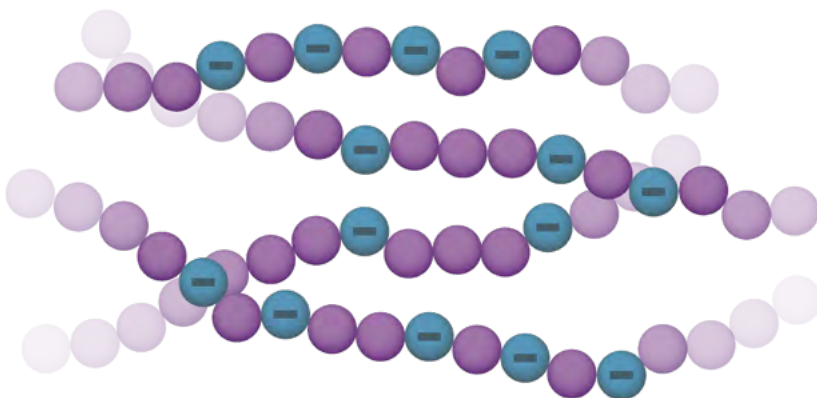
FEATURES & BENEFITS

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
-

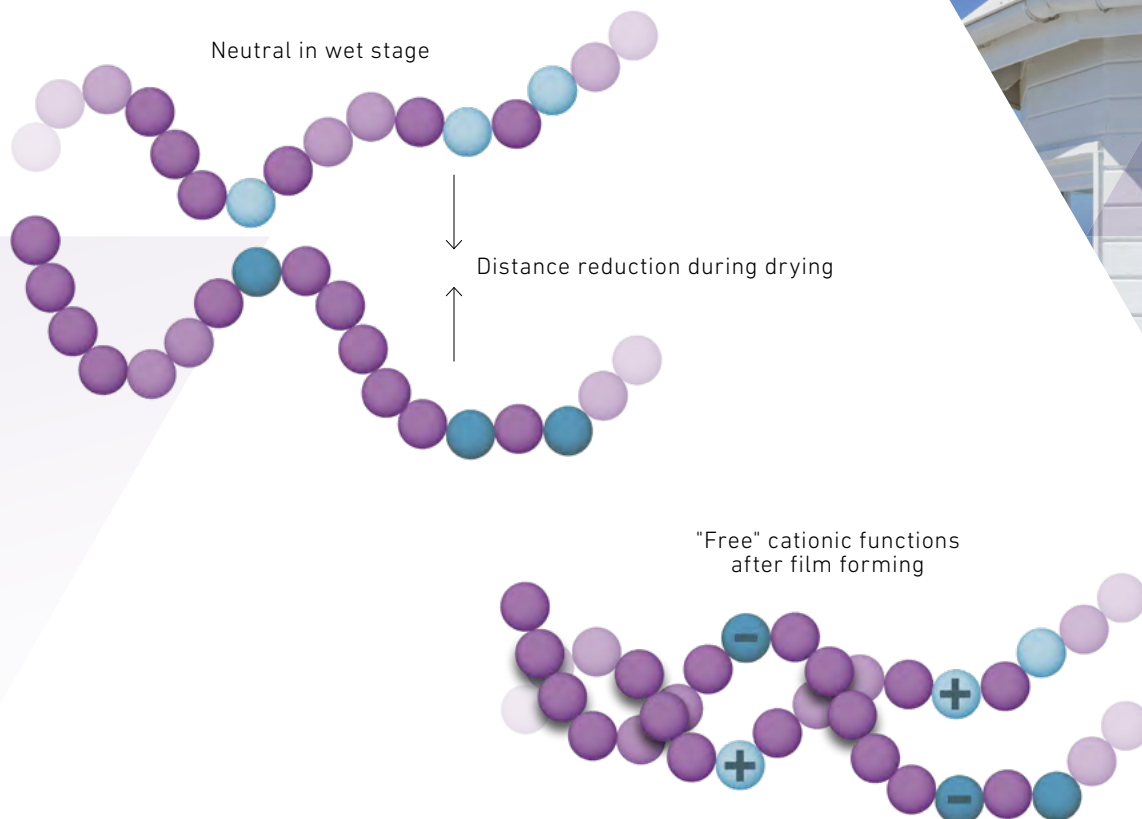


INTERPENETRATING POLYMER NETWORK (IPN)

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 tannin, stain and dye blocking without the compatibility problems common to cationic polymers. Adhesion to various substrates such as aluminum, 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 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
- ▶ No or low addition of VOCs required to formulate coatings



