

SUF-FIX S1005 PURE POLYUREA

1 DESCRIPTION OF THE PRODUCT

SUF-FIX S1005; is a very fast set, rapid curing, aromatic, flexible, two component, 100% Pure Polyurea coating system derived from a reaction of an isocyanate prepolymer and an amine terminated resin blend. The system is designed as a waterproofing and floor protective coating for concrete, metal, wood, ceramic, geotextile and PU foam substrates. The material must be applied utilizing high pressure, heated plural component spray proportioning equipment. SUF-FIX S1005 conforms to the requirements of the EN 1504-2 standard (concrete surface protection systems)..

2 FEATURES

- Fast reactivity and fast return to service time
- Seamless coating
- 100% solid, VOC free, no solvents
- Environment friendly
- Very good tensile and structural strength
- Excellent thermal stability
- Excellent chemical resistance
- Excellent impact and abrasion resistance
- Excellent adhesion on concrete, steel, aluminum, plastics, fibers, wood, foam etc.
- Excellent flexibility
- Excellent crack-bridging properties
- Ideal for complex and detailed applications
- Temperature and moisture insensitive
- Excellent corrosion protection
- UV, chlorine and saltwater resistant
- Variable application thickness is possible
- Broad color spectrum

3 APPLICATION AREAS

- General waterproofing and anticorrosion applications– tanks, pools, swimming pools, ponds, pipes, pipelines, waste water facilities, manholes, sewer linings, roof and terrace coatings
- Floors– industrial floors, manufacturing facilities, warehouses, hospitals, factories, parking lots and garages
- Construction– roads, bridge decks, railways and high speed railways, tunnels, airports and line stripings
- Marine industry— ship's underwater part and ship's decks protection and ship docks
- Transportation– truck and pick up bed liners, steel containers
- Industrial applications– oil and gas industry, mining, secondary containment and energy industry.
- Leisure industry– water parks, aquariums linings, play grounds and decorative applications
- On thermal insulation products for waterproofing (polyurethane foam, EPS, XPS etc.)

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4 SURFACE PREPARATION & APPLICATION PROCEDURE

Surface Preparation: Surface preparation strongly affects coating performance. Concrete substrates must be prepared mechanically using abrasive blast cleaning to remove cement laitance and achieve an open textured surface. Weak concrete must be removed and surface defects such as voids must be fully exposed. Repairs to the substrate, filling of blowholes/voids and surface levelling must be carried out using appropriate products. All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by brush and/or vacuum. For application pull off strength of the surface should be min. 1.5 N/mm² and concrete residual moisture should be max. 4% pbw (with appropriate moisture tolerant primer should be max. 6% pbw). The moisture content should be measured by moisture meter. Be aware of condensation; the substrate must be at least 3 °C above dew point to reduce the risk of condensation of the coating. Relative air humidity for application should be lower than 85%. Prior to application, confirm substrate moisture content, relative air humidity and dew point.

Application conditions/ limitations:

	Surface Temperature	Ambient Temperature	Relative Air Humidity
Optimum	10 °C -30 °C	20 °C -30 °C	25-50%
Minimum	-5 °C	-10 °C	0%
Maximum	50 °C	50 °C	85%

Priming: The application surface has to be primed in order to achieve an even surface and good adhesion. Lightly spreading out with quartz sand 0,3-0,8 mm is recommended because this provides higher adhesion values and extends the maximum waiting time of primer prior to the application of polyurea coating. In order to avoid the formation of blisters do not spread to excess.

Polyurea Application: The polyurea must be applied within 12-24 hours of applying the primer. Isocyanate prepolymer and amine resin must be applied using a two component high pressure and heat spray machine. The machine should be able to spray the components in 1:1 volume ratio. Both components must be heated above 70 °C. In order to achieve good performance, the temperature and pressure should stay same during the application and must be controlled regularly. Polyurea system components might not diluted under any circumstances. Before application, amine component must be stirred at least 30 minutes using a barrel mixer until a homogenous mixture and colour obtained. Aromatic polyurea coating systems are UV stable but are not color stable. The cured coating may exhibit discoloration when exposed to sunlight. This does not influence the performance and physical properties of the material. If the color stability required, an aliphatic top coat must be applied within 12 hours of applying base coat.

Consumption of Coating Components:

Primer : 0,3-0,5 kg/m²

Quartz sand : 1-1,5 kg /m²

Polyurea coating : 1,05- 1,1 kg/m² /mm (recommended film thickness is minimum 2 mm.)

5 PACKAGING

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200 kg barrel (Amine component- SUF-FIX S1005)

225 kg barrel (Iso component- SUF-FIX S1005 PRE 151)

6 COLORS

Standard color is medium grey. Custom colors any RAL number is available upon request.

7 SHELF LIFE & STORAGE CONDITIONS

Polyurea components are sensitive to moisture. Keep polyurea components in tightly closed containers. Mix amine resin before application. Store the polyurea components between 20-30°C. Shelf life of the unopened original packaging is nine months from manufacturing date.

8 SAFETY

Contains isocyanate MDI. Avoid breathing vapors. Avoid contact with skin and eyes. Take precautions during application. Wear suitable protective clothing, gloves and eye/ face protection. Adequate ventilation of the working area is recommended. Refer to SDS sheet prior to use.

