

SUF-FIX 1070 HYBRID POLYUREA

Hybrid Polyurea Based, Waterproofing and Coating Material

1- PRODUCT DESCRIPTION

SUF-FIX 1070 HYBRID POLYUREA is a two component, solvent free, UV resistant, hybrid polyurea system. It is applied with high pressure and heated special spray machines. As a result of the reaction, a membrane with excellent mechanical and chemical resistance properties is formed on the applied surface. Thanks to these properties, it can be used on all kinds of surfaces for waterproofing purposes.

2- PRODUCT FEATURES

- Economic polyurea system
- Two-component, aromatic, UV resistant
- 100% solids content
- VOC free, odorless
- Fast curing and servicing
- Seamless
- Application of desired thickness
- Applicable on all surfaces with suitable primer
- Can be used on horizontal and vertical surfaces
- Resistant to perforation by plant roots
- Water vapor permeability
- Excellent flexibility and crack bridging
- Excellent weather resistance

3- APPLICATION AREAS

- General waterproofing applications (roof, terrace, balcony etc.)
- Under floor applications of ceramic, screed concrete and other floor coverings
- Roads, bridges and tunnels
- Thermal insulation applications (PU foam, EPS, XPS etc.)
- Foundation and curtain concrete

4- APPLICATION CONDITIONS

- The surface must be strong and of sufficient strength. Application should not be made on

low screed concrete. The lowest compressive strength for the surface should be 2,5 MPa and the lowest bond strength should be 1,5 MPa

- The concrete should be allowed to dry for at least 28 days before application on fresh concrete
- The surface and ambient temperature should be at least 5 °C and not more than 35 °C.
- The humidity in the air should be at most 85%.
- Moisture ration on the surface should be maximum %4 for surfaces applied standard epoxy primer , maximum %6 for surfaces applied moisture tolerant epoxy primer and %7 for for surfaces applied water based epoxy primer.
- Attention should be paid to condensation on the surface. Application should not be made early in the morning. The surface temperature should be at least 3 °C higher than the dew point.
- Do not apply on frozen, melting surfaces or on surfaces where rain is expected within 6-8 hours.
- The above conditions apply to both primer and polyurea application.

5- SURFACE PREPARATION

- The application surface should be clean and dry, the elements that prevent adhesion should be cleaned from the surface. Do not wash to clean the surface.
- If necessary, the surface should be wiped off with suitable wiping machines to remove the weak concrete on the concrete surface to open the eyelets and openings. The glazed top

layer of ceramic surfaces should be roughened. Dust happened after wiping should be removed from the surface by brush or vacuum cleaners.

- Dilatations on the surface should be insulated with the appropriate polyurethane based filler material (**SUF-FIX 535 Pu Sealant**) and dilatation tape.
- Any fractures, gaps and segregations on the surface must be repaired with suitable epoxy or cement based repair mortars.
- Corner chamfers should be supported with appropriate repair mortar or chamfer tape.
- The application surface should be cut on the screed concrete in large places. Cutted joints must be filled with polyurethane or polyurea based sealant.
- Sanding and polishing should be done according to the standards for corrosive areas in metal surface coatings. The joints on the cleaned metal surface should be covered with polyurethane based sealant (**SUF-FIX 535 Pu Sealant**), flexible tape or steel paste.
- As a result of these processes, dust and debris on the surface should be removed from the surface for the last time.

6- PRIMER APPLICATION

If the surface moisture is less than 4% on absorbent surfaces (concrete, wood etc.), it is recommended to use a low viscosity primer for the first coat primer application. This application will reduce the amount of epoxy primer to be applied on the second layer and the

number of eyelet holes on the surface in polyurea application.

- If the surface moisture is above 4%, the moisture tolerant primer should be used instead of first layer primer.
- To obtain a homogeneous primer mixture, the primer should be mixed with an electric mixer for 3-4 minutes, low speed (~ 300 - 400 rpm) or with suitable equipment. Do not mix at high speed for a long time to prevent air bubbles.
- The prepared primer mixture is applied to the surface by brush, roller or airless spraying machines.
- When the primer is still wet, it is recommended to spray 0.3-0.7 mm of silica sand on the surface to increase the adhesion of the polyurethane to the surface.
- Before applying **SUF-FIX 1070 HYBRID POLYUREA**, make sure that the primed surface is sufficiently dry. The primed surface should not be too wet or completely dry. It is sufficient to leave a feeling of adhesion in your hand.
- Foreign bodies adhering to the primer surface and quartz sand, which is highly sprinkled, should be cleaned by brush or vacuum before application.

7 – POLYUREA APPLICATION

- **Preparation of Components** : Before starting the application, the component B (amine resin) must be mixed in the barrel for at least 30 minutes until a homogenous color is obtained. The mixing process must continue during application. It is

important that the temperature of components A and B be in the range of 25-30 °C before application. The components should not be diluted in any way.

- Spray Machine Settings:**

The polyurea is applied to floors with a spraying machine operating at high pressure and temperature. Machine settings must be checked continuously during application.

Parameters	Datas
A Component (MDI Prepolymer) Temperature	70-71 °C
B Component (Amine Resin) Temperature	67-68 °C
Hose Temperature	67-68 °C
Machine Pressure	140-180 bar

- After all preparations are finished, the polyurea is applied by spraying on the surface with a minimum thickness of 2 mm for two layers
- Mixing Ratio:**
It should be checked continuously whether the mixing ratio is correct or not with looking at machine pressure bar hours.

