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European Technical Assessment **ETA 17/ 0509** of 03/ 03/ 2025

English translation prepared by IETcc. Original version in Spanish language

General Part

Technical Assessment Body issuing the European Technical Assessment:
Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)

Trade name of the construction product

IMPERMAX COLD POLYUREA

Product family to which the construction product belongs

Liquid Applied Roof Waterproofing Kit, based on hybrid polyurea

Manufacturer

KRYPTON CHEMICAL, S.L.
C/ Martí Franques nº 12. Pol. Ind. Les Tàpies
43890 L'Hospitalet de l'infant. Tarragona, Spain

Manufacturing plant(s)

C/ Martí Franques n.º 12. Pol. Ind. Les Tàpies
43890 L'Hospitalet de l'infant. Tarragona, Spain

This European Technical Assessment contains

6 pages
+ Annex 1.
+ Annex 2 contains confidential information and is not included in this ETA

This European Technical Assessment is issued in accordance with Regulation (EU) No 2024/3110, on the basis of

EAD 030350-00-0402
Liquid applied roof waterproofing kits

This version replaces

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Specific parts

1. Technical description of the product

The Liquid Applied Roof Waterproofing Kit (LARWK) "IMPERMAX COLD POLYUREA" is designed and installed in accordance with the manufacturer, design and installation instructions, deposited at the IETcc. This LARWK comprises the following components, which are factory produced by the manufacturer or a supplier.

Components	Trade name	Consumption
Primer	RAYSTON EPOXY 100 (epoxy)	0,3 – 0,5 kg/m ²
	HUMIDITY PRIMER (epoxy primer in water dispersion)	0,3 – 0,5 kg/m ²
	POROSITY SEALER / PRIMAIRE R4	0,15 – 0,25 kg/m ²
	POROSITY SEALER FLEX	0,15 – 0,25 kg/m ²
	POROSITY SEALER FLEX 100	0,15 – 0,25 kg/m ²
	POLYUREA PRIMER	0,15 – 0,25 kg/m ²
	POLYUREA PRIMER FLEX	0,15 – 0,25 kg/m ²
Internal reinforcement	GEOMAX (Geotextile non-woven)	-----
	RAYSTON FIBER 150 (Glass fibre mat)	
Waterproofing membrane	IMPERMAX COLD POLYUREA	≥ 1,6 kg/m ²
	IMPERMAX COLD POLYUREA ST (<2%). Alternative version to IMPERMAX COLD POLYUREA, it has the same formulation however with a thixotropic adjustment added after manufacturing and prior to delivery that lets the resin to be applied over sloped surfaces.	

This kit can be used for different working life depending mainly of this thickness:

Working life	Minimum quantity consumed	Minimum thickness (mm)
10	IMPERMAX COLD POLYUREA/IMPERMAX COLD POLYUREA ST 1,6 kg/m ²	1,4
25	IMPERMAX COLD POLYUREA/IMPERMAX COLD POLYUREA ST 2 kg/m ²	1,6
	IMPERMAX COLD POLYUREA/IMPERMAX COLD POLYUREA ST 2 kg/m ² + RAYSTON FIBER 150	1,8
	IMPERMAX COLD POLYUREA/ IMPERMAX COLD POLYUREA ST 3 kg/m ² + GEOMAX	2,2

IMPERMAX COLD POLYUREA is a liquid applied roof waterproofing kit based on hybrid polyurea, manufactured by the company KRYPTON CHEMICAL, S.L. It consists of a hybrid polyurea resin, liquid-applied, bi-component, elastomeric with or without internal protection layer.

Once polymerised they conform an elastic lining, in form of a layer completely bonded to different supports (steel and other types of metals, concrete, mortar, ceramic, timber, polyurethane foam and other waterproofing membranes like PVC, EPDM and bituminous). Depending on support condition, other type of primer may be advisable.

2. Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

2.1 Intended use(s)

The intended use of this System is the waterproofing of roof against the water, as in liquid as vapour form, with any slope between 0 and >30 % (S1-S4), for any type of categorisation of user load between P1 a P4 (annex 1) and resists the effects of low surface temperatures of -20 °C (TL3) and high temperatures of 60 (TH2) -90 °C (TH4). This LARWK fulfils the Basic works requirements n.º 2 (Safety in case of fire), n.º 3 (Hygiene, health and the environment) and n.º 4 (Safety in use) of the European Regulation 2024/3110.

This LARWK is made of non load-bearing construction elements. It does not contribute directly to the stability of the roof on which is installed, but it can contribute its durability by providing enhanced protection from the effect of weathering.

This LARWK can be used on new or existing (retrofit) roofs. It can also be used on vertical surfaces (singular details).



2.2 Relevant general conditions for the use of the kit

The provisions made in this European Technical Assessment are based on an assumed working life of 10-25 years from installation in the works, according to EAD030350-00-0402, provided that the conditions lay down for the installation, packaging, transport and storage as well as appropriate use, maintenance and repair are met. In this respect.

The indications given on the working life (W2-W3) cannot be interpreted as a guarantee given neither by the product manufacturer nor by EOTA nor by the Technical Assessment Body issuing this ETA. Besides, all the data concerning the execution shall be clearly indicated on the packaging and/or the enclosed instruction sheets using one or several illustrations.

Installation. The Kit is installed on site. It is the responsibility of the manufacturer to guarantee that the information about design and installation of this system is effectively communicated to the concerned people. This information can be given using reproductions of the respective parts of this ETA. Besides, all the data concerning the execution shall be clearly indicated on the packaging and/or the enclosed instruction sheets using one or several illustrations.

Design. In the MTD the manufacture gives information on the quantities consumed and the processing, which shall lead to a thickness of the roof waterproofing ≥ 1.4 mm.

Execution. Particularly, it is recommended to consider:

- The kit installation has to be carried out by qualified installers,
- it can only be used the components of the kit indicated in this ETA,
- the supervision of the amount of material used (kg/m^2) and the control visual to check that each coat covers totally the one below, can ensure the minimum thickness of the kits,
- inspection of the roof surface (cleanliness and correct preparation) before applying the roof waterproofing,
- the recommended temperature of the product to be assembled will be between 0°C and 40°C and it will be not admitted support temperatures upper to 45°C . In other conditions, it will need to follow the manufacturer's instructions

Before, the installation of IMPERMAX COLD POLYUREA, it is recommended to read its security card.

Use, maintenance and repair of the works. In those roofs with deteriorated areas of the waterproof layers, they will be repaired carrying out some light grinding to open the pore of the deteriorated layers. Afterwards, the new product will be assembled following the installation instruction and the new coats must overlap, at least 10 cm, to the coat no deteriorated. Further installation details are laid down in the MTD place at IETcc.

3 Performance of the product and references to the methods used for its assessment

The identification tests and the assessment for the intended use of "IMPERMAX COLD POLYUREA" according to the Basic Work Requirements (BWR) were carried out in compliance with EAD 030350-00-0402. The characteristics of each system shall correspond to the respective values laid down in following tables of this ETA, checked by IETcc.

Methods of verification and of assessing and judging are listed afterwards.

3.1 Safety in case of fire (BWR 2)

Basic requirement for construction works 2: Safety in case of fire		
Essential characteristic	Relevant clause in EAD	Performance
External fire performance of roofs	2.2.1	Broof(t1) supports with fire classification A1-A2, NPA. For support with no A1-A2 fire classification
		Broof(t4) Support: plywood deck Range of pitches $\leq 10^\circ$
Reaction to fire	2.2.2	E



