

# IMPERMAX 2K



## Sprayed, hot-applied polyurethane waterproofing membrane

### DESCRIPTION



**Impermax 2K** is a 2-component hybrid polyurethane resin, which cures very fast into an elastic membrane with crack-bridging capability. This product can only be applied by 2-component spraying equipment.

### APPLICATION

- Waterproofing of concrete structures, roof, terraces, etc.
- Waterproofing of water tanks.
- Component of parking deck systems for light traffic applications (see Impermax Park system).



See Manual of Waterproofing Systems of Krypton Chemical for further details.

### ADVANTAGES



- Crack bridging ability
- Highly elastic membrane
- Fast curing
- Pigmentable.

### CERTIFICATIONS

**ETA: European Technical Agreement Document N° 10/0296** – 25 year CE marking. Root penetration resistance (EN 13948)



**Applus certification laboratory:** Drinking water contact. Migration test. No 928/09/470d7395 (2010). External fire behaviour: Document No. 10/101587/1223 (2010)



**Istituto Giordano (Italy)** Asbestos fibre encapsulation (UNI 10686:1998), report 325389 (2015)

**AITEX.** Mechanical properties EN ISO 527-1/3, Static Indentation / CBR as per UNE-EN ISO 12236:2007, Tear Strength UNE-EN ISO 34-1:2011.

### TECHNICAL DATA

#### INFORMATION ON THE PRODUCT BEFORE APPLICATION

	Component A	Component B		
<b>Chemical description</b>	Polyol/Polyamide	Aromatic isocyanate prepolymer		
<b>Physical state</b>	Liquid	Liquid		
<b>Packaging</b> Note:	Metal container	Metal container		
Pigment is delivered in a third container. See Pigment Spray data sheet for specific details.	188 kg	208 kg		
<b>Non-volatile content (%)</b>	Approx 100%	100%		
<b>Flash point</b>	>100°C	>100°C		
<b>Colour</b>	Dark yellow	Slightly yellow		
<b>Density</b>				
	Temp (°C)	Density (g/cm <sup>3</sup> )	Temp (°C)	Density (g/cm <sup>3</sup> )
	20	1.03	20	1.12
	60	1.01	60	1.10

<b>Viscosity</b>	Temp (°C)	Viscosity (mPa.s)	Temp (°C)	Viscosity (mPa.s)
Brookfield, approximate	20	1800	20	2000
	30	900	30	1000
	50	250	50	400
	70	100	70	150
<b>VOC (g/L i %)</b>	<2g/L, <0,2 %		0	
VOC class as per 2004/42/EC	A, j		A, j	
<b>A/B mixing ratio</b>	A=1, B=1.12 by weight A=1, B=1 by volume			
<b>Density and viscosity of the mixture</b>	Fast polymerization. See Pot life data			
<b>Colour</b>	Dark yellow, but component A is pigmented by addition of pigment paste (Pigment Spray) delivered with each kit of Impermax 2k.			
<b>Pot life</b>	Gel time mixture A+B (20 g) 16 s at 25°C 7 s at 60°C			
<b>Storage</b>	Keep between 10° y 30°C (recommended).			
<b>Use before</b>	12 months after manufacture, provided it is kept in its sealed container.			

#### INFORMATION ON THE FINAL PRODUCT

<b>Final state</b>	Solid elastomeric membrane
<b>Colour</b>	Available Pigment Spray pastes are Gray RAL 7011. Tile red, Beige RAL 1001. Other pastes available on request.
<b>Hardness (shore)</b>	88A, (ISO 868)
<b>Water vapour permeability</b>	μ=2000, 14g/m <sup>2</sup> day, (EN 1931)
<b>Chemical resistance</b>	Permanent contact. (0=worst, 5=best)

Chemical	Conditions	Result
Water	15d, 80°C	5
Brine	5d, 80°C	5
Diésel	16d, 80°C	5
Xylene	7d, 80°C	1
Ethyl acetate	7d, 80°C	0
Isopropyl alcohol	7d, 80°C	0
Sodium hydroxide (40g/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	Surface	Adhesion (m.Pa)
	Concrete (with epoxy primer)	4,0
Plywood (with epoxy primer)	1,5	
	(cohesive wood failure)	
Steel (PU primer)	4,7	

**UV resistance** Good resistance to UV-induced degradation. Aromatic polyurethanes undergo change of colour under sunlight. This change does not affect its mechanical properties. Additional UV protection can be achieved by application of a Impertrans or colodur topcoat.

**Thermal resistance** Degradation begins at 180°C

**Tear strength** 43 N/mm (ISO 34-1, Method B)



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Latest update:

7/3/2017

Page:

1/3



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**Fire resistance** B roof= t1 (external fire exposure test)

### 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/mm<sup>2</sup>).
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 homogenize separately both components using suitable mixing equipment before being loaded into the machine. 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 2K must be applied using a 2-component hot spraying equipment. Recommended temperatures are:

- Component A: 60°C
- Component B: 70°C

Request specific information for cold weather applications. Pressure should be 140 bar.

During application, check layer thickness and curing speed. Spray Impermax 2k at 1,8-2,0 kg/m<sup>2</sup> to achieve a minimum 1,9 mm thickness

Wind speeds in excess of 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 further information.

### CURING TIME

Approximate hardness values are provided as reference only (1 mm, polypropylene support, 25°C 50% RH)

Time	Hardness (shore)
15 min	30
30 min	47
1 hr	60
3 hr	72
8 hr	79
24 hr	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 like Rayston Fluid is suitable. Component B must be completely removed from all air-exposed parts and replaced with this 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 2k or Impermax application.

### 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 2k
		Too little product	Apply 1 kg/m <sup>2</sup>
No hiding power	Horizontal?	Too little pigment	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?		Not recommended. Impermax 2k is always delivered with the pigment of choice. Use of pigment helps to obtain a 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 filter+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 container still has 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



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### **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.**