Mixing Ratio	Unit	Datas
A / B	Volume	100 / 100
	Weight	112 / 100

8 – TOP COAT APPLICATION

- When applied **SUF-FIX 1070 HYBRID POLYUREA** product is exposed to direct sunlight, color change can be observed after a certain period of time. However, this does not affect the physical properties and performance of the product.
- When color stability is desired, aliphatic top coat is applied. Aliphatic polyurethane paint, aliphatic polyurea system or polyaspartic polyurea system may be preferred as the top coat application. The final coat should be applied within 0 - 12 hours after the application of the main coat.

9 – CONSUMPTION

Product	Consumption
SUF-FIX PRIMER	300 - 500 g/m ²
0,3-0,7 mm Quartz Sand	1,0 - 1,5 kg/m ²
SUF-FIX 1070 HYBRID POLYUREA	2,0 - 2,2 g/m ² (for 2 mm)

* Consumption in the table is theoretical. Consumption may vary according to surface permeability, weather conditions, and the technique of application.

10 - TECHNICAL FEATURES

Component Properties

	Unit	Method	A Component	B Component
Chemical Structure	-	-	MDI Prepolymer	Amine Resin
Physical Condition	-	-	Liquid	Liquid
Density (25 ° C)	gr/ml	ASTM D 1217	1,11 ± 0,03	1,02 ± 0,02
Viscosity (25 ° C)	cps	ASTM D 4878	700 - 800	300 - 600
Solid Content	%	ASTM D 2697	100	100
VOC Content	%	ASTM D 1259	0	0
Color	-	-	Transparent Yellow	Desired RAL colors

Reaction Parameters

	Unit	Method	Datas
Gel time	Second	-	5-10
Tack Free Time	Second	-	15-30

Finished Product Features

Test Name	Unit	Method	Datas
Final Product Structure	-	-	Solid Elastomeric Membrane
Tensile Strength	MPa	ASTM D 638	≥ 13
Module	MPa	ASTM D 638	%100 elongation ≥ 5
Repeat Coating Time	hour	-	0-12
Elongation	%	ASTM D 638	≥ 300
Shore D	-	ASTM D 2240	33-38
Shore A	-	ASTM D 2240	85-90
Tear Resistance	N/mm	ASTM D 624	≥ 25
Taber Abrasion Resistance	mg	EN ISO 5470-1	< 240 (H22, 1000 cycle)
Impact Resistance	-	EN ISO 6272-1	Class III
Adhesion Strength	N/mm ²	ASTM D 4541	Concrete: ≥ 3 Steel: ≥ 6
Capillary Water Permeability and Water Transfer Rate	kg/m ² h ^{0,5}	EN 1062-3	0,012
UV Resistance Test	-	ASTM G53	no cracking and swelling

Chemical Resistance Properties

Chemical Name	Result	Chemical Name	Result
Sulfuric Acid (10%)	4	Sodyum hidroksit (10%)	5
Sulfuric Acid (20%)	4	Sodium Hydroxide (20%)	5
Sulfuric Acid (30%)	1	Sodium Hydroxide (50%)	4
Hydrochloric Acid (10%)	4	Drinking Water (1mg/L chlor)	4
Hydrochloric Acid (20%)	2	Chlorine Pool Water	4
Nitric Acid (10%)	1	Vinegar (5%)	5
Acetic Acid (10%)	3	Hydrogen Peroxide (3%)	2
Chromic Acid	1	Mineral Oil	5
Hydrofluoric Acid (10%)	1	Hidrolik yağ	4
Phosphoric Acid (10%)	5	Hydraulic Oil	4
Phosphoric Acid (20%)	5	Toluene	2
Gasoline	2	Methanol	2
Ammonium Hydroxide (10%)	5	Ethanol (10%)	5
Ammonium Hydroxide (20%)	5	Acetone	2
Potasyum hidroksit (10%)	5	MEK	2
Potassium Hydroxide (20%)	3	Xylene	2

* These tests were done by dipping into chemicals for 6 months.

*5: RESISTANT 4: RESISTANT. ONLY COLOR CHANGE 3: SWELLING

2: CONDITIONS (SHORT-TERM DISCRIMINATION) 1: NOT RECOMMENDED

11 - PACKAGING

225 kg drum (A - MDI Prepolymer)

200 kg drum (B - Amine Resin)

12 - SHELF LIFE AND STORAGE CONDITIONS

- Polyurea components are moisture sensitive. Therefore, in original, unopened and undamaged packages, it is suitable for 9 months from date of production when stored correctly between +10 °C and +30 °C.
- Products should be stored in dry and places where not having direct sunlight.

13 – CLEANING

- Clean all tools and application equipment with suitable cleaner solvent immediately after use. Hardened / cured material can only be cleaned by mechanical methods.

14 - WARNING AND SUGGESTIONS

- **SUF-FIX 1070 HYBRID POLYUREA** B component contains corrosive polyamines and component A isocyanates. Follow the instructions in MSDS form before or after use or when a problem is encountered.
- Personal protective equipment and full face mask with appropriate filter should be used during application.
- There must be sufficient air circulation in the application area.
- Give empty barrels to authorised hazardous waste collector companies.