



## **AKFIX POLYUREA FR 1044 (FIRE RETARDANT)**

### **1 – PRODUCT DESCRIPTION**

**Akfix Polyurea FR 1044** is a very fast curing, 2-component aromatic pure polyurea system, 100% solid, flexible coating derived from a reaction of an isocyanate prepolymer and an amine terminated resin blend. With its fire retarding ability, it has resistance against ignition combined with self- extinguish feature. Especially designed to protect and coat concrete, metal, wood, ceramic, geotextile and PU foam substrates. The material must be applied utilizing high pressure, heated plural component spray proportioning equipment. As the product is not sensitive to moisture and heat, it can be applied in wide variety of weather conditions. It can be used safely in exterior and interior environments.

### **2 – FEATURES**

- Fire retardant and fire resistive system.
- %100 solid, VOC free, no odor
- No catalyst
- Fast reactivity and fast return to service time
- Excellent thermal stability
- Seamless and joint-less coating with water resistance
- Excellent adhesion on concrete, steel, aluminum, plastics, fibers, wood, geotextiles etc.
- Excellent flexibility
- Not effected by humidity and heat
- Excellent chemical resistance
- Very good impact and corrosion resistance
- Very good tensile and structural strength
- Variable application thickness possible
- Broad color spectrum

### **3 – APPLICATION AREAS**

- Floors where fire retardant is necessary , industrial coatings, hospitals, factories, parking lots, garage, transportation and truck bed liners
- Construction – roads , bridge decks, railways and high speed railways, tunnels, airports, line striping, ship decks, ship ports and canals
- High abrasion applications –oil and gas industry, refineries, petrochemical industry, mining, secondary containment, energy industry waste water treatment plants , tank coating, secondary storage tanks, on floors where acid/base resistance is needed.
- Leisure industry- water parks, aquariums linings, play grounds , theme park and decorative applications



#### 4 – SURFACE PREPARATION & APPLICATION

- Surface preparation strongly affect 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. The application surface has to be primed in order to achieve an even surface and good adhesion.
- 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/mm<sup>2</sup> and concrete residual moisture should be max. 6 %.
- Isocyanate prepolymer and amine resin must be applied using a 2-component high pressure and heat spray machine. The machine should be able to spray the components in 1:1 volume ratio. In order to achieve good performance, the temperature and pressure should stay same during the application.
- Before application, amine component must be stirred using a barrel mixer.

#### 5- PACKAGING

200 kg barrel (Amine side)

225 kg barrel (Iso side)

#### 6- SHELF LIFE & STORAGE CONDITIONS

Polyurea components are sensitive to moisture. Keep polyurea components in tightly closed containers. Mix amine resin before application. Store polyurea components between 20 -30 °C.

9 months of storage time, If stored according to stated conditions.

#### 7- 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	MDI Prepolymer (A)	Amine Resin (B)
Density (25°C)	gr/cm <sup>3</sup>	ASTM D 1217	1,11±0,03	1,02±0,02
Viscosity (25°C)	mPa.s	ASTM D 4878	700-800	300-600
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: 150-200 B: 150-200

### Physical Properties

	Method	Datas
<b>Chemical structure</b>		A: MDI Prepolymer B: Amine Resin
<b>VOC content (%)</b>	ASTM D1259	0
<b>Solid content (%)</b>	ASTM D2697	100
<b>Gel time (sec)</b>	--	5-10
<b>Tack free time (sec)</b>	--	15-25
<b>Recoat time(hr)</b>		0-6
<b>Density (gr/cm<sup>3</sup>)</b>	ASTM D792	0,99-1,03
<b>Tensile strength (MPa)</b>	ASTM D638	16-18
<b>Modulus (MPa)</b>	ASTM D638	%100 elongation ≥10 %300 elongation ≥15
<b>Elongation at break (%)</b>	ASTM D638	≥350
<b>Hardness (Shore D)</b>	ASTM D2240	40-45
<b>Hardness (Shore A)</b>	ASTM D2240	85-90
<b>Tear strength (N/mm)</b>	ASTM D624	50-55
<b>Taber abrasion (mg)</b>	EN ISO 5470-1	<90 (H22, 1000 cycle)
<b>Pull off strength (N/mm<sup>2</sup>)</b>	ASTM D4541	Concrete: ≥2,5 Steel: ≥6
<b>Reaction to Fire Class</b>	EN ISO 11925-2	E