HUNTSMAN

Enriching lives through innovation

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About Huntsman:
Huntsman Corporation is a publicly traded global manufacturer and marketer of differentiated and specialty chemicals with 2017 revenues of approximately $8 billion. Our chemical products number in the thousands and are sold worldwide to manufacturers serving a broad and diverse range of consumer and industrial end markets. We operate more than 75 manufacturing, R&D and operations facilities in approximately 30 countries and employ approximately 10,000 associates within our four distinct business divisions.
For more information about Huntsman, please visit the company's website at **www.huntsman.com**.

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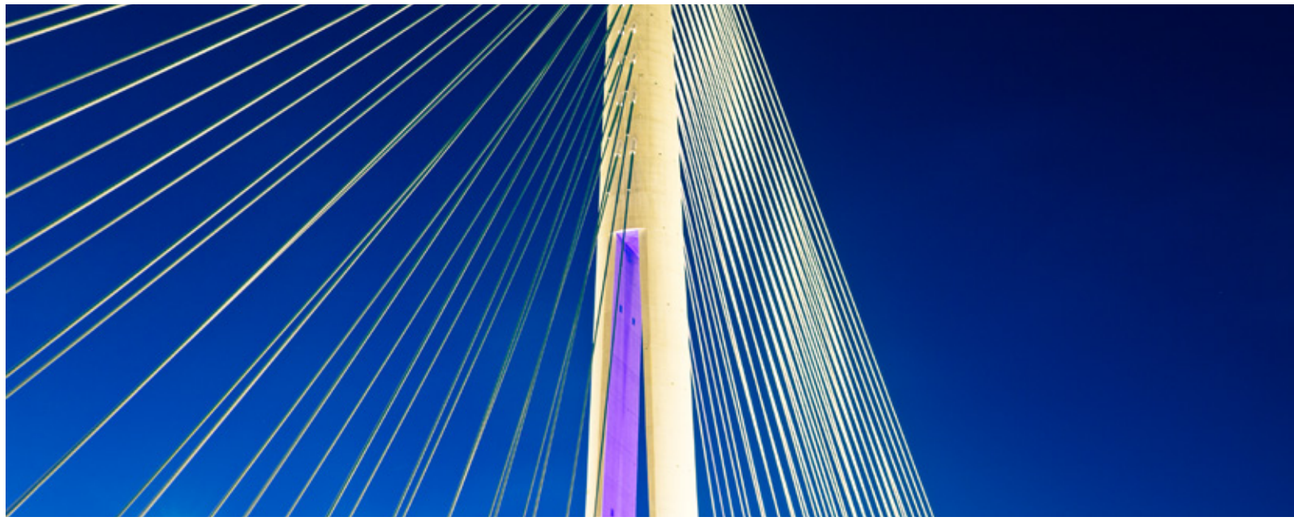
Polyurethanes

POLYRESYST™ *primers*



PRODUCT DESCRIPTION

Part of a wider family of POLYRESYST™ products, these one- or two-component polyurethane priming systems, are designed to preserve, rehabilitate and prolong the durability and lifetime of different substrates.

Primarily developed for porous materials such as concrete and wood, our POLYRESYST™ primers can also be used for non-porous substrates such as steel, asphalt, ceramics and rubber.

POLYRESYST™ primers are easy to apply and adhere well to surfaces that need to be prepared ahead of the application of a new coating, a protective system, or an adhesive.

Addressing regulations regarding the use of volatile organic compounds (VOCs), our POLYRESYST™ primers are suitable for use in a wide variety of coating and adhesive applications.

KEY BENEFITS

- Excellent adhesion to a variety of substrates
- 100% solids, low VOC, low emissions
- A fast application time and recoat window
- Easy application due to low viscosity, resulting in less product waste
- Help prolong the life of concrete, metal and wood products

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One-or two-component solutions for your needs

Operating at the forefront of the specialist polyurethane chemistry for many years, we have developed an extensive range of MDI-based primer systems.

Our POLYRESYST™ primers portfolio includes high quality grades which have been tailor made to enhance the processing, application and performance of coatings and adhesives, used in a variety of applications and industries.

GENERAL PROPERTIES	UNITS	POLYRESYST™ PR1010	POLYRESYST™ PR1020	POLYRESYST™ PR2010	POLYRESYST™ PR3010
Viscosity	mPas at 25°C	185	185	425	85
Density	g/cm³	1.17	1.17	1.16	1.2
Solids content	%	100	100	100	100
Open time (20° C 50% RH) *	hr min	30 min	5 min	8 hr	2 hr 30 min
End of Cure (20° C 50% RH) *	hr min	3 hr 30 min	1 hr	11 hr 30 min	3 hr 30 min
WVT **	g/day/m²	NA	20	16	15

* Measured on glass with BK dry time recorder ** Measured at 0.15 mm film thickness

COLOUR	CODE	POLYRESYST™ PR1010	POLYRESYST™ PR1020	POLYRESYST™ PR2010	POLYRESYST™ PR3010	
					HARDENER	RESIN
Brown	-80	POLYRESYST™ PR1010-80	POLYRESYST™ PR1020-80	POLYRESYST™ PR2010-80	POLYRESYST™ PR3010-80 HA	POLYRESYST™ PR3010-80 RE

ONE-COMPONENT SYSTEMS

POLYRESYST™ PR1010 primer; POLYRESYST™ PR1020 primer; and POLYRESYST™ PR2010 primer are a range of one-component systems with varying overcoat window.

