

PAINTS & COATINGS | ASIA

# METAL PROTECTION

Water-based polymers  
for metal surface treatment



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.

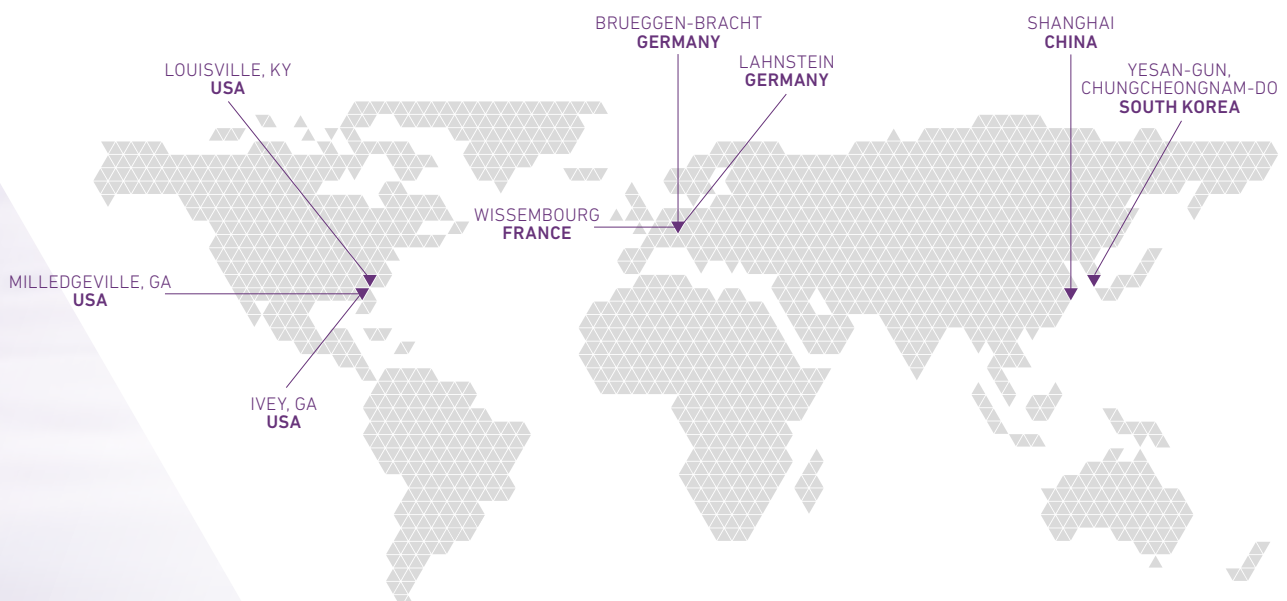
## A FAMILY BUSINESS WITH A GLOBAL FORMULA FOR SUCCESS

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.







# METAL PROTECTION

For the sustainable use of metal, applying a coating is essential to protect it from corrosion. Water-based polymers are the environmentally conscious choice for such coatings, especially the chrome-free types. For substrates made of metal or metal alloys, Zschimmer & Schwarz offers aqueous polyurethane (SYNTRAN® PU/PUC series) as well as specialised anionic (SYNTRAN® AC 7000 series) and cationic acrylic dispersions (SYNTRAN® AC 4000 series). With these passivation solutions, formulators can achieve an effective corrosion protection and an excellent adhesion base for coatings.

# WATERBORNE POLYURETHANE DISPERSIONS (PUDs)

In the field of polyurethane dispersions, Zschimmer & Schwarz offers specialised solutions of both anionic and cationic water-based polyurethane dispersions (PUDs) for metal protection.

