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## European Technical Assessment

**ETA 10/ 0296**  
**of 01/ 03/ 2024**

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 2K**

**Product family to which the construction product belongs**

Liquid Applied Roof Waterproofing Kit, based on Polyurethane

**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)**

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**This European Technical Assessment contains**

5 pages  
+ Annex 1. Contain confidential information and is not included in the ETA

**This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, 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 2K” 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.

Components	Trade name	Consumption
Primer	RAYSTON EPOXY 100 (epoxy)	0,3 – 0,8 kg/m <sup>2</sup>
	HUMIDITY PRIMER (epoxy primer in water dispersion)	0,3 – 0,5 kg/m <sup>2</sup>
Waterproofing membrane	IMPERMAX 2K	≥ 2 kg/m <sup>2</sup>
UV protection	IMPERTRANS PIGMENTED	0,25 - 0,35 kg/m <sup>2</sup>

IMPERMAX 2K is a liquid applied roof waterproofing based on polyurethane, manufactured by the company KRYPTON CHEMICAL, S.L, consists of a polyurethane resins, bi-component, elastomeric without internal protection layer; which once polymerised conforms an elastic lining, in form of a layer completely bonded to the support (concrete, mortar, ceramic, wood chipboard DMF, polyurethane foam (PU) and metal). Depending on support condition other type of primer may be advisable. The minimum thickness of the IMPERMAX 2K has to be 1.9 mm.

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. On roofs with any slope between 0 and >30 % (S1-S4), for any type of categorisation of user load between P1 a P4<sup>1</sup>, resists the effects of low surface temperatures of – 20 °C (TL3), high temperatures of 90 °C (TH4) and under climatic zone of use severe (S).

This LARWK fulfils the Basic works Requirements n. °2 (Safety in case of fire), n. °3 (Hygiene, health and the environment) and n. °4 (Safety in use) of the European Regulation 305/11.

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 Approval (ETA) are based on an assumed intended working life of the system of 25 years from installation in the works, according to EAD 030350-00-0402, 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 (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, but are regarded only as a means for choosing the right product in relation to the expected economically reasonable working life of the works.

**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 ≥ 1.9 mm.

<sup>1</sup> Steel, Concrete, chipboard: P4: TH4  
PU foam 50 kg/m<sup>3</sup>: P1 at TH4-TH3; P3 at TH2 and P4 at TH1  
PU foam 150 kg/m<sup>3</sup>: P2 at TH4 and P3 at TH3



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<sup>2</sup>) and the control visual to check that each coat cover totally the one below, can ensure the minimum thickness of the kits,
- inspection of the roof surface (cleanliness and correct preparation) before applying the waterproofing,
- It is applied by a hot spray applied machines. Temperatures, component A, 60-65 °C. Component B, 70-75 °C. Pressure about 140 bars.

Before, the installation of IMPERMAX 2K, 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 removing all the deteriorated layers. Afterwards, the new product will be assembled following the installation instruction and the new coats must overlap, at least 3 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 2K” according to the Basic Work Requirements (BWR) were carried out in compliance with the 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): For supports non-combustible and roof slope <20°. Broof(t2): For supports non-combustible for any roof slope NPA. For support combustible
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	μ = 2000 (1.9 mm thickness)	
Watertightness	2.2.5	Watertight	
Resistance to wind loads	2.2.6	Support + Primer + membrane	≥ 50 kPa (kPa)
		Concrete	800
		Steel	1700
		Chipboard	400
		Polyurethane foam (PU) of 50 kg/m <sup>3</sup>	230
Resistance to mechanical damage (perforation)	2.2.7	<b>P1-P4 on PU support</b> <b>P1-P4 on concrete /steel support</b>	
	2.2.7.1	<i>Resistance to dynamic indentation (23 °C) without UV protection</i>	
		Steel / Chipboard	I4 (6 mm)
		PU 50 / 150 kg/m <sup>3</sup>	I4 (6 mm)
	2.2.7.2	<i>Resistance to static indentation (23 °C) without UV protection</i>	
		Steel / Chipboard	L4 (250 N)
		PU 50 / 150 kg/m <sup>3</sup>	L4 (250 N)
Resistance to fatigue movement	2.2.8	W3 1000 cycles (-10 °C) without UV protection Pass	



