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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 P-2049

Product family to which the construction product belongs

Liquid Applied Roof Waterproofing Kit, based on pure 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 form an integral part of this assessment.
Annex 2 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 replaces

ETA 11/0357 issued on 07/ 07/ 2015

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Specific parts

1. Technical description of the product

The Liquid Applied Roof Waterproofing Kit (LARWK) "TECNOCOAT P-2049" 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	Consume
Primer over concrete	PRIMER PU-1050:polyurethane based	≥ 0.2 kg/m ²
Primer over metal and PU	PRIMER EPw-1070:epoxy water based	≥ 0.2 kg/m ²
Waterproofing membrane	TECNOCOAT P-2049	≥ 1.5 kg/m ² .
Finish layer: Protection UV	TECNOTOP 2C colored	≥ 250 g/m ²
Film Slipperiness	TECNOPLASTIC F	8 % weight mixed TECNOTOP 2C colored

TECNOCOAT P-2049 is a liquid applied roof waterproofing based on pure polyurea 100%, manufactured by the company TECNOPOL SISTEMAS S.L.U, consists of a pure polyurea 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 (steel, concrete, mortar, ceramic, extruded polystyrene and OSB). 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 nº 2 (Safety in case of fire), nº 3 (Hygiene, health and the environment) and nº 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. The fitness of the respective use for the levels of performance of this System stated in Annex 1 complies with the Spanish national requirements. 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 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,
- It is applied by projection device in heat, with the following characteristics: Pressure 150 - 200 bar, deposit temperature product 80 °C, temperature product conduct 75 °C,
- 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 P-2049, 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 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 P-2049" 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	2.2.1	Broof (t1): pitches < 20° and support A1-A2
		Broof (t2): All range of picches and for combustible and non-combustible with density $\geq 510 \text{ kg/m}^2$
		Broof (t3): Pitches < 10° and non combustible supports with thickness $\geq 10 \text{ mm}$
		Broof (t4): Pitches < 10° and non combustible supports with thickness $\geq 10 \text{ mm}$
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	According to the manufacturer's declaration taking account of EOTA TR 034, the product installed does not contain and release any dangerous substance. The leachable substances are not determined in accordance with this EAD
Resistance to water vapour	2.2.4	$\mu = 2279$
Watertightness	2.2.5	Watertight
Resistance to wind loads	2.2.6	Delamination strength: Pass (> 50 kPa) Concrete: 1,9 MPa Steel: 0,75 MPa XPS and EPS: 0,1 MPa (cohesive support) OSB: 0,5 MPa (cohesive support)
Resistance to dynamic indentation (23°C)	2.2.7.1	Support steel/concrete: I4 (6 mm) Support EPS / XPS / OSB: I4 (6 mm)
Resistance to static indentation (23°C)	2.2.7.2	Support steel/concrete: L4 (250 N) Support EPS / XPS / OSB: L4 (250 N)
Resistance to fatigue movement (1.000 cycles) (-10°C)	2.2.8	Pass
Resistance to the effects of low surface temperatures (-20°C)	2.2.9.1	Dynamic Indentation Support steel/concrete: I4 (6 mm)

		Support EPS / XPS / OSB: I4 (6 mm)
Resistance to high temperatures effects (90 °C)	2.2.9.3	Static indentation Support steel/concrete: L4 (250 N) Support EPS / XPS / OSB L4 (250 N)
Resistance to heat ageing (200 days)	2.2.10.1	Dynamic Indentation Support steel/concrete: I4 (6 mm) Support EPS / XPS / OSB: I4 (6 mm)
		Fatigue movement (50 cycles) at -10 °C: Pass Tensile properties T. Strength (MPa) (initial / ageing): 23 / 17 Elongation (%) (initial / ageing): 315 / 328
Resistance to UV radiation in the presence of moisture (5000 hours)	2.2.10.2	Dynamic Indentation Support steel/concrete: I4 (6 mm) Support EPS / XPS / OSB: I4 (6 mm)
		Tensile properties Without finish layer UV T. Strength (MPa) (initial / ageing): 21 / 23 Elongation (%) (initial / ageing): 370 / 533 With finish layer UV T. Strength (MPa) (initial / ageing): 20 / 21 Elongation (%) (initial / ageing): 320 / 438
Resistance to water ageing (60 -180 days)	2.2.10.3	Static indentation 60 days Support steel/concrete: L4 (250 N): 90 °C Support EPS / XPS / OSB L4 (250 N): 90 °C 180 days Support steel/concrete/ OSB: L4 (250 N): 90 °C Support EPS/ XPS L2: 90°C // L4: 60 °C
		Delamination strength: Pass (>50 kPa) Concrete: 1,6 MPa
Resistance to plant root	2.2.11	Pass
Effects of variations in kit components and site practices	2.2.12	Dynamic Indentation 5 °C and 40 °C Support steel/concrete: I4 (6 mm) Support EPS / XPS / OSB: I4 (6 mm)
		Tensile properties 5 °C T. Strength (MPa) // Elongation (%): 19 // 274 40 °C. T. Strength (MPa) // Elongation (%): 21 // 263
Effects of day joints	2.2.13	1,5 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 The kit with TECNOCOAT P-2049 + TECNOTOP 2C colored + TECNOPLASTIC F (8%), show a Rd= 67 (ENV 12633:2003 Annex A)

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 Commission¹, 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 P-2049	Liquid Applied Roof Waterproofing Kit	Any	3

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

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.

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.

Issued in Madrid on 23 March 2021

By



Director

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

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.

Annex 1.

Characteristics of the System "TECNOCOAT P-2049"

Minimum thickness	1.4 mm
Water vapour diffusion resistant factor	$\mu \approx 2280$
Resistance to wind loads	> 50 kPa
Resistance to plant roots	Resistant
Statement on dangerous substances	Does not contain any
Resistance to slipperiness	Rd= 67

Performance levels according to the intended use

External fire performance	Broof (t1) roof slope < 20° and support A1-A2// NPA for support no A1-A2
	B _{roof} (t2) All range of pitches and for combustible and non-combustible with density $\geq 510 \text{ kg/m}^2$
	B _{roof} (t3) Pitches < 10° and non combustible supports with thickness $\geq 10 \text{ mm}$
	B _{roof} (t4) Pitches < 10° and non combustible supports with thickness $\geq 10 \text{ mm}$
Fire reaction	E
Expected working life	W3
Climatic zone of use	S (Severe)
User loads	P4:TH2 /// P3: TH4 (P4: TH4 for all support at W2) (P4: TH4 for concrete /steel /OSB support at W3)
Roofs slopes	S1 – S4
Minimum surface temperatures	TL3 (- 20 °C)
Maximum surface temperatures	TH4-TH2