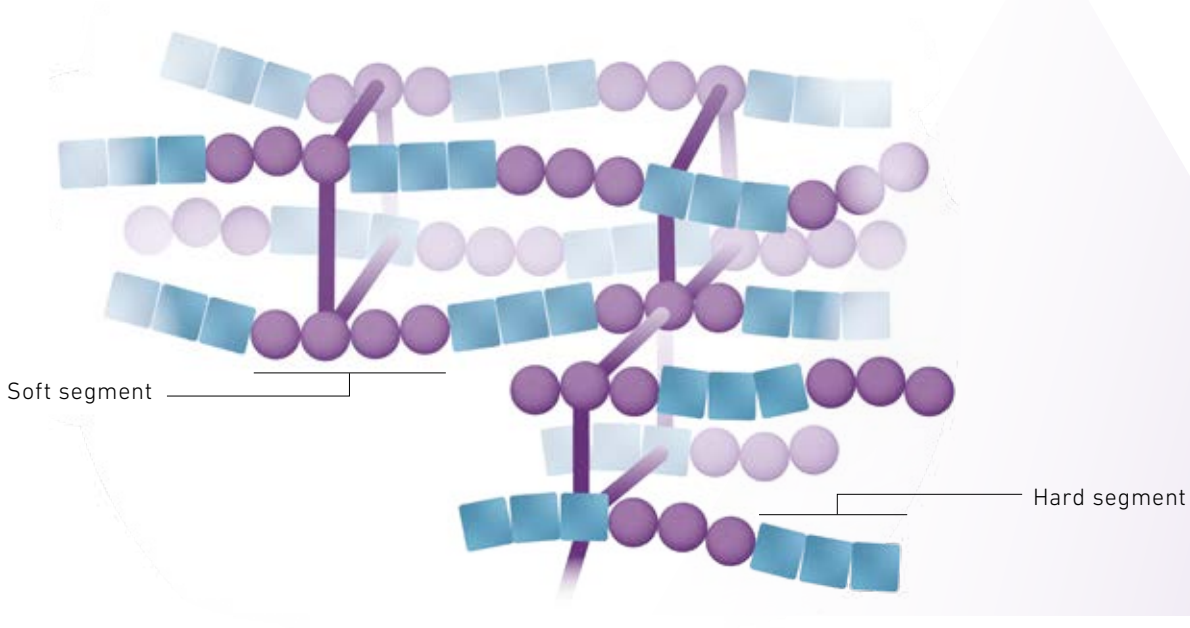
The self-crosslinking (self-emulsifying) PUDs are characterised by strong intermolecular bonding without the use of emulsifiers. The PUDs show excellent compatibility with additives in formulations and outstanding chemical resistance with high impact strength and heat resistance. Customised PUDs with adjusted particle sizes can be tailored to your requirements.



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## FEATURES & BENEFITS

- ▶ Anionic or cationic products
  - ▶ Available for formulations in a wide pH range
  - ▶ Good compatibility with organic as well as inorganic components provides excellent corrosion resistance
  - ▶ Versatile water-based polyurethane polymers based on a wide range of monomers (e.g. PET, PPG, PC or PCL)
  - ▶ Designed to have various benefits (e.g. alkali resistance, alcohol resistance, water resistance) for a variety of applications and metal substrates
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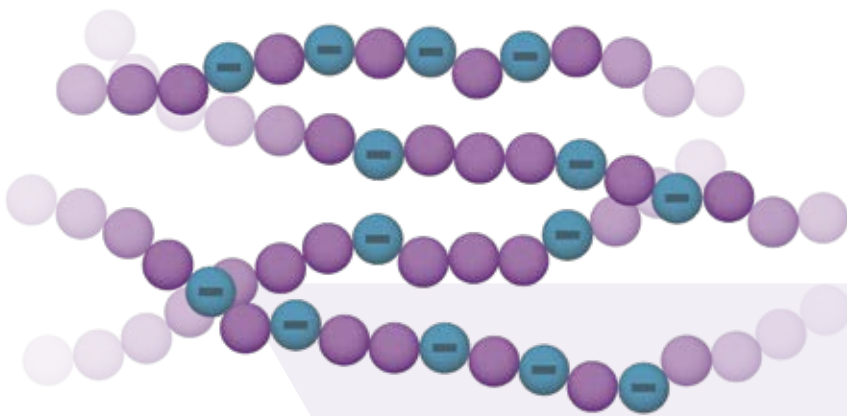
# RESIN SOLUTIONS

Our resin solutions are based on polyacrylic and polymethacrylic acids with a high acid number and electrostatic repulsion. This ensures excellent adhesion to base metals, especially aluminium. Different monomer types and ratios as well as molecular weights to adjust the properties of the passivation film are available on request.

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## FEATURES & BENEFITS

- ▶ Solution-polymerisation technology without surfactant
  - ▶ The polymers form hard films with good transparency
  - ▶ Clear solutions in water that can be diluted in any ratio
  - ▶ Stable in strongly acidic formulas, even at pH 1–3
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# CATIONIC TECHNOLOGY

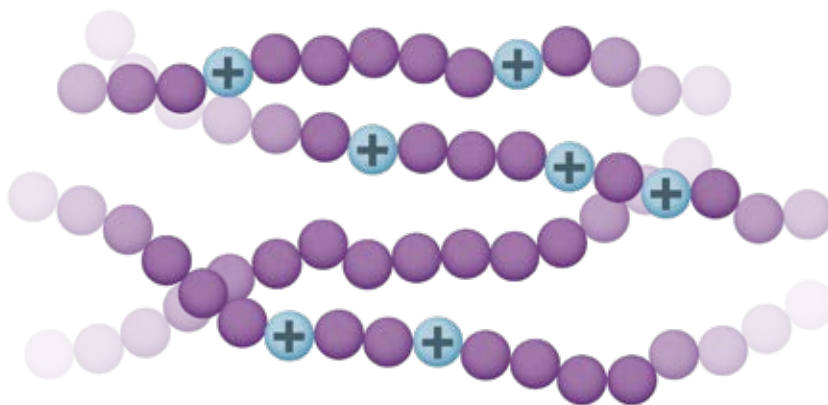
Zschimmer & Schwarz offers polycationic systems with an optimum acidic pH range and high charge density. With cationic resins, excellent adhesion to various critical anionic surfaces and metals can also be achieved. The polymers form soft to medium-hard films and are suitable for colourless and glossy films as well as for highly pigmented and low-VOC systems.

