

KRYPTON PROLINE PUA EXTRA M



High-performance polyurea membrane designed for cold manual application, With high elasticity, for continuous sealing and filling systems, as well as for the Production of industrial molds

DESCRIPTION

Krypton ProLine PUA EXTRA M is a two-component, solvent-free, pigmented polyurea membrane.

It can be applied cold by hand (roller or trowel) or poured into moulds. The membrane cures to form a coating with high mechanical and chemical resistance, thermosetting, fully continuous, elastomeric (flexible and highly elastic), ideal for industrial applications and for making industrial moulds that are hard, resistant and stable.

APPLICATION

- Cold, solvent-free industrial waterproofing coating.
- Repair of polyurea membranes applied with a hot spray machine. Cold polyurea coating for small areas that are difficult to access with a hot spray machine.
- Filling expansion joints by pouring, especially in the case of joints with significant movement.
- Ideal for making moulds that require high elasticity and mechanical strength, combining hardness and flexibility, with easy demoulding and high elasticity similar to polyurea rubber.
- Execution of cast-in-place fillings in continuous systems, allowing the application of high thicknesses in a single layer, even in complex geometries or areas subject to loads and deformations.

PROPERTIES

- Membrane, thermosetting, continuous, flexible and highly elastic (even at very low temperatures). Weather resistant. Excellent mechanical properties (puncture resistance, tensile strength, with a high capacity to bridge cracks in the substrate, etc.).
- Solvent-free resin.
- Resin poured to make moulds with high properties and performance. Hardness and high elasticity...
- Self-levelling resin. In vertical or sloping areas, the Thickening Additive can be added to the resin to prevent sagging.
- Possibility of obtaining large thicknesses in a single layer.
- Easy to apply with a trowel or rake. Can be applied with a roller for thinner layers.
- Ability to absorb deformations and maintain the integrity of the system even in the presence of cracks or movements.

TECHNICAL DATA

PRODUCT INFORMATION BEFORE APPLICATION

	Component A	Component B
Chemical identity	Mixture of polyol prepolymers and amines with mineral fillers	Solvent-free polyisocyanate
Physical state	Liquid	Liquid
Presentation	Metal container 7.8 kg	Metal container 13.2 kg
Solid content	approx. 100%	100%
Flash point	>100°C	>100°C
Density	1.32 g/cm ³ 25°C	1.02 g/cm ³ 25°C
Viscosity	2200 mPa.s 25°C	5000 mPa.s at 25°C
VOC	<2 g/L, <0.2% A, j	0 A, j
A/B ratio	A=100, B=170 by weight A=100, B=220 by volume	
Properties of the mixture	Temperatur e (°C)	Density (g/cm³)
	25	1.13
Colour The standard colour is light grey. Other colours are available on request.		

Working time	Conditions (100g)	Pot life (min)
	20°C, 50% RH	30
Storage	Store between 10° and 30°C, protected from moisture.	
Expiry	Shelf life: 12 months from date of manufacture.	

INFORMATION ABOUT THE FINAL PRODUCT

Final state	Highly elastic solid polyurea membrane																						
Colour	Standard colours are light grey (similar to RAL 7001) and dark grey (similar to RAL 7011).																						
Solid density	1.13 g/cm ³																						
Hardness (Shore)	70A (ISO 868)																						
Mechanical properties	Maximum elongation: >900% Maximum tensile strength: 13 MPa (EN ISO 527-1/3) Tear resistance: 48 N/m (EN ISO 34-1)																						
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																						
Chemical resistance	Surface contact (5=ok, 0= not recommended)																						
resistance	<table><tr><th>Agent</th><th>Result</th></tr><tr><td>Water</td><td>5</td></tr><tr><td>Salt-saturated water (NaCl)</td><td>5</td></tr><tr><td>Chlorinated water (20 ppm)</td><td>5</td></tr><tr><td>Hydrochloric acid (20%)</td><td>0</td></tr><tr><td>Hydrochloric acid (2%), pH = 0.25</td><td>4</td></tr><tr><td>Hydrochloric acid (0.1M), pH = 1</td><td>5</td></tr><tr><td>Sodium hydroxide (1%), pH = 13.4</td><td>5</td></tr><tr><td>Bleach</td><td>0</td></tr><tr><td>Xylene</td><td>2</td></tr><tr><td>Isopropyl alcohol</td><td>0</td></tr></table>	Agent	Result	Water	5	Salt-saturated water (NaCl)	5	Chlorinated water (20 ppm)	5	Hydrochloric acid (20%)	0	Hydrochloric acid (2%), pH = 0.25	4	Hydrochloric acid (0.1M), pH = 1	5	Sodium hydroxide (1%), pH = 13.4	5	Bleach	0	Xylene	2	Isopropyl alcohol	0
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Adhesion	Concrete: 1.5 MPa (EN 13892-8), 2.5 MPa with Rayston Epoxy 100
UV resistance	Experiences slight colour change under sunlight, but this process does not alter its mechanical properties.
Usage temperature	Stable between -15°C and 80°C
Water vapour resistance factor	$\mu = 769$ (EN-ISO 7783: 2012)
Liquid water permeability	$W = 0.009 \text{ Kg/m}^2 \times \text{h}^{0.5}$ (EN-1062-3: 2018)
Water tightness (60kpa, 6 metres water column)	Watertight (EN-1928)
Foldability at low temperatures (-45°C)	Does not break or crack (EN-495-5)
Resilience to rebound	50% (ISO-4662)