9 TECHNICAL FEATURES

Component Properties

	UNIT	METHOD	ISO COMPONENT (A)	AMINE COMPONENT (B)
Density (25°C)	gr/cm ³	ASTM D 1217	1,11±0,03	1,02±0,02
Viscosity (25°C)	mPa.s	ASTM D 4878	700-800	500-600
Shelf life	-----	-----	9 months	9 months

Process Properties

	UNIT	DATAS
Mix Ratio	By volume	A=100 B=100
	By weight	A= 112 B= 100
Process temperature (°C)	°C	A: 70-80 B: 70-80
Process pressure (bar)	Bar	A: 180-200 B: 180-200

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Physical Properties

	METHOD	DATAS
Chemical structure		A: MDI Prepolymer B: Amine Resin
VOC content (%)	ASTM D1259	0
Solid content (%)	ASTM D2697	100
Gel time (sec)	--	5-10
Tack free time (sec)	--	15-30
Walkable (min)	--	2,0
Trafficable (light duty) (min)	--	15-20
Recoat time (hr)	--	0-12 (without pretreatment)
Post cure time (hr)	--	24
Density (gr/cm ³)	ASTM D792	0,99-1,03
Tensile strength (MPa)	ASTM D638	≥19
Modulus (MPa)	ASTM D638	%100 elongation ≥10 %300 elongation ≥15
Elongation at break (%)	ASTM D638	≥350
Hardness (Shore D)	ASTM D2240	44-48
Hardness (Shore A)	ASTM D2240	85-90
Tear strength (N/mm)	ASTM D 624	≥87
Taber abrasion (mg)	EN ISO 5470-1	<20 (H22, 1000 cycle)
Impact resistance	EN ISO 6272-1	Class III
Thermal Resistance	--	-30 °C-100°C
Pull off strength (N/mm ²)	ASTM D 4541	Concrete: ≥2,5 Steel: ≥6

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10 CHEMICAL RESISTANCE CHART

Polyurea Elastomer Chemical Resistance Chart; Test Procedure: ASTM D1308 at 720°F

- R** : Recommended (little or no visible damage)
C : Recommended Conditionally (some swelling, discoloration, cracking - wash down within 1 hour of spillage)
N : Not Recommended
1 : Some discoloration only

This data represents 7 days spot test exposure for the Polyurea Elastomer System. The noted chemical; was placed on the surface area of the polyurea and exposed for the prescribed time period. This test represents industry-recognized conditions.

Test Media	Results	Test Media	Results
Acetic Acid 10%	R	Methanol	R
Acetone	C	Methanol (5%) Gasoline	C
Ammonium Hydroxide 10%/20%	R	Methylene Chloride C H 2C12	C
Ammonium Nitrate	R	Mineral spirits	R
Ammonium Phosphate	R	Motor Oil	R-1
Antifreeze (50% Ethylene Glycol)	C	Nitric Acid 20%	N
Battery Acid (Sulfuric Acid)	C	Phosphoric Acid 10%	R
Benzene	C	Phosphoric Acid 50%	N
Brine - saturated (>1 30,000 ppm)	R	Potassium Hydroxide 10%	R
Brake Fluid	R	Potassium Hydroxide 20%	R-1
Chlorine (2,000 ppm in water)	R	Propylene Carbonate	C
Chlorox, 10%	C-1	Sodium Chloride	R
Citric Acid	R	Sodium Hydroxide 5%/10%/25%	R
Copper Chromate Arsenic 4% working solution	R	Sodium Hydroxide 50%	R-1
Dimethyl Formamide	N	Stearic Acid	R
Gasoline	R	Sulfuric Acid 5%/10%/20%	R
Hexane	R	Sulfuric Acid 50%/98%	N
Hydraulic Oil	R-1	Toluene	C
Hydrochloric Acid	R	1, 1, 1 Trichloroethylene	C
Isopropyl Alcohol	R	Trisodium Phosphate	R
Lactic Acid 10%	R	Vinegar	R
Liquid Notrogne Fertilizer (25-0-0)	R	Water	R
Liquid Urea Fertilizer	R	Xylene	R

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Test Procedure: ASTM D-3912 Immersion at 75°F

This data represents 12 month immersion exposure for the Polyurea Elastomer The elas system was applied to a steel panel, having a 2 mil blast profile. The coated panels were then immersed half way into the following chemicals/solution for a period of 12 months, except where noted.

Test Media	Results	Test Media	Results
Acetic Acid 10%	R	Motor Oil	R-1
Acetone	N	MTBE	R, C
Ammonium Hydroxide 10%/20%	R	MTBE/Gasoline 2%	R, C
Chromic Acid, 10%	N	Nitric Acid 5%	R
Diesel Fuel	R	Phosphoric Acid 10%	R
Ethylene Glycol	R	Sodium Chloride 10% (75°F)	R
Gasoline	R	Sodium Chloride 10% (125°F)	R
Hydraulic Fluid	C	Potassium Hydroxide 10% / 20%	R
Hydrochloric Acid 5%, 10%	R	Sodium Hydroxide 50%	C
Hydrogen Peroxide 5%	R-1	Sodium Hydroxide 1% 50°C 14 days	C
Hydrogen Peroxide 30%	N	Sodium Hypochlorite 10%	R
Isopropyl Alcohol	N	10% Sugar/Water	R
Methanol	N	Sulfuric Acid 5%/10%/3% 50* 14 days	R
Methylethyl Ketone	N	Toluene	N
		Water 75°F, 180°F, 14 days	R

11 DISCLAMIER

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