



## WHITECHEM POLYUREA 1044

### 1 – PRODUCT DESCRIPTION

**WHITECHEM POLYUREA 1044** is a very fast set, rapid curing, aromatic, flexible, two component and aromatic 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. Whitechem Polyurea 1044 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
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- Leisure industry– water parks, aquariums linings, play grounds and decorative applications
- On thermal insulation products for waterproofing (polyurethane foam, EPS, XPS etc.)



#### 4 – SURFACE PREPARATION & APPLICATION PROCEDURE

- **Surface Preparation:** 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. 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. 4% pbw (with an 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
<b>Optimum</b>	10 °C -30 °C	20 °C -30 °C	25-50%
<b>Minumum</b>	-10 °C	-10 °C	0%
<b>Maximum</b>	50 °C	50 °C	85%

**Priming:** The application surface has to be primed in order to achieve an even surface and good adhesion. Lightly broadcasting 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 broadcast 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/m<sup>2</sup>

Quartz sand: 1-1,5 kg m<sup>2</sup>

Polyurea coating: 1,05 - 1,1 kg/m<sup>2</sup> /mm (recommended film thickness is minimum 2 mm.)



## 5- PACKAGING

200 kg barrel (Amine component)  
225 kg barrel (Iso component)

## 6- COLORS

Standard color is medium grey. Custom colors any RAL number are 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 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)
<b>Density (25°C)</b>	gr/cm <sup>3</sup>	ASTM D 1217	1,11±0,03	1,02±0,02
<b>Viscosity (25°C)</b>	mPa.s	ASTM D 4878	700-800	300-600
<b>Shelf life</b>	-----	-----	9 months	9 months

### Process Properties

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



## 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
Recoat time (hr)	--	0-12 (without pretreatment)
Post cure time (hr)	--	24
Density (gr/cm <sup>3</sup> )	ASTM D792	0,99-1,03
Tensile strength (MPa)	ASTM D638	≥ 18
Modulus (MPa)	ASTM D638	%100 elongation ≥10 %300 elongation ≥15
Elongation at break (%)	ASTM D638	≥350
Hardness (Shore D)	ASTM D2240	40-45
Hardness (Shore A)	ASTM D2240	90-95
Tear strength (N/mm)	ASTM D 624	≥50
Taber abrasion (mg)	EN ISO 5470-1	<30 (H22, 1000 cycle)
Impact resistance	EN ISO 6272-1	Class III
Thermal Resistance	--	-30 °C-100°C
Pull off strength (N/mm <sup>2</sup> )	ASTM D 4541	Concrete: ≥2,5 Steel: ≥6

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