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MIXING HOMOGENISATION

It comes in containers with the correct proportions for mixing the two components. Partial mixtures are not recommended under any circumstances.

Before mixing, it is advisable to condition components A and B to a temperature of approximately 15-20 °C (optimal conditions for obtaining the most homogeneous mixture possible and optimal working time). In case of lower temperatures, the mixing time will need to be increased.

Open the container of component A and shake vigorously until the contents are completely homogeneous, incorporating any material that may remain on the walls and bottom of the container. Then pour component A into the container of component B and mix, trying to pass the mixer over the walls and bottom of the container. Pour the mixture into a larger, clean container and mix again. Use a low-speed electric mixer (approximately 300 rpm). Keep the mixer blade completely submerged in the resin at all times to prevent air from entering. Do not mix by hand with a metal or wooden stick.

By adding Thickening Additive in a proportion of 1-2% of the weight of the resin (A+B), the necessary thixotropy is achieved depending on the condition or slope of the substrate, the temperature of the resin and the method of application. Add the thickening additive when mixing the two components (A+B).

MOULDS

Once components A and B have been thoroughly mixed and are at the correct temperature, pour the mixture onto a surface until it is level.

Curing - Allow to cure (at least 24 hours) at room temperature before demoulding.

A mould release agent or form release agent must be used before pouring Krypton ProLine PUA EXTRA M into the mould.

CONCRETE SUPPORT REQUIREMENTS

To achieve optimum penetration and adhesion, the concrete substrate must always meet the following characteristics:

Level, cohesive/compact with a minimum strength of 1.5 N/mm² (pull-off test), regular and fine appearance, free of discontinuities, fissures and cracks. If any are present, they must be treated beforehand (filled with polyurethane filler, for example), sound, clean, dry, free of dust or loose material or particles, surface grout and free of grease, oil and moss.

ENVIRONMENTAL CONDITIONS OF HUMIDITY AND TEMPERATURE

The air temperature must be between 5°C and 35°C. The relative humidity must be less than 70%.

If the temperature of the product is much higher than 25°C when the two components are mixed, there is a risk that the working time will be too short. If the temperature of the resin is too low when the two components are mixed (viscosity too high), there is a risk that they will not mix properly.

The temperature of the substrate must be at least 3°C above the dew point to prevent condensation on the surface.

PREPARATION OF THE CONCRETE SUBSTRATE

It is essential that the necessary surface treatment (sanding, shot blasting, cleaning, etc.) is carried out and that a suitable primer is applied. Remove all dust and loose material from the surface with a brush, broom and/or vacuum cleaner.

On a porous substrate, the primer must be applied in sufficient quantity to completely seal the porosity of the substrate. After curing, the coating should have a glossy appearance. If it has a matt or satin appearance, it means that the substrate has completely absorbed the resin, so the substrate is not properly sealed and an additional coat of primer is required. Rayston Epoxy 100 is recommended for porous, dry substrates (moisture content below 4%).

Rayston Epoxy 100 can be applied in a single thick coat or in two coats to improve adhesion to the substrate. The first coat should be diluted with Rayston Solvent (5-10%) to increase penetration into the substrate, and the second coat should be undiluted, followed by sprinkling with fresh aggregate.

On a porous, horizontal and damp substrate (without water stagnation), apply Primer GC (trowel or roller).

Tecnocem (self-levelling epoxy-cement mortar) can be applied with a trowel in a thick layer to level a horizontal substrate, especially if it is damp and there is a risk of negative pressure.

Non-porous substrates must be dry, clean and free of grease. On flexible membranes (old asphalt fabric, old PVC), asphalt mastic, metal, painted substrates, etc., apply a coat of low-odour, high-solids, single-component primer Porosity Sealer Flex 100 (200-300 grams/m²). When applying to very smooth substrates, light sanding, if possible, will significantly increase the adhesion of the treatment.

It is always advisable to carry out preliminary adhesion tests, especially in the case of porous and absorbent substrates that may be contaminated or very smooth and shiny non-porous substrates or those whose nature is unknown.

