

IMPERMAX 2K M

RAYSTON
products

Liquid polyurethane membrane for waterproofing and radon gas barrier

DESCRIPTION

Impermax 2k M is a liquid-applied waterproofing membrane based on two-component polyurethane, without solvent, formulated with renewable raw materials of vegetable origin. Once cured, it forms a watertight, elastomeric, thermosetting membrane, totally continuous and with excellent resistance and durability properties. Being a solvent-free resin, it is specially designed for indoors waterproofing of walls and floors (wet rooms, for example, where the membrane can be left exposed or under tiles, bathrooms, kitchens, showers...). It can also be applied to waterproof several types of roofs, terraces and balconies, especially in situations where a solvent-free system is required. It can be left exposed outdoors, in which case it is recommended to protect it with an aliphatic topcoat (Colodur Pigmented, Impertrans Pigmented, Impertrans Eco or Impertop Fast Flex). Resistant to continuous water stagnation.

Excellent barrier to radon gas (Radon gas diffusion coefficient meets the requirements of the Spanish Technical Building Code).



APPLICATION

Impermax 2k M offers the following benefits in contrast to traditional waterproofing products:

- Liquid system. Creates a seamless, fully bonded membrane, offering a complete sealing of critical spots with no need to apply additional joint treatments.
- Solventless. No odour.
- A continuous seamless membrane is obtained in a simple and cost-effective way.
- Use of reinforcing fabric GEOMAX allows applications to obtain a high-build membrane in one step ("wet-on-wet procedure").
- Use of fabric GEOMAX provides a texture surface with a high degree of antiskid properties.
- High mechanical and resistance properties.
- Easy manual application, suitable for areas where other waterproofing products are not suitable.
- Use of GEOMAX provides uniform thickness, even in sloped surfaces.
- Use of thixotroping additives is possible for vertical/sloped surfaces, obtaining a uniform thickness layer in one coat.
- Light traffic possible with no special protection.
- Use of Colodur pigmented topcoat provides a decorative finish, easily combined with coloured sand, chips, etc.
- The resin can be used as a primer coat for polyureas on dry special substrates: asphalt, carbon steel and flexible sheets (especially when a 100% solvent-free system is required).
- Filling of expansion joints by casting, especially in the case of joints with significant movements.

CERTIFICATIONS

- CE marking EN 1504-2: 0370-CPR-2247
- Radon gas diffusion coefficient with and without Geomax reinforcement (Laruc, Laboratory of Environmental Radioactivity of the University of Cantabria)
- Carbon Percentage of biological origin (Beta Analytic, Miami USA)
- Root resistance according to CEN/TS 14416:2014 (reinforced with Geomax)



TECHNICAL DATA

INFORMATION ON THE PRODUCT BEFORE APPLICATION				
	Component A		Component B	
Chemical description	Mineral filler and polyols mixture		Solventless polyisocyanate	
Physical state	Liquid		Liquid	
Packaging	Metal container		Metal container	
	15.3 kg		5.7 kg	
	3.3 kg		1.2 kg	
Non-volatile content	Approx 100%		100%	
Flash point	>100°C		>100°C	
Colour	Light gray		Light yellow	
Density	Tempera	Density	Tempera	Density
	ture (°C)	(g/cm³)	ture (°C)	(g/cm³)
	25	1.40	25	1.16
Viscosity	Tempera	Viscosity	Tempera	Viscosity
	ture (°C)	(mPa.s)	ture (°C)	(mPa.s)
	25	3800	25	1000
A/B mixing ratio	A=100, B=37.25 by weight			
	A=100, B=40.6 by volume			
Initial mixture properties	Temperature	Density	Viscosity	
	(°C)	(g/cm³)	(mPa.s)	
	25	1.34	2500	
Colour	Standard colour is light gray. Other colours available on request.			
Pot life	Conditions		Pot life (min)	
	18°C, 40%hr		45-50	
Storage	Keep at temperatures between 10° and 30°C, protected from moisture.			
Use before	12 months after manufacture date.			
INFORMATION ON THE FINAL PRODUCT				
Final state	Solid flexible polyurethane membrane			
Colour	Light grey			
Solid density	1,35 g/cm³			
Hardness (Shore)	67-69A			
Mechanical properties	Elongation at break: >130%			
	Maximum tensile strength: 4 MPa			
Heavy metal content (mg/kg)	Antimony (Sb): <1			
	Arsenic (As): <1			
	Lead (Pb): <1			
	Cadmium (Cd): 0.18			
	Chromium (Cr): 1.8			
	Nickel (Ni): <1			
	Mercury (Hg): <0.1			
	Selenium (Se): <1			
Chemical resistance	Cobalt (Co): 2.83			
	Permanent contact. (0=not recommended, 5=best)			



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Chemical	Result
Water	5
Chlorinated water 20 ppm	5
Hydrochloric acid (20%)	3
Hydrochloric acid (2%)	4
Sodium hydroxide (4%)	5
Bleach	3
Ammonia (3%)	4
Xylene	2
Isopropyl alcohol	0