3.2 Hygiene, health and environment (BWR 3)

Basic requirement for construction works 3: Hygiene, health, and the environment		
Essential characteristic	Relevant clause in EAD	Performance
Content, emission and/or release of dangerous substances	2.2.3	NPA
Resistance to water vapour	2.2.4	$\mu = 1485$ (1.4 mm thickness)
Watertightness	2.2.5	Watertight
Resistance to wind loads	2.2.6	Delamination strength: Support + primer + membrane
		Concrete + without primer
		Concrete + Rayston epoxy 100
		Concrete + Humidity primer
		Concrete + Porosity Sealer / Primaire R4
		Concrete + Porosity Sealer Flex
		Concrete + POROSITY SEALER FLEX 100
		Concrete + Polyurea Primer Flex
		Concrete + Polyurea Primer
		Steel + without primer
		Steel + Rayston epoxy 100
		Steel + Humidity primer
		Steel + Porosity Sealer / Primaire R4
		Steel + Porosity Sealer Flex
		Steel + POROSITY SEALER FLEX 100
		Steel + Polyurea Primer Flex
		Steel + Polyurea Primer
		PU foam + any primer
		The failure mode was between support and membrane on concrete – steel support, on the PU support collapse the support
Resistance to mechanical damage (perforation)	2.2.7	P1 - P4 (annex 1)
		Resistance to static indentation (23 °C)
	2.2.7.1	2 kg/m ² (without internal mesh)
		Steel: I4 (6 mm)
		PU: I4 (6 mm)
		Steel: I4 (6 mm)
	2.2.7.2	1,6 kg/m ²
		PU: NPA
		Resistance to static indentation (23 °C)
		2 kg/m ² (without internal mesh)
Resistance to fatigue movement	2.2.8	W3 1000 cycles (-10 °C) with any mesh- 2 kg/m ²
		W2: 500 cycles (-10 °C) without mesh -1.6 kg/m ²
Resistance to the effects of low and high surface temperatures	2.2.9	Low temperatures: TL3
		High temperatures: TH2 -TH4
	2.2.9.1	R. Dynamic Indentation at TL3
		2 kg/m ² (without internal mesh)
		Steel: I4 (6 mm) at -20 °C
		PU: I4 (6 mm) at -20 °C
	2.2.9.3	1,6 kg/m ²
		Steel: I4 (6 mm) at -20 °C
		On PU: NPA
		R. Static indentation (60 – 90 °C)
		2 kg/m ² (without internal mesh)
		Steel: L2 (15 kg) at 90 °C
		Steel: L3 (20 kg) at 80 °C
		Steel: L4 (25 kg) at 60 °C
		PU: L1 (7 kg) at 60 °C
		Steel: L3 (20 kg) at 80 °C
		Steel: L1(7 kg) at 90 °C
Resistance to ageing media (heat and water)	2.2.10.1	PU: NPA
		2 kg/m ² With Internal reinforcement (+ RAYSTON FIBER)
		Steel: L3 (20 kg) at 90 °C
		Steel: L4 (25 kg) at 80 °C
		PU: NPA
		3 kg/m ² With Internal reinforcement (+ GEOMAX)
		Steel: L3 (20 kg) at 90 °C
		Steel: L4 (25 kg) at 90 °C
		PU: NPA
		Resistance to heat ageing W2- W3, S (severe)
		(100 - 200 days at 80 °C)
		R. Dynamic Indentation (-20 °C) W3
		2 kg/m ² (without internal mesh)
		Steel: I4 (6 mm) at -20 °C
		PU: I4 (6 mm) at -20 °C
		Steel: I4 (6 mm) at -20 °C
		PU: NPA