MULTIPHASE TECHNOLOGY

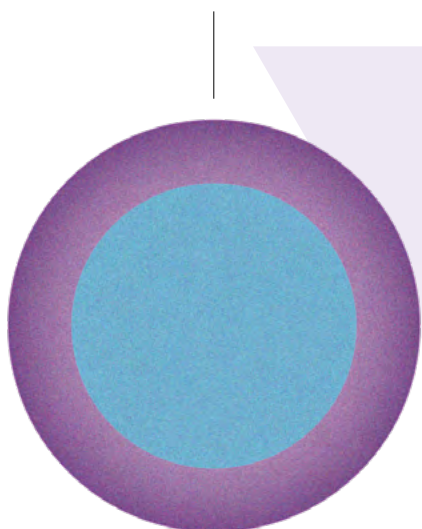
Using a two-step synthesis process, multiphase technology combines two different types of polymers in the same polymer network. This allows a balanced combination and thereby an overall improvement of the physical properties of the two polymers. A very good hardness and chemical resistance balanced with 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

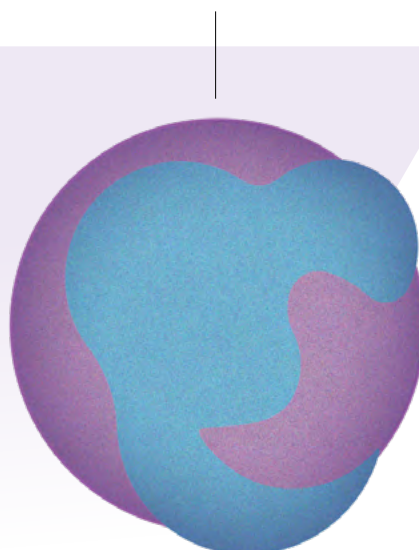
- ▶ Very low to zero emulsifier content
 - ▶ Good balance between hardness, chemical resistance and film forming
 - ▶ Excellent adhesion to multiple substrates
 - ▶ Compliant with Swiss Ordinance for indirect food contact
-



Core-shell



Multi-lobed

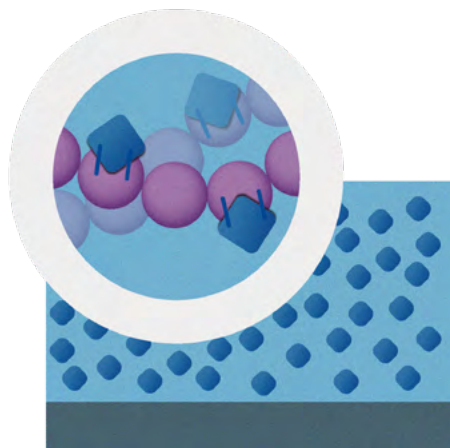


WAX-HYBRID TECHNOLOGY

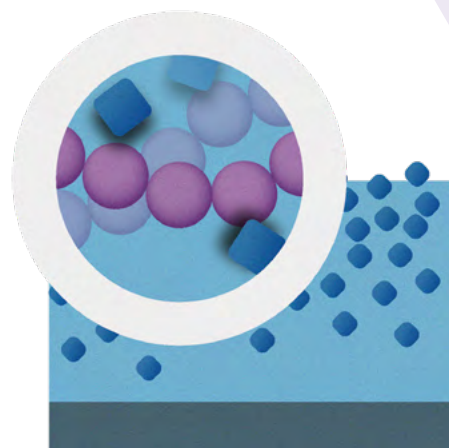
Our wax-hybrid technology is a patented process for combining wax and acrylate in a single polymer network. This prevents the wax from migrating to the surface as it dries, resulting in a more uniform film composition that improves the appearance and performance of the coating. The hybrid polymer exhibits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

- ▶ 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



Wax hybrid



Conventional wax

PRODUCT PORTFOLIO

WOOD COATINGS – INDUSTRIAL AND DIY

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	T _g [°C]
SYNTRAN® AC 2901	Inherently matte self-crosslinking acrylic polymer	Anionic	45	7.5	0	0
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 6130	IPN acrylic copolymer	Anionic	40	8.8	52	68
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 9093	Self-crosslinking acrylic polymer	Anionic	42	7.5	15	29
SYNTRAN® AC 9131	Self-crosslinking acrylic polymer	Anionic	42	7.2	15	29