HORIZONTAL APPLICATION

Apply by pouring the entire contents of the container onto the surface and spreading it quickly with a spatula, rake or notched trowel. It is advisable to wear spiked shoes and to deaerate the freshly spread product with a spiked roller, using cross strokes, within a maximum of 10 minutes after mixing. Depending on the size of the surface to be treated, assign sufficient personnel to carry out the mixing, application and deaeration quickly and evenly.

The resin is resistant to rain two hours after application (20°C).

In water containment structure projects, the resin in the curing process must be protected from direct contact with water (stagnation) for approximately 24 hours.

PROTECTIVE FINISH

It can be protected with an aliphatic finish to increase its mechanical resistance (abrasion and scratching) and maintain its colour when exposed to sunlight. The recommended finishes are Impertrans pigmented (solvent-based) or Impertrans ECO (water-based). Polyaspartic aliphatic finishes do not adhere well to the membrane.

Depending on the project requirements, other finishes may be more suitable. In this case, please consult the technical department at Krypton Chemical, S.L.

RECOMMENDED QUANTITIES

The recommended consumption per coat and total consumption depend on the condition of the substrate (completely flat or sloped surface, for example) and the thickness of the cured coating prescribed in each case. Normally, a minimum of 2 kg/m² will be applied in a single coat (flat substrate).

DRYING TIME

Conditions	Total (hours)
20°C, 50% hr	4



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REAPPLICATION

A second coat can be applied up to 24 hours after the first coat has dried (light traffic). Longer periods may result in adhesion problems. The same applies when using a polyurethane topcoat.

COMMISSIONING

Under normal conditions, light foot traffic is possible the following day. Complete curing for most uses requires approximately 5 to 6 days, depending on environmental conditions.

CLEANING OF TOOLS

Components A and B can be cleaned with Rayston solvent. The hardened product cannot be dissolved, except with special stripping products.

FREQUENTLY ASKED QUESTIONS

Problem	Answer
Bubble or blister formation	Bubble formation is common in unsuitable environmental conditions. Do not apply the product in situations of high humidity and temperature that favour bubble formation or moisture absorption. Ensure that the substrate is properly and sufficiently primed to eliminate any porosity. Areas affected by bubbles should be sanded to even out the surface and a new coat applied.
Areas that do not harden	If the mixture has not been thoroughly mixed, pockets of unreacted component A remain and are carried along by the mixture. These pockets remain as soft areas that do not cure, sometimes under a hard surface. They must be repaired by removing the defective material and filling with new mixture.
Colour change	When exposed to sunlight, aromatic polyureas undergo a colour change, although this does not affect their properties, it does represent an aesthetic change. This can occur within a few hours. Apply one or more protective coats of single-component aliphatic polyurethane (pigmented Impertrans) or, alternatively, apply Impertrans ECO.
Irregularities are not filled	The substrate must be pre-treated to fill any holes.

MAINTENANCE

Repairs must always be carried out locally and with caution, trying to affect the aesthetics of the different premises or areas as little as possible, and above all avoiding the appearance of "patches". The steps are as follows:

- Cut around the perimeter to be treated.
- Remove the product manually or mechanically, depending on the area and the time available.

- Prepare the substrate to obtain a clean, sound and cohesive surface.
- Localised treatment with Krypton ProLine EXTRA M according to the instructions above.
- Apply the aliphatic finish to even out the appearance of the entire surface.

SAFETY

Contains isocyanates. Before handling these products, consult the safety data sheet. In general, ensure good ventilation during work and avoid all skin contact with the product. This product is not intended for non-professional users or DIY applications.

ENVIRONMENT

Consider the packaging as waste to be treated by an authorised waste manager. If the packaging contains residues, parts A and B can be mixed provided that the correct ratio is respected and that the volume does not exceed 5 litres to avoid any violent reaction.

RECYCLABILITY

Once cured, the coating is inert, free of hazardous materials and heavy metals, and therefore fully recyclable at the end of its useful life, for example as a filler in lightweight concrete or mortar.

ADDITIONAL INFORMATION

The information contained in this technical data sheet, as well as our advice, whether written, verbal or provided through testing, is given in good faith based on our experience and the results obtained through testing carried out by independent laboratories, and does not serve as a guarantee for the applicator, who should take it as a guide and for information purposes only.

We recommend that you study this information in depth before using and applying any of these products, although it is particularly advisable to carry out tests on site to determine the suitability of a treatment in that location, for the purpose and under the specific conditions of each case.

Our recommendations do not exempt the applicator from the obligation to have in-depth knowledge of the correct method of application of these systems before proceeding to use them, as well as to carry out any preliminary tests that may be appropriate if there is any doubt as to their suitability for any work, installation or repair, taking into account the specific circumstances in which the product is to be used.

The application, use and processing of our products are beyond our control and are therefore the sole responsibility of the installer. Consequently, the applicator shall be solely and exclusively liable for any damage or loss resulting from total or partial failure to comply with the user and installation manual and, in general, from the inappropriate use or application of these products.

This technical data sheet supersedes all previous versions.



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