Resistance to ageing media (heat and water)	2.2.10.3	Fatigue movement (50 cycles) at -10 °C: Pass
		Tensile properties (MPa / %)
		1.6 kg/m ² W2 (without internal mesh)
		Initial: 3.5 / 694
		2 kg/m ² W3 (without internal mesh)
		Initial: 2.4 / 460
		3 kg/m ² W3 (without internal mesh)
		Ageing: 3.3 / 192
		3 kg/m ² W3 + GEOMAX
		Initial: 5.4 / 690
		2 kg/m ² W3 + RAYSTON FIBER
		Ageing: 5.5 / 860
		3 kg/m ² W3 + GEOMAX
		Initial: 5.6 / 48
		2 kg/m ² W3 + RAYSTON FIBER
		Ageing: 5.8 / 40
		2 kg/m ² W3 + RAYSTON FIBER
		Initial: 6 / 6
		Resistance to water ageing W2 –W3, S1-S2, P4 (30 – 60 -180 days at 60 °C)
		R. Static indentation
		2 kg/m ² - 60d (without internal mesh)
		90 °C -Steel: L2 (15 kg)
		1,6 kg/m ² – 30d
		80 °C -Steel: L3 (20 kg)
		2 kg/m ² + RAYSTON FIBER - 60d
		60 °C -Steel: L4 (25 kg)
		3 kg/m ² + GEOMAX - 60d
		90 °C -Steel: L1 (7 kg)
		Resistance to delamination (kPa) ≥ 50 kPa (60 / 180 days)
		80 °C -Steel: L2 (15 kg)
		Concrete + without primer
		60 °C -Steel: L3 (20 kg)
		Concrete + Rayston epoxy 100
		80- 90 °C -Steel: L3 (20 kg)
		Concrete + Humidity primer
		60 °C -Steel: L4 (25 kg)
		Concrete + Porosity Sealer / Primaire R4
		Concrete + Porosity Sealer Flex
		Concrete + POROSITY SEALER FLEX 100
		Concrete + Polyurea Primer Flex
		Concrete + Polyurea Primer
		Concrete + Polyurea Primer
		W3-W2, S (severe), 5000-2000 hours without finishing layers
		R. Dynamic Indentation (-20 °C) W3
		2 kg/m ² (without internal mesh)
		Steel: I4 (6 mm)
		1,6 kg/m ²
		PU: I4 (6 mm)
		Tensile properties (MPa / %)
		2 kg/m ² W2 (without internal mesh)
		3 kg/m ² W3 (without internal mesh)
		Ageing: 2.0 / 180
		3 kg/m ² W3 + GEOMAX
		Initial: 5.6 / 48
		Resistance to plant roots
		Ageing: 7 / 46
		Effects of variations in kit components and site practices
		Delamination strength: 1800 kPa
		Effects of the days joint

3.3 Safety and accessibility in use (BWR 4)

Basic requirement for construction works 4: Safety and accessibility in use		
Essential characteristic	Relevant clause in EAD	Performance
Slipperiness	2.2.14	NPA



4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

According to the decision 98/599/EC of October 1998, Official Journal of the European Communities N.º L 287, 24.10.1998) of the European Commission¹, system 3 of assessment and verification of constancy of performance (see EC delegated regulation (EU) No 568/2014 amending Annex IX to Regulation (EU) N° 2024/3110) applies.

Product	Intended uses	Level or Classes	System
IMPERMAX COLD POLYUREA	Liquid Applied Roof Waterproofing Kit	Any	3

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan, which is deposited at IETcc².

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Issued in Madrid on 3 of march 2025
By

Director
on behalf of Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc – CSIC)

Annex 1.

Resistance to mechanical damage (perforation) “IMPERMAX COLD POLYUREA”

Levels	1,6 kg/m ²	2 kg/m ²	3 kg/m ² + GEOMAX	2 kg/m ² + RAYSTON FIBER
Working life	W2 (10 years)	W3 (25 years)		
User load	Concrete / steel			
	P3: TH2	P3: TH2	P4: TH2	P4: TH2, TH3 P3: TH4
	P2: TH3	P3: TH3	P3: TH3	
	P1:TH4	P2:TH4	P3:TH4	

NOTE: For a polyurethane foam support, the system has been only test for a working life of 10 years (W2) and 2 kg/m² of IMPERMAX COLD POLYUREA with a User load of P1

¹ Published in the Official Journal of the European Union (OJEU) L 262, 14/10/2003 P. 0034 - 0036.
See www.new.eur-lex.europa.eu/oj/direct-access.html

² The Control Plan is a confidential part of the ETA and only handed over to the notified certification body involved in the assessment and verification of constancy of performance.