FEATURES & BENEFITS

	TOPCOATS/MULTILAYER	PRIMER/BASECOATS	ISOLATION PRIMER	JOINERY	OUTDOOR	FLOORS	KCMA	FURNITURE
Very low- to satin-gloss lacquers with high transparency on dark substrates, excellent grain wetting and appearance on wood, excellent adhesion to multiple substrates; it is recommended to fortify with another acrylic resin or PUD to improve the overall film properties; OH-functional, can be further crosslinked with suitable isocyanates to improve scratch and chemical resistance	▲			▲	▲	▲		
Good tannin, stain and dye blocking, 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			▲	▲	▲	▲		▲
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 color on wood in clear coatings, blending partner to SYNTRAN® AC 5922 and to SYNTRAN® AC 6045 in tannin- and stain-blocking applications	▲			▲		▲		▲
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 color on "dark oak"; low grain raise in primer applications	▲	▲				▲		▲
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		▲			▲		▲	▲
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		▲			▲		▲	▲

▲ = Highly recommended ▲ = Recommended

PRODUCT PORTFOLIO

METAL COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	T _g [°C]
SYNTRAN® AC 5923	Self-crosslinking multiphase acrylic polymer	Anionic	40	7.5	30	N/A
SYNTRAN® AC 9093	Self-crosslinking multiphase acrylic polymer	Anionic	42	7.5	15	29
SYNTRAN® AC 9131	Self-crosslinking multiphase acrylic polymer	Anionic	42	7.2	15	29

CONCRETE COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	T _g [°C]
SYNTRAN® AC 1090	Acrylic polymer	Anionic	50	8.0	5	0
SYNTRAN® AC 1091	Acrylic polymer	Anionic	57	7.2	15	15
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 9057	Self-crosslinking acrylic polymer	Anionic	42	7.5	55	56
SYNTRAN® AC 9073	Self-crosslinking acrylic polymer	Anionic	42	7.5	25	N/A
SYNTRAN® AC 9093	Self-crosslinking acrylic polymer	Anionic	42	7.5	15	29
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

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

METAL TOPCOAT
DIRECT TO METAL (DTM)

▲ ▲

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

▲ ▲

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

▲ ▲

FEATURES & BENEFITS

PRIMER
TOPCOAT
SEALER & DECORTIVE
MASONRY
POOL DECKS
MORTAR MODIFICATION

Large particle size; film has excellent flexibility with excellent water resistance; high compatibility with pigments, waxes and other additives, excellent adhesion to multiple substrates, no VOCs required to formulate coating

▲ ▲

Large particle size, film has excellent flexibility with excellent water resistance; high compatibility with pigments, waxes and other additives; excellent adhesion to multiple substrates; no VOCs required to formulate coating; good alkali and acid resistance

▲ ▲

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 Betadine 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, outstanding hot tire resistance, excellent water submersion resistance, excellent adhesion to multiple substrates; film has very high gloss; no 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

▲ ▲ ▲ ▲

Self-crosslinking, excellent household stain resistance, outstanding hot tire and Betadine 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]	T _g [°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

ARCHITECTURAL COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]	T _g [°C]
SYNTRAN® AC 1090	Acrylic polymer	Anionic	50	8.0	5	0
SYNTRAN® AC 1091	Acrylic polymer	Anionic	57	7.2	15	15
SYNTRAN® AC 6045	IPN acrylic polymer	Anionic	41	7.5	8	8

ADDITIVES

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	pH	MFFT [°C]
WAX					
SYNTRAN® WA 1065	Wax-hybrid acrylic	Nonionic /anionic	38	9.1	35
SYNTRAN® WA 1075	Wax-hybrid acrylic	Anionic	38	9.2	20
GRINDING RESINS					
SYNTRAN® DR 7011	Alkali-soluble acrylic polymer	Anionic	25	7.6	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	6,6	> 100
SYNTRAN® DR 7105	Alkali-soluble acrylic polymer	Anionic	30	7.0	90
HARDNESS MODIFIER					
SYNTRAN® AC 1012	Acrylic copolymer	Anionic	28	7.6	N/A

FEATURES & BENEFITS

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

RUBBER COATINGS
RIGID PLASTICS



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

High solids, large particle size; film has very high flexibility with excellent water resistance; high compatibility with pigments, waxes and other additives, excellent adhesion to flexible films and foils, no VOCs required to formulate coating

ROOFING
ISOLATION PRIMER



High solids, large particle size; film has very high flexibility with excellent water resistance; high compatibility with pigments, waxes and other additives, excellent adhesion to multiple substrates, no VOCs required to formulate coating; good alkali and acid resistance



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



▲ = Highly recommended ▲ = Recommended

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).

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 connection of wax and acrylate avoids natural migration of the generally lower-density wax to the surface during drying, resulting in better compatibility of the wax with acrylic systems and more uniform film application.

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.

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

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 color development of organic pigments, carbon black and titanium dioxide

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

Polymeric surfactant technology designed to improve dispersibility and color 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.

Hard, non-film-forming acrylic polymer for use as an additive (5–20%) in formulations to improve hardness, sandability, block resistance and stackability



Chemistry tailor-made

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