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**European Technical Assessment ETA 20/ 0263
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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	TECNOCOAT H-2049 SYSTEM
Product family to which the construction product belongs	Liquid Applied Roof Waterproofing Kit, based on polyurea
Manufacturer	TECNOPOL SISTEMAS, S.L.U. Carrer Finlàndia, 33, 08520 LES FRANQUESES DEL VALLÈS. Barcelona (Spain)
Manufacturing plant(s)	Carrer Finlàndia, 33, 08520 LES FRANQUESES DEL VALLÈS..Barcelona (Spain)
This European Technical Assessment contains	6 pages including 1 Annex which contains confidential information and is not included in the European Technical Assessment when that assessment is publicly disseminated
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 replace to	ETA 20/0263 issued on 11/05/2021

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Specific parts

1 Technical description of the product

The Liquid Applied Roof Waterproofing Kit (LARWK) “TECNOCOAT H-2049 SYSTEM” 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	Consume
Primer over concrete based on epoxy resin	PRIMER EP-1010	≥ 0.250 kg/m ²
	PRIMER WET	≥ 0.450 kg/m ²
	PRIMER EP-1020	≥ 0.150 kg/m ²
Primer over ceramic and metal based on epoxy resin	PRIMER EP-1040	≥ 0.150 kg/m ²
Primer over concrete based on polyurethane	PRIMER PU-1050	≥ 0.200 kg/m ²
Primer over concrete and thermal insulation epoxy based	PRIMER EPw-1070	≥ 0.200 kg/m ²
Waterproofing membrane	TECNOCOAT H-2049	≥ 1.5 kg/m ² .
Finish layer: Protection UV	TECNOTOP 2C	≥ 0.250 kg/m ²
	TECNOTOP 1C	≥ 0.100 kg/m ²
Film Slipperiness	TECNOPLASTIC F	8 % weight mixed TECNOTOP 2C or 1C
	TECNOPLASTIC C	8 % weight mixed TECNOTOP 2C or C1

TECNOCOAT H-2049 SYSTEM is a two components liquid applied roof waterproofing based on applied hybrid polyurea manufactured by the company TECNOPOL SISTEMAS, S.L.U., consists of a hybrid polyurea resins, two components, elastomeric without reinforcing internal layer; which once polymerized conforms an elastic lining, in form of a layer completely bonded to the support (steel, concrete, mortar, ceramic, XPS) and other waterproofing membranes like PVC, EPDM and bituminous. The minimum layer thickness of the assembled membrane has to be 1,4 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. 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 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 Assessment are based on an assumed working life of 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 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 ≥ 1.4 mm.

Execution. Particularly, it is recommended to consider the:

- kit installation has to be carried out by qualified installers and it can only be used the components of the kit indicated in this ETA,
- 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,
- recommended temperature of the product to be assembled will be between 5°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 TECNOCOAT H-2049 SYSTEM, it is recommended to read the Material and Safety Data Sheet of all the compounds of the system.

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 15-20 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 "TECNOCOAT H-2049 SYSTEM" 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	NPA
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 The leachable substances are not determined in accordance with this EAD
Resistance to water vapour	2.2.4	$\mu = 1700$ (without any top coat) (2.3 mm thickness)
Watertightness	2.2.5	Watertight



Resistance to wind loads	2.2.6	Delamination strength: Pass (> 50 kPa) Concrete+ PU 1050: 3.0 MPa (adhesive) Concrete+ EP 1010: 2.0 MPa (adhesive) Concrete+ EP 1020: 1.7 MPa (adhesive) Concrete+ EP WET: 2.0 MPa (adhesive) Steel + EP 1040: 3,6 MPa (adhesive) Ceramic + EP 1040: 2.3 MPa (adhesive) XPS + EPw 1070: 0,09 MPa (cohesive support)
Resistance to mechanical damage (perforation)	2.2.7	P4 on Concrete-Steel P3 on XPS
	2.2.7.1	Resistance to dynamic indentation Support steel/concrete: I4 (6 mm) at 23 °C Support XPS: I4 (6 mm) at 23 °C
	2.2.7.2	Resistance to static indentation Support steel/concrete: L4 (250 N) at 23 °C Support XPS: L4 (250 N) at 23 °C
Resistance to fatigue movement	2.2.8	W3 (1000 cycles) (-10 °C)
Resistance to the effects of low and high surface temperatures	2.2.9	Low temperatures: TL3 High temperatures: TH4
	2.2.9.1	Resistance to dynamic indentation Support steel/concrete: I4 (6 mm) at -20 °C Support XPS: I4 (6 mm) at -20 °C
	2.2.9.3	Resistance to static indentation Support steel/concrete: L4 (250 N) at 90 °C Support XPS: L3 (200 N) at 90 °C
Resistance to ageing media (heat and water)	2.2.10.1	Resistance to heat ageing: W3, S (severe) (200 d at 80 °C)
		Resistance to dynamic indentation Support steel/concrete: I4 (6 mm) at -20 °C Support XPS: I4 (6 mm) at -20 °C
		Resistance to fatigue movement at -10 °C: Pass
		Tensile properties T. Strength (MPa) (initial / ageing): 22 / 19 Elongation (%) (initial / ageing): ϵ_t^* 403 / 380 *The value of ϵ is about a 50 % higher than ϵ_t
	2.2.10.3	Resistance to water ageing (W3) Resistance to static indentation 60 days, W3 (S1 or S2): Support steel/concrete: L4 (250 N) at 90 °C Support XPS: L3 (200 N) at 90 °C 180 days, W3 (P4) Support steel/concrete: L4 (250 N) at 90 °C Support XPS: L3 (200 N) at 30 °C L2 (150 N) at 60 °C
Resistance to UV radiation in the presence of moisture	2.2.10.2	Delamination strength: Pass (> 50 kPa) Concrete + PU 1020: 3.3 MPa (60 d) – 2.7 MPa (180 d) XPS + Epw 1070: 0.09 MPa (60 d) – 0.09 MPa (180 d)
		W3, S (severe), 5000 hours without finishing layers Resistance to dynamic indentation Support steel/concrete: I4 (6 mm) at -10 °C Support XPS: I4 (6 mm) at -10 °C Tensile properties T. Strength (MPa) (initial / ageing): 22 / 20 Elongation (%) (initial / ageing): ϵ_t 390 / 386
Resistance to plant root	2.2.11	No penetration of roofs
Effects of variations in kit components and site practices	2.2.12	Resistance to dynamic Indentation: 5 °C / 40 °C Support steel/concrete: I4 (6 mm) at 23 °C Support XPS: I4 (6 mm) at 23 °C
		Tensile properties: 5 °C / 40 °C T. Strength (MPa): 24 - 20 Elongation (%): ϵ_t 390 - 345
Effects of day joints	2.2.13	Delamination strength: 3.8 MPa



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 ¹

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 Commission², 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
TECNOCOAT H-2049 SYSTEM	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 IETcc³.

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 materials 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.

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 issued 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.

¹ The kit with TECNOTOP 2C + TECNOPLASTIC C (8%), show a Rd= 68 (ENV 12633:2003 Annex A).

² 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

³ 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.



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By

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

