IMPERMAX POLYUREA H SUPREME

Sprayed, hot-applied polyurea membrane

DESCRIPTION

Impermax Polyurea H Supreme is a polyurea-based system with very high elongation and, at the same time, excellent tensile strength, for applications on substrates exposed to large contraction / expansion movements. Low viscosity resin and easy application (compensated viscosities) with mechanical hot spraying equipment with a 1: 1 ratio by volume. It is recommended to use aliphatic finishes with good elasticity for UV protection (such as Impertrans Pigmented or Impertrans Eco).

APPLICATION

- Roof waterproofing on concrete, metal, asphalt fabrics and other types of prefabricated membranes.
- Waterproofing and protection of concrete structures, especially those exposed to the outside
- Floating membranes for application in situ (together with Geomax Spray 200), totally continuous, without joints or overlaps, for primary or secondary water containment.

PROPERTIES

- Excellent crack-bridging ability even at extremely low temperatures.
- Highly elastic membrane.
- Fast curing.
- Very high-water vapor permeability.

CERTIFICATIONS

- **ETA**: European Technical Assessment nº 22/0118 (W3, 25 years).
- **CE marking EN 1504-2**: surface protection of concrete structures, certification 0370-CPR- 2247.
- External fire behaviour for roofs: Class B_{roof}(t1) and B_{roof}(t2) over combustible support.
- Resistance to roots according to CEN/TS 14416:2014.
- Hail resistance (EN-13583).

TECHNICAL DATA

INFORMATION ON THE PRODUCT BEFORE APPLICATION		
	Component A	**Component B**
Chemical description	Polyol/Polyamine	Aromatic isocyanate prepolymer
Physical state	Liquid	Liquid
Packaging	Metal container 196 kg 18.6 kg	Metal container 220 kg 21 kg
	Component C (colour paste) Metallic tin of 0.4 kg and 4 kg	

Non-volatile content	approx 100%	100%
Flash point	>100ºC	>100ºC
Colour	Dark yellow	Slightly yellow
Density	Temperature (ºC): 25; Density (g/cm³): 1.05	Temperature (ºC): 25; Density (g/cm³): 1.12
Viscosity	Temperature (ºC): 25; Viscosity (mPa.s): 750	Temperature (ºC): 25; Viscosity (mPa.s): 800
VOC (2004/42/CE)	<2 g/L, <0.2% A, j	0 A, j
Mixing ratio A/B	A=1, B=1.05 by weight A=1, B=1 by volume	
Density and viscosity of the mixture	Fast polymerization. See Pot life data	
Colour	Dark yellow, but component A is pigmented by addition of pigment paste (Pigment Spray) delivered with each kit of Impermax Polyurea H Supreme.	
Pot life	Gel time mixture A+B (20 g) 12 s at 25ºC Tackfree in 20 seconds	
Storage	Keep between 10º y 30ºC.	
Use before	12 months after the manufacture date, provided it is kept in its sealed container.	

INFORMATION ON THE FINAL PRODUCT	
Final state	Solid elastomeric membrane
Colour	Available colours: light grey, dark grey, rust red, blue (may darken during storage and exposure to sunlight). Other colours under request.
Hardness (Shore)	90A/40D (ISO 868)
Mechanical properties	Elongation at break: 650% Tensile strength: 17 MPa (UNE EN ISO 527-1/3) Tear strength: 46 N/mm (ISO 34-1 method B)
UV resistance	Good resistance to UV-induced degradation. Aromatic polyureas undergo change of colour under sunlight. This change does not affect its mechanical properties. Additional UV protection can be achieved by application of an Impertrans or Colodur topcoat.
Heavy metal content (mg/kg)	Antimony (Sb): <1 Arsenic (As): <1 Lead (Pb): <1 Cadmium (Cd): <0.1 Chromium (Cr): <1 Nickel (Ni): <1 Mercury (Hg): <0.1 Selenium (Se): <1 Cobalt (Co): <1
Water vapour resistance factor	μ = 304 (EN-ISO 7783: 2012)
Liquid water permeability	W = 0,02 Kg/m² x $h^{0,5}$ (EN-1062-3: 2018)
Watertightness (60kpa, 6 meters of water column)	Watertight (EN-1928)

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Foldability at low temperature (-45ºC)	Does not break or crack (EN-495-5)
Resistance to abrasion	10 mg (Taber, CS-10, 1000c, 1 kg)
Impact strength	24,5 N x m, Class III > 20 N x m (EN ISO 6272-1)
Thermal conductivity (λ)	0,1849 W/m x K (22ºC, EN 22007-2)

SUPPORT REQUIREMENTS

To achieve a good penetration and bonding, support must be:
1. Flat and levelled.
2. Compact and cohesive (pull off test must show a minimum resistance of 1,4 N/mm^2).
3. Even and regular surface.
4. Free from cracks and fissures. If any, they must be previously repaired.
5. Clean and dry, free of dust, loose particles, oils, organic residues or laitance.

Support temperature must be between 10ºC and 40ºC.

At higher temperatures, additional measures to be advised by the manufacturer must be taken.

Support moisture must be less than 4%.

