

Impermax Polyurea H

SPRAYED, HOT-APPLIED POLYURETHANE WATERPROOFING MEMBRANE

DESCRIPTION

Impermax Polyurea H is a 2-component polyurea resin, which cures very fast into an elastic membrane with crack-bridging capacity. This product can only be applied by 2-component spraying equipment.

APPLICATIONS

Waterproofing of concrete structures and light traffic areas. Impermax Polyurea H can be completed with an additional UV-resistant coating. Roof waterproofing.

PROPERTIES

Crack bridging ability

Highly elastic membrane

Fast curing

Pigmentable with Pigment Spray.

CERTIFICATIONS



ETA: European Technical Agreement Document Nº 11/062 – 10 year CE marking.



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Technical Data

PRODUCT INFORMATION BEFORE APPLICATION

	Component A	Component B
Chemical description	Polyol/Polyamine	Aromatic isocyanate prepolymer
Physical state	Liquid	Liquid
Packaging	Metal container 186 kg/46.5 kg/23,2 kg	Metal container 208 kg/52 kg/26 kg
Non volatile content (%)	approx 100	100
Flash point	>100°C	>100°C
Colour	Dark yellow	Slightly yellow

Density	Temperature	Density	Temperature	Density
	(°C)	(g/cm ³)	(°C)	(g/cm ³)
	20	1,03	20	1,12
	60	1,02	60	1,03

Viscosity Approximate values, Brookfield	Temperature	Viscosity	Temperature	Viscosity
	(°C)	(mPa.s)	(°C)	(mPa.s)
	20	1900	20	2800
	30	950	30	1000
	50	300	50	350
	70	140	70	200

VOC	7g/L, 0,7%	0
VOC class	A, j	A, j
as per 2004/42/EC		

A/B mixing ratio	A=1, B=1,12 by weight A=1, B=1 by volume
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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) for Impermax Polyurea H.

Pot life Gel time mixture A+B (20 g)
16 s at 25°C
7 s at 60°C

Storage Keep between 10° y 30°C

Use before 12 months after manufacture, provided it is kept in its sealed container.



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INFORMATION ON THE FINAL PRODUCT

Final state	Solid elastomeric membrane
Colour	Variable, depending on the chosen pigmentation. For colours available, please consult.
Hardness (Shore)	88 A (ISO 868)

Mechanical properties

<i>Elongation (%)</i>	<i>Stress (MPa)</i>
50	7,0
100	9,5
150	11,1
184	13,0

Elongation at break: 184%
Tensile strength: 13 MPa
(EN-ISO 527-3)

Tear strength	7,5 N/mm
Water vapour permeability	$\mu=2000$, 14 g/m ² day, (EN 1931)

Chemical resistance	Permanent contact. (0=worst, 5=best)
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<i>Chemical</i>	<i>Conditions</i>	<i>Result</i>
Water	15d, 80°C	5
Brine	5d, 80°C	5
Diesel	16d, 80°C	5
Xylenes	7d, 80°C	1
Ethyl acetate	7d, 80°C	0
Isopropyl alcohol	7d, 80°C	0
Sodium hydroxide (40 g/L)	7d, 80°C	5
Hydrogen peroxide (33%)	7d, 25°C	4
Ammonia (3%)	7d, 80°C	5
Sulfuric acid (10%)	7d, 80°C	4
Hydrochloric acid conc.	7d, 80°C	0
Bleach	7d, 80°C	4

Adhesion strength

<i>Surface</i>	<i>Adhesion (MPa)</i>
Concrete	>50

UV resistance	Good resistance to UV-induced degradation. Aromatic polyurethanes undergo change of colour under sunlight. Additional UV protection can be achieved by application of a Impertrans or colodur topcoat.
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Thermal resistance	Stable up to 80°C
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Fire resistance	B roof= t1 (external fire exposure test)
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APPLICATION GUIDELINES

Recommended combinations

Option 1

Roof system, UV-exposed

Layer thickness: >2 mm

Primer: 300-500 g/m² (epoxy type, with some quartz sand spread over 0,4-0,7 mm). Note: if residual humidity in substrate is suspected, and in order to avoid blistering of membrane, it is better to apply 2 coats of Primer: one without quartz sand as vapour barrier, and a second one with sand.