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.

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## FEATURES & BENEFITS

- ▶ Slightly yellowish, semi-transparent acrylic emulsion with varying film hardness and flexibility depending on MFFT
  - ▶ Special monomer grafted onto polymer chain leads to a positive charge of the emulsion particle
  - ▶ Stable in acidic formulas (pH 3–6)
  - ▶ Functional groups such as amine, carboxy or hydroxy groups on the polymer chain react with organic as well as inorganic components and improve the mechanical and chemical resistance of the film
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# PRODUCT PORTFOLIO

## METAL COATINGS

PRODUCT	PRODUCT DESCRIPTION	IONICITY	SOLID APPROX. [%]	PH	MFFT [°C]
SYNTRAN® AC 1106	Acrylic copolymer	Anionic	21	8.0	
SYNTRAN® AC 4005	Cationic acrylic copolymer	Cationic	35	5.0	22
SYNTRAN® AC 4006	Cationic acrylic copolymer	Cationic	35	6.0	40
SYNTRAN® AC 7080	Acrylic polymer solution	Anionic	40	2.2	
SYNTRAN® PU 1102	Polycarbonate-type polyurethane dispersion with NMP	Anionic	32	8.0	
SYNTRAN® PU 1115	Polycarbonate-type polyurethane dispersion with NMP	Anionic	32	8.0	
SYNTRAN® PU 6115	Polyester-type polyurethane dispersion with NMP	Anionic	32	7.5	
SYNTRAN® PUC 1311	Polycarbonate-type polyurethane dispersion with DMAC	Cationic	27	5.5	
SYNTRAN® PUC 3225	Polyether-type aliphatic polyurethane dispersion with DMF	Cationic	27	5,5	
SYNTRAN® PUC 6224	Polyester-type polyurethane dispersion with DMF	Cationic	27	5.5	
SYNTRAN® PUC 6225	Polyester-type polyurethane dispersion with DMF	Cationic	27	5.5	
SYNTRAN® PUC 9202	Polyester-/polyether-type polyurethane dispersion with DMF	Cationic	27	5.5	

THIN ORGANIC COATING  
(STEEL)

THIN ORGANIC COATING  
(ALUMINIUM)

SEALER

**FEATURES & BENEFITS**

Good adhesion, excellent water resistance and corrosion resistance	▲	▲
Good adhesion, good hardness and good compatibility with cationic PUDs and some metal salts or other low-PH ingredients for metal passivation	▲	
Good adhesion, harder than SYNTRAN® AC 4005 and good compatibilities with cationic PUDs and some metal salts or other low-PH ingredients for metal passivation	▲	
Surfactant-free, good binding effect on metal		▲
One-component aliphatic polyurethane, use in cold-rolled sheet (GL, EG), good chemical resistance, high gloss and excellent weather durability	▲	
One-component aliphatic polyurethane, use in cold-rolled sheet (EG, GL) and functional plastics like polycarbonate, good chemical resistance, high gloss and excellent weather durability	▲	
One-component aliphatic polyurethane dispersion with excellent corrosion resistance on cold-rolled sheet (EG, GL), good adhesion, high gloss and weatherability as well as excellent compatibility with additives	▲	
One-component DMAC-based aliphatic polyurethane, low molecular weight, excellent compatibility with inorganic additives, good flexibility, good adhesion on cold-rolled sheet	▲	
Cationic, one-component, polyether-type aliphatic polyurethane dispersion, excellent corrosion resistance on cold-rolled sheet, good compatibility with additives, self-emulsified dispersion, can be used together with cationic acrylic on steel coil	▲	
One-component aliphatic polyurethane, excellent corrosion resistance, good compatibility with inorganic ingredients, suitable for GI passivation applications	▲	
One-component aliphatic polyurethane, excellent corrosion resistance, good compatibility with inorganic ingredients, suitable for GI passivation applications	▲	
One-component aliphatic polyurethane, low molecular weight, excellent compatibility with inorganic additives, excellent compatibility with our cationic acrylic emulsions	▲	

▲ = Highly recommended



Chemistry tailor-made

► 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

► 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