POLYRESYST™ PR1010 primer and POLYRESYST™ PR1020 primer have fast curing properties even at lower temperatures. Their low viscosity will enable excellent penetration of porous substrates such as concrete. They also have film-forming characteristics enabling use as a membrane coating. Typically, one layer of a primer containing POLYRESYST™ PR1010 primer or POLYRESYST™ PR1020 primer will seal a substrate. However, for highly porous surfaces, or to make a substrate damp proof, two or three layers are recommended. Foaming problems can be avoided by not exceeding the advised coverage rate of max. 0.150 kg/m² for each applied layer.

POLYRESYST™ PR2010 primer has good wetting properties on a broad range of materials. This means it can be used as multi-purpose primer, where a single solution is needed to prepare different substrates. POLYRESYST™ PR2010 primer is well equipped to accommodate the expansion and shrinkage changes that can occur following variations in temperature, substrate moisture levels or load. Typical applications include loading docks and industrial flooring (concrete-steel) and concrete-asphalt overlap zones. Where needed, longer overcoat times on non-porous substrates (e.g., steel) can be shortened by catalysis.

TWO-COMPONENT SYSTEMS

POLYRESYST™ 3010 two-component system has an extremely low viscosity, enabling the deep primer penetration into porous substrates. The result is strengthening by chemical crosslinking. POLYRESYST™ 3010 primer is ideal for use in industrial flooring applications, for priming materials including concrete, steel and wood, and show excellent adhesion to a variety of substrates even under severe conditions e.g., when surfaces are damp.

PRIMERS FOR STEEL AND CONCRETE SUBSTRATES

TOP COAT	STEEL SUBSTRATE	UNITS	POLYRESYST™ PR1010	POLYRESYST™ PR1020	POLYRESYST™ PR2010	POLYRESYST™ PR3010
PU	Recommended overcoat window @ 20° C minimum	hrs	2	0,5	16	0.5
	Recommended overcoat window @ 20° C maximum	hrs	168	3	168	168
	Pull off adhesion value	MPa	≥ 7.5	≥ 7.5	≥ 10	≥ 14
	Recommended coverage rate	kg/m²	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.05 - 0.10
PUA	Recommended overcoat window @ 20° C minimum	hrs	1	0,5	8	0,5
	Recommended overcoat window @ 20° C maximum	hrs	24	8	48	48
	Pull off adhesion value	MPa	≥ 15	≥ 15	≥ 15	≥ 15
	Recommended coverage rate	kg/m²	0.10 - 0.15	0.10- 0.15	0.10 - 0.15	0.05 - 0.15
	Mandrell bending test	mm	> 32	> 32	≤ 3	≤ 3

TOP COAT	CONCRETE SUBSTRATE	UNITS	POLYRESYST™ PR1010	POLYRESYST™ PR1020	POLYRESYST™ PR2010	POLYRESYST™ PR3010
PU	Recommended overcoat window @ 20° C minimum	hrs	3	1	16	2
	Recommended overcoat window @ 20° C maximum	hrs	168	168	168	168
	Pull off adhesion value	MPa	≥ 4.0	≥ 4.0	≥ 4.0	≥ 4.0
	Mode of failure		Concrete	Concrete	Concrete	Concrete
	Recommended coverage rate	kg/m²	0.15	0.15	0.15	0.15
PUA	Recommended overcoat window @ 20° C minimum	hrs	2	0.5	0.5	0.5
	Recommended overcoat window @ 20° C maximum	hrs	72	48	48	168
	Pull off adhesion value	MPa	≥ 4.0	≥ 4.0	≥ 4.0	≥ 4.0
	Mode of failure		Concrete	Concrete	Concrete	Concrete
	Recommended coverage rate	kg/m²	0.15	0.15	0.15	0.15

Handling procedure

Special care is required when handling our POLYRESYST™ MDI-based primer technologies, which contain reactive isocyanate ingredients. We recommend that:

- Additives used in conjunction with POLYRESYST™ primers should be low in water content
- POLYRESYST™ primers are stored in a dry place
- Floor coatings made using POLYRESYST™ primers are produced under dry conditions
- The use of moisture scavengers may be required
- Packaging materials are stored in a climate-controlled area to prevent condensation

As with all other coatings, POLYRESYST™ primers should be applied to surfaces that are clean and free from dirt, grease and dust. Good surface preparation can improve adhesion and, either cleaning the surface to remove contamination, or priming or roughening it to activate the surface, should provide a better surface for chemical or mechanical bonding. Specific preparation techniques may be required depending on the exact substrate i.e. concrete / metal. Primers can be applied straight from the container by brush or roller.

Our deep understanding of the chemistry of coatings, and our policy of continuous innovation, means we can give our customers a high level of proactive support. Fast and responsive, we pride ourselves on helping to solve complex coating challenges. Working closely with our customers, we give them direct access to our laboratories and our technical, commercial and customer support teams, which are located throughout Europe, the Middle East, Asia-Pacific and the Americas. This collaborative approach enables us to help customers choose the correct product. We can also dispense best practice advice processing and handling MDI-based products. Depending on requirements, we can recommend the use of one of our many off-the-shelf solutions, which are already proven to perform. Alternatively, we can tailor our polyurethane technologies to requirements – particularly where there is a need to create a break into a new application area.