Waterproofing: Impermax Polyurea H: 1 to 2 kg/m², in one or two coats

UV-protective coating: 200-300 g/m² Colodur or Impertrans, pigmented.

Option 2

Roof waterproofing with no UV exposure.

Primer: 300-500 g/m² (epoxy type, with some quartz sand spread over 0,4-0,7 mm).

Waterproofing: Impermax Polyurea H: 1 to 2 kg/m², in one or two coats

Support requirements

In order to achieve a good penetration and bonding, support must be:

1. Flat and leveled
2. Compact and cohesive (pull off test must show a minimum resistance of 1,4 N/mm²).
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 10°C and 40°C. 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 10°C and 40°C. Relative air humidity should be less than 85%.

Support preparation

Concrete substrates must be prepared mechanically using high pressure sand or abrasion, in order 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.

Mixing

Stir and homogeneize separately both components using suitable mixing equipment before being loaded into the machine. Add the required pigment to the A-component and stir before loading. Recirculate both components while heating up to the required application temperatures.

Application guidelines

Impermax Polyurea H must be applied using a 2-component hot spraying equipment. Recommended temperatures are:

Component A: 55-65°C

Component B: 65-70°C

Pressure should be 140 bar.

During application, check layer thickness and curing speed.



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Spray Impermax Polyurea H at 1,8-2,0 kg/m² to achieve a minimum 1,9 mm thickness

Contact Krypton Chemical for more detailed technical information.

Curing time

Impermax Polyurea H cures to touch after a few minutes after application. Approximate hardness values are provided as reference only (1 mm, polypropylene support, 25°C 50% RH)

<i>Time</i>	<i>Hardness Shore A</i>
15 min	30
30 min	47
1 h	60
3 h	72
8 h	79
24 h	82
7 days	87

Re-application

Usually, needed 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 (25°C, 50% rh), the membrane is resistant to rain droplets after 15 minutes, and able to resist light pedestrian traffic in 1 hour. After 2 days, 90% of the final properties are reached.

Tool cleaning

Solvent use for machine component cleaning is discouraged. A cleaning plasticizer fluid is suitable. Component B must be completely removed from all air-exposed parts and replaced with cleaning fluid.

Cleaning and maintenance

A maintenance work must be carried out regularly on the treated roofs according to the intended use.

This work includes the following tasks:

- Leaf removal
- Grass, dirt, moss and other vegetation removal
- Keeping storm water system in good working order.
- Ensure gratings are in place, in order to prevent gutter obstructions.
- Check proper condition of several structures (flashing, seams, retaining walls...)
- Verification of possible damages due to improper use.

If aesthetic appearance of the roof is an important issue, it is essential to regularly clean the surface with water (*some mild detergent may be added*), according to the use.

It may be necessary to reapply decorative layers (Impertrans, Colodur) if they are worn out due to traffic, weather, corrosion, etc.

For stain removal, a surface treatment with Rayston solvent or isopropyl alcohol may be attempted. Strong acids are totally inadequate. Some solvents may damage the membrane. If this happens, the affected area has to be cut and repaired with a new Impermax Polyurea H or Impermax application.



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FAQ

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
No hiding power	Horizontal?	Too little product Too little pigment	Apply 1 kg/m ² Ensure full A+pigment homogeneization
Colour change	Exposed to sunlight?	UV-reaction	Use a last coat in dark grey or red
	Can it be applied without pigmentation?		Not recommended. Impermax Polyurea H is always delivered with the pigment of choice. Use of pigment helps to obtain an uniform appearance.

Safety

Component B contains isocyanates. Always follow the safety instructions in the Material Safety Data Sheet. As a general rule, a 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

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 containers still have some material left, do not mix with other product with no knowledge of potential dangerous reactions. Component A and B may be mixed on a 1/1 ratio in order to get an inert material, but never do it in volumes larger than 5 litres in order to prevent a dangerous heat evolution

Other information

The information contained in this DATA SHEET, as well as our advice, both written as oral 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 of 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 data sheet supersedes previous versions.



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