Adhesion strength	Concrete: 1,5 N/mm ² (EN 13892-8), 2,5 N/mm ² primed with Epoxy 100
UV resistance	Impermax 2k M changes colour under sunlight, but this process doesn't alter its mechanical properties.
Use temperature	Stable between -15°C and 80°C
Radon gas diffusion coefficient	1.4 x 10 ⁻¹² m ² /s (without Geomax reinforcement) 1.5 x 10 ⁻¹² m ² /s (with Geomax reinforcement)
Water vapor permeability	$\mu = 15.856$ (EN ISO 7783:2012)
Liquid water permeability	$W = 0,013 \text{ Kg/m}^2 \times \text{h}^{0.5}$ (EN-1062-3: 2018)
Reaction to fire	Class E (EN 13501-1)
External fire behavior	Broof(t2) (EN-13501-5)

SUPPORT REQUIREMENTS

Support must have the mechanical properties listed below:

- Minimum cohesive strength: 1,5 MPa
- Compression resistance: at least 25 MPa

Support must be completely free from water pressure from below. It must be clean, dry and with no signs of poorly adhesive areas. Moisture content should be less than 4%. It must be free from oil stains or other synthetic products.

Support temperature should be between 10°C and 25°C.

Where high moisture levels are suspected, a suitable primer, to be advised by Krypton Chemical, should be applied. On new concrete slabs, wait a minimum of 21 days prior to apply Impermax 2k M, to allow the support to dry thoroughly.

AMBIENTAL CONDITIONS

Air temperature: +10°C to 30°C

Relative humidity: less than 60%

SUPPORT PREPARATION

It is important to carry out a suitable surface treatment (sanding, sandblasting, etc) and to apply a suitable primer coat. Primer must be dry before starting Impermax 2k M application.

MIXING

Open container of component A. Stir gently to redisperse fillers and avoid trapping of air. Stir for 2 minutes. Pour component B into the A container and continue stirring for 2 more minutes. Transfer the mixture to a bigger container and check there is no unmixed product left. Best mixing equipment should have extensible blades with overall width equivalent to 1/3 of drum diameter.

APPLICATION

Pour the mixture and spread quickly with squeegee or toothed spreader. It is recommended to wear spiked shoes and remove the bubbles by using a spike roller immediately after the spreading, in a crossing pattern, up to 10 minutes after the application. In vertical or sloped walls, use Thickening Additive to prevent sagging. Assign, depending on the size of the application area, enough personnel to the task for a mixing, application and spreading in a quick and regular way.

RECOMMENDED QUANTITIES

A coat of Impermax 2k M can be applied up to 1,5 kg/m², to obtain an approximate coat thickness of 1 mm.

CURING TIME

Drying time of Impermax 2k M can be significantly reduced adding Accelerator for PU 2K.

Conditions	Light traffic (h)	Full cure (days)
18°C, 40% rh	24	2

RE-APPLICATION

A second application can be done after 24 hours from the curing (walking) of the first one. Under usual conditions, light pedestrian traffic is allowed the following day.

RETURN TO SERVICE

Under usual conditions, light pedestrian traffic is allowed the following day. A degree of curing suitable for most uses is achieved in 3 or 4 days.

TOOL CLEANING

Component A and B can be cleaned with solvent Rayston. Cured product cannot be dissolved.

REPAIRS

Repairing should be done cautiously, trying to damage as little as possible the appearance of the whole area:

- Cut and remove the damaged area.
- Prepare the underlying support, for ensuring a good adhesion.
- Local treatment with fresh Impermax 2K M, following previous instructions.

FAQ

Problem	Answer
Component B solid	Solidification of component B may occur if stored at low temperatures (<10°C). Product can be recovered by gentle heating (50°C) until fully liquid and stirring afterwards to ensure homogenization.
Blisters of bubbling	Bubbles form easily under not optimal ambient conditions. Do not apply the product in warm and/or humid environments. Ensure correct primer application, with enough thickness to be sure all porosity has been sealed. Under humid conditions, an addition of solvent Rayston (up to 10%) at component A before mixing can help to block moisture pickup.



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	Bubble-affected areas must be sanded and a new fresh coat of Impermax 2k M applied onto.
Sticky, soft spots	When mixing is not complete, some pockets containing unmixed component A remain, which are poured together with the mixed mass. These areas remain as soft spots, sometimes under a cured, hard skin. Repair them by removing the liquid material and refill with fresh mixture.
Colour change	Under sunlight, aromatic polyurethanes undergo colour change to yellow/brown. This does not affect their mechanical properties, but it may affect the aesthetic appearance. This can happen even in a short time after the application. Apply a protective, colour-stable aliphatic topcoat when colour stability is important.
Uneven surface even after application	A cavity filling primer is needed, as recommended combination for uneven supports.

SAFETY

Impermax 2k M contains isocyanates. Always follow the instructions provided in the material safety data sheet and take the precaution described there. As a rule, suitable ventilation must be ensured, and any skin contact avoided. This product is intended to be used only for the uses and in the way here described. This product is to be used only by industrial or professional users. It is not suitable for DIY-type uses.

ENVIRONMENTAL PRECAUTIONS

Empty containers must be handled taking the same precautions as if they were full. Containers must be considered as hazardous waste, to be transferred to an authorized waste manager. If there is some residual product in the containers, component A and B can be mixed, always according to the A/B ratio, and allowed to cure. Do not mix volumes bigger than 5 litres to prevent dangerous reactions.

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 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" 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.