RECOMMENDED ENVIRONMENTAL CONDITIONS

Air temperature should be between 10ºc and 40ºC. Relative air humidity should be less than 70%.

SUPPORT PREPARATION

Concrete substrates must be prepared mechanically using high pressure sand or abrasion, to remove the surface and obtain an open pore.

Substrates must be primed and levelled until a regular surface is obtained. Sharp irregularities are eliminated using an abrading disc machine. Eliminate all dust and loose particles from the substrate by brushing or vacuum cleaning. Failure to adequately priming the surface may lead to premature delamination, cracking, or contraction.

Metal substrates must be thoroughly sanded, and the final surface must be free of dust. A suitable adhesion-promoting primer must be used (e.g., PU Primer) to prevent deformation, cracks, or adhesion failure.

MIXING

Stir and homogenize separately both components using suitable mixing equipment before being loaded into the machine. Best Mixing equipment should have extensible blades with overall width equivalent to 1/3 of drum diameter. Add the required Pigment Spray to the A-component and stir before loading. Recirculate both components while heating up to the required application temperatures.

APPLICATION GUIDELINES

Impermax Polyurea H Supreme must be applied using a 2-component hot spraying equipment.

Recommended temperatures are:

- Component A: 70ºC
- Component B: 75ºC
- Hose temperature: 70ºC

The pressure should be 150 bar.

During application, check layer thickness and curing speed.
Spray Impermax Polyurea H Supreme at 1-2 kg/m^2.
Wind speeds more than 25 km/h may result in excessive loss of exotherm and interfere with the mixing efficiency of the spray gun affecting polyurea surface texture, cure, and physical properties and will cause overspray issues.
Contact Krypton Chemical for more detailed technical information.

CURING TIME

Approximate hardness values are provided as reference only (2 mm, polypropylene support, 20ºC 50% rh).

Time	Hardness shore A
45 min	53
3 hours	56A
1 day	65A

REAPPLICATION

Usually, necessary thickness can be obtained in one single coat. If necessary, a second coat can be applied immediately afterwards. In any case, do not wait more than 2 hours for a second coat. If spraying over a previously applied epoxy primer, ensure the primer is completely cured (ca 8 hours).

RETURN TO SERVICE

Under most usual conditions (25ºC, 50% rh), the membrane is resistant to rain droplets after 5 minutes, and able to resist light pedestrian traffic in 1 hour. After 1 day, more than 90% of the final properties are reached.

TOOL CLEANING

Solvent use for machine component cleaning is discouraged. A cleaning plasticizer fluid like Rayston Fluid is suitable. Component B must be completely removed from all air-exposed parts and replaced with this cleaning fluid. A maintenance work should be carried out regularly on the treated surfaces according to the intended use.

FAQs

Problem	Question	Cause	Solution
Product does not cure	AB ratio is correct?	Pressure differences	Check and correct machine operation
Bubbles or open pores	Porous support?	No primer	Apply suitable primer before Impermax Polyurea H Supreme
No hiding power	Horizontal?	Too little product Too little pigment	Apply 1 kg/m^2 Ensure full A+ pigment homogenization
Colour change	Exposed to sunlight?	UV-reaction	Use a last coat in dark grey or red
	Can it be applied without pigmentation?		Impermax Polyurea H Supreme is always delivered with the pigment of choice. Use of pigment helps to obtain an uniform appearance

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SAFETY

Component B contains isocyanates. Always follow the safety instructions in the Material Safety Data Sheet. As a rule, good ventilation and/or respiratory protection is needed (combined organic vapor filters + particles) along with protective clothing. This product must be used only for the applications here described. This product is intended for industrial and professional use. It is not suitable for DIY-type applications.

ENVIRONMENTAL PRECAUTIONS

LEED-requirements compliant. EQ Credit 4.2, Low emission materials: Paints and Coatings. Empty containers must be handled with the same precautions as if they were full. Treat empty containers as hazardous waste and transfer them to an authorized waste manager. If the contains still have some material left, do not mix with other product with no knowledge of potentially dangerous reactions. Component A and B may be mixed on a 1/1 ratio to get an inert material, but never do it in volumes larger than 5 liters to prevent a dangerous heat evolution.

RECYCLABILITY

The coating, once cured, is inert, free of hazardous materials and heavy metals, so it is fully recyclable at the end of its useful life, for example, as a filler for lightened concrete or mortars.

OTHER INFORMATION

The information contained in this Technical Data Sheet, as well as our advice, both written as verbal or provided through testing, are based on our experience, and they do not constitute any product guarantee for the installer, who must consider them as simple information.

We recommend to study deeply all information provided before proceeding to the use or application of any of our products and strongly advise to conduct tests “on-site” in order to determine their convenience for a specific project.

Our recommendations do not exempt the obligation of installers to deeply study the right application method for these systems before use, as well as to conduct as many preliminary tests as possible should any doubt arise.

The application, use and processing of our products are beyond our control, and therefore under the exclusive responsibility of the installer. In consequence, the installer will be the only responsible of any damage derived from the partial or total in-observation of our indications, and in general, of the inappropriate use or application of these materials.

This Technical Data Sheet supersedes previous versions.

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