IMPERMAX POLYUREA H FLEX ALUM

Sprayed, hot-applied polyurea waterproofing membrane

DESCRIPTION

Impermax Polyurea H Flex Alum is a two component polyurea resin, which cures very fast into an elastomeric membrane with an excellent crack-bridging ability. This resin can only be applied by a two-component spraying equipment.

Impermax Polyurea H Flex Alum is the aluminium metallized version of the reference Impermax Polyurea H Flex. Both references have the same mechanical properties and hold the same certificates.

The only difference between the metallic version and the rest of the colours is that the Impermax Polyurea H Flex Alum has an improved electrical conductivity (antistatic effect) and that due to its special colour does not turn yellow if exposed to sunlight, therefore it does not need an aliphatic topcoat to keep the colour and the aesthetical appearance.

APPLICATION

Impermax Polyurea H Flex Alum is designed to protect and waterproof outdoors structures, mainly roofs, and terraces. Either for aesthetical reasons or to save a step in the waterproofing process (not need to apply an aliphatic topcoat).

CERTIFICATIONS

- Fire test B2 (DIN 4102-1:1998): Ignitability when subjected to direct impingement of flame. Class B2
- **ETA**: European Technical Assessment document Nº 21/0740 (EAD 030675-00-0107) – **CE marking**

CE

TECHNICAL DATA

INFORMATION ON THE PRODUCT BEFORE APPLICATION				
	Component A		**Component B**	
Chemical description	Polyol/Polyamide		Aromatic isocyanate prepolymer	
Physical state	Liquid		Liquid	
Packaging	Metal container 192 kg		Metal container 208 kg	
Non-volatile content	Approx 100%		100%	
Flash point	>100ºC		>100ºC	
Colour	Aluminium		Slightly yellow	
Density	Temperature (ºC)	Density (g/cm³)	Temperature (ºC)	Density (g/cm³)
	20	1.05	20	1.14
	60	1.02	60	1.10
Viscosity	Temperature (ºC)	Viscosity (mPa.s)	Temperature (ºC)	Viscosity (mPa.s)
	20	975	20	800
	60	170	60	120

VOC (2004/42/CE)	<2g/L, <0,2% A, j	0 A, j
A/B mixing ratio	A=1, B=1.08 by weight A=1, B=1 by volume	
Density and viscosity of the mixture	Fast polymerization. See Pot life data.	
Colour	Aluminum	
Pot life	Gel time mixture A+B (20g) 8-9 s at 25ºC 4-6 s at 60ºC	
Storage	Keep between 10ºC and 30ºC. Product is hygroscopic, protect from moisture. Component B may become hazy upon storage at low temperatures. Reheat mildly before use	
Use before	12 months after manufacture, kept in its sealed container.	

INFORMATION ON THE FINAL PRODUCT		
Final state	Solid elastomeric membrane	
Colour	Aluminum effect	
Hardness (Shore)	90A/40D (ISO 868)	
Mechanical properties	Elongation at break: 400% Tensile strength: 14 MPa (EN-ISO 527-3)	
Chemical resistance	Permanent contact (7 days, 80ºC 0=worst, 5=best)	
	Chemical	Result
	Water	5
	Ammonia (3%)	5
	Hydrochloric acid 3M (9%)	4
	Isopropyl alcohol	1
	Xylene	0
	Sulphuric acid (50%)	0
Adhesion strength	Substrate	Adhesion strength (MPa)
	Concrete (EP 100 primer)	5.6
	Steel (PU primer)	3.6
UV resistance	Good resistance to UV-induced degradation. Excellent gloss and color retention when exposed to sunlight.	
Fire resistance	Class B2	
Tear strength	69 N/mm (ISO 34-1 Method B)	
Electric resistance	$3{,}55 \times 10^9$ Ω (EN-1081:2019, method A, vertical resistance)	
Surface resistivity	$1{,}60 \times 10^{13}$ Ω/square (ASTM D257-14)	
Volume resistivity	$6{,}80 \times 10^{12}$ Ω x cm (ASTM D257-14)	

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/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.

RECOMMENDED ENVIRONMENTAL CONDITIONS

Air temperature should be between 10ºc and 40ºC. Relative air humidity should be less than 85%.

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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.

MIXING

Stir and homogenise component A using suitable mixing equipment before being loaded to the machine. Recommended mixing equipment should have extensive blades, width equivalent to 1/3 of drum diameter. Be sure that pigment in component A is well mixed and liquid has a homogeneous aspect before loading it into the machine. However, excess stirring may lead to undesirable moisture pick up. Recirculate both components while heating up to the required application temperatures.

APPLICATION GUIDELINES

Impermax Polyurea H Flex Alum must be applied using a 2-component hot spraying equipment. The use of a compressed air dryer (refrigeration dryer) or compressed air-drying filters is recommended.

Recommended temperatures are:

- Component A: 70ºC
- Component B: 70ºC
- Hose: 65ºC

Pressure should be at least between 135 and 170 bar while spraying.
During application, check layer thickness and curing speed
Spray Impermax Polyurea H Flex Alum at 2 kg/m^2 as a rule.

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

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

Time	Hardness (shore A/D)
10 min	74/27
20 min	77/29
1 hr	80/30
24 hr	88/35

RE-APPLICATION

Usually, needed thickness can be obtains in one single coat. If necessary, a second coat can be applied immediately afterwards. To obtain a good adhesion, it is recommended to clean the previous coat applied with xylene.

RETURN TO SERVICE

Under most usual conditions (25ºC, 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, 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.

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 must be cut and repaired with a new Impermax Polyurea H Flex Alum.

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 Flex Alum
No hiding power	Horizontal?	Too little product	Apply 1 kg/m^2
		Too little pigment	Ensure full A + pigment homogenization

SAFETY

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

OTHER INFORMATION

The information contained in this 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 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.