Resistance to the effects of low and high surface temperatures	2.2.9	Low temperatures: TL3 High temperatures: TH4				
	2.2.9.1	R. Dynamic Indentation at -20 °C	Steel / Chipboard	I4 (6 mm)		
			PU 50 / 150 kg/m³	I4 (6 mm)		
	2.2.9.3	R. Static indentation at 90 °C	Steel / Chipboard	L4 (250 N)		
			PU 50 kg/m³	L1 (70 N)		
			PU 150 kg/m³	L2 (150 N)		
		R. Static indentation at 80 °C	PU 50 kg/m³	L2 (150 N)		
PU 150 kg/m³			L4 (250 N)			
R. Static indentation at 60 °C	PU 50 kg/m³	L4 (250 N)				
Resistance to ageing media (heat and water):	2.2.10.1	Resistance to heat ageing W3, S (severe) (200 days at 80 °C) without UV protection				
		R. Dynamic Indentation -20 °C	Steel / Chipboard	L4 (250 N)		
			PU 50 kg/m³	L4 (250 N)		
			PU 150 kg/m³	L4 (250 N)		
		Fatigue movement (50 cycles) at -10 °C: Pass				
		Tensile properties (MPa / %)	Initial: 13 / 184			
	Ageing: 11 / 203					
	2.2.10.3	Resistance to water ageing W3, S1-S2, P1-P4 (60 -180 days at 60 °C) without UV protection				
		R. Static indentation 60 d	90 °C	Steel / Chipboard:	L4 (250 N)	
				PU 50 kg/m³	L1 (70 N)	
				PU 150 kg/m³	L2 (150 N)	
			80 °C	PU 50 kg/m³	L1 (70 N)	
				PU 150 kg/m³	L3 (200 N)	
				PU 50 kg/m³	L4 (250 N)	
		60 °C	PU 150 kg/m³	L4 (250 N)		
			R. Static indentation 180 d	60 °C	Steel / Chipboard:	L4 (250 N)
					PU 50 kg/m³	L3 (200 N)
		PU 150 kg/m³			L4 (250 N)	
		30 °C		PU 50 kg/m³	L4 (250 N)	
		Resistance to delamination (kPa)		Concrete: 660 kPa		
		2.2.10.2	W3, S (severe), 5000 hours. With UV protection			
Resistance to dynamic Indentation -20 °C			Steel / Chipboard	L4 (250 N)		
	PU 50 kg/m³		L4 (250 N)			
	PU 150 kg/m³		L4 (250 N)			
Tensile properties (MPa / %)	Initial: 13 / 184					
	Ageing: 13 / 183					
Resistance to plant roots	2.2.11	No penetration of roofs				
Effects of variations in kit components and site practices	2.2.12	Tensile properties (MPa / %) 0 °C		16 / 198		
		Tensile properties (MPa / %) 40 °C		14 / 173		
		R. Dynamic Indentation (23 °C) at 0 °C		Steel: I4 (6 mm)		
		R. Dynamic Indentation (23 °C) at 40 °C		Steel: I4 (6 mm)		
Effects of the days joint	2.2.13	660 kPa				

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

4.1 System of assessment and verification of constancy of performance.

According to the decision 98/599/EC of October 1998, Official Journal of the European Communities N° L 287, 24.10.1998) of the European Commission, system 3 of assessment and verification of constancy of performance (see EC delegated regulation (EU) No 568/2014 amending Annex V to Regulation (EU) N° 305/2011) applies.

Product	Intended uses	Level or Classes	System
IMPERMAX 2K	Liquid Applied Roof Waterproofing Kit	Any	3

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan which is deposited at IETcc<sup>1</sup>.

5.1 Tasks of the manufacturer

**Factory production control.** The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this ETA.

The manufacturer may only use components stated in the technical documentation of this ETA including Control Plan. The incoming raw material are subjected to verifications by the manufacturer before acceptance.

The factory production control shall be in accordance with the Control Plan. The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.

**Other tasks of the manufacturer.** The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this ETA.

5.2 Tasks of notified bodies. The notified body shall perform

**Initial type-testing of the product.** For type testing, the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases, the necessary type testing has to be agreed between IETcc and the notified body.

The initial type-testing have been conducted by the IETcc to issue this ETA in accordance with the EAD 030350-00-0402 "Liquid applied roof waterproofing kits". The verifications underlying this ETA have been furnished on samples from the current production.

Issued in Madrid on 1 March 2024  
by

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

