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European Technical Assessment

ETA-26/0079
of (26/01/2026)

General Part

Technical Assessment Body issuing the European Technical Assessment:
MIRTEC S.A.

**Trade name of the construction
product**

DESMOFLEX PU System

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

LIQUID APPLIED ROOF WATERPOOFING KITS,
based on polyurethane

Manufacturer

THRAKON S.A.
Athens 130 Syngrou Av., GREECE

Manufacturing plant(s)

54th km National Road, Oinofyta 32011
Greece

**This European Technical
Assessment contains**

10 pages
Included Annex A

**This European Technical
Assessment is issued in accordance
with Article 95(4) of Regulation (EU)
2024/3110, on the basis of**

European Assessment Document (EAD)
030350-00-0402 "Liquid applied Roof Water
proofing Kits

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Specific parts

1. Technical description of the product

The Liquid Applied Roof Waterproofing Kit (LARWK), “DESMOFLEX PU System”, is designed and installed in accordance with the manufacturer's design and installation instructions, deposited at MIRTEC S.A.

This LARWK comprises the following components, which are factory-produced by the manufacturer:

Components	Trade name	Consume
Primer over concrete, metal and PU	DESMOFLEX Epoxy Primer	$\geq 0,15 \text{ Kg/m}^2$
Waterproofing membrane	DESMOFLEX Polyurethane	$\geq 1,80 \text{ Kg/m}^2$
Finish layer: UV Protection	DESMOFLEX Top Coat	$\geq 0,18 \text{ Kg/m}^2$

DESMOFLEX Epoxy Primer is a two component, liquid applied, epoxy water – based primer that is applied before DESMOFLEX Polyurethane (once it is dry, following the manufacturer's instructions) which once cured by reaction (cross linking) of the two components conforms a layer completely bonded to the support (steel, concrete, mortar, ceramic and other waterproofing membranes like PVC, EPDM and bituminous).

DESMOFLEX Polyurethane is a one component liquid applied roof waterproofing based on pure polyurethane, consisting of a polyurethane resin, a mono-component, elastomeric internal layer, which once polymerized forms an elastic lining, in the form of a layer applied on the primer.

DESMOFLEX TopCoat is a two-component liquid applied roof waterproofing based on an aliphatic polyurethane, that is applied on DESMOFLEX Polyurethane (once it is dry, following the manufacturer's instructions) for external protection.

The minimum layer thickness of the assembled and dry membrane has to be 1,2 mm.

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

2.1 Intended use

The intended use(s) of this System is the waterproofing of the roof against water, in liquid or vapor form. On roofs with any slope between 0 and >30% (S1 – S4), for any type of categorization of user load between P1 and P3, resists the effects of low surface of – 30°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 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 it is installed, but it can contribute to its durability by providing enhanced protection from the effects 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 (ETA) are based on an assumed working life of 25 years from installation in the works, according to EAD 030350 – 00 – 0402, provided that the conditions lay down for the installation, 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.

2.3 Working life

The real working life may be in normal use conditions, considerably longer without major degradation affecting the basic requirements for work.

Additionally, design, execution, use, and maintenance provisions need to be taken into account when assessing the working life/durability of the products, particularly when the products are incorporated in specific work, meaning that the expected working life may be shorter

2.4 General assumptions

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

The installation is carried out by appropriate personnel who have adequate experience in installing the material under the supervision of the person responsible for technical matters on site. Concerning this matter, the manufacturer has to train installers.

For the subsequent works after installing the insulation layer, the time limits to be given by the manufacturer shall be observed.

2.5 Installation

The kit is installed on site. It is the responsibility of the manufacturer to guarantee that the information about the design and installation of this system is effectively communicated to the people concerned. 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 corresponding technical documents.

Design. The fitness for the respective use for the levels of performance of this System stated in Annex 1 complies with the EOTA requirements. In the MTD the manufacturer gives information on the quantities consumed and the processing, which shall lead to a thickness of the roof waterproofing ≥ 1.2 mm.

Execution. Particularly, it is recommended to consider the :

- kit installation has to be carried out by qualified installers and only the components of the kit indicated in this ETA can be used,
- minimum thickness of the kits can be ensured by supervision of the amount of material used (kg/m²) and visual control to check that each coating covers totally the one below,
- 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 5°C and 35°C, substrate temperatures will not be more than 40 °C and substrate humidity will not be more than 5%. In other conditions it will need to follow the manufacturer's instructions.

Before the installation of DESMOFLEX PU System, it is recommended to read its safety data sheet.

2.4 Use, maintenance, and repair of the works

Roofs with deteriorated areas of waterproofing layers will be repaired following the installation instructions of the manufacturer. Further installation details are laid down in the MTD placed at MIRTEC S.A.

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

3.1 Safety in case of fire (BWR. 2)

External fire performance (EAD 2.2.1)

The external fire performance of the system was tested with – the procedures in accordance given in the standard EN 13501-5:2016 “Fire classification of construction products and building elements - Part 5: Classification using data from external fire exposure to roofs tests: Test 4: Method with two stages incorporating burning brands, wind and supplementary radiant heat”, is classified B: ROOF(t4), (Test report: No 23686B Warrington fire Laboratories).

The product is applied on a fire win cement board, thickness 12,5 mm. The range of pitches was $\leq 10^\circ$.

3.2 Hygiene, health, and environment (BWR.3)

3.2.1 Resistance to water vapour (EAD 2.2.4 - (EN 1931))

The examination was contacted on 5 test samples at curing conditions 23°C, 50%RH and test conditions 23°C, 75%RH. The amount of water vapour through the waterproof kit was:

Αποτελέσματα – Results			
Κωδ. Δοκιμίου: Test specimen Code	Πάχος δοκιμίου Test specimen thickness (m)	Ρυθμός μεταφοράς υδρατμών Moisture flow rate (Kg/m ² s)	Συντελεστής Αντίστασης Υγρασίας Moisture Resistance factor μ
17722-WV-1	$2,65 \times 10^{-3}$	$45,17 \times 10^{-9}$	3432
17722-WV-2	$3,02 \times 10^{-3}$	$37,64 \times 10^{-9}$	3615
17722-WV-3	$2,13 \times 10^{-3}$	$74,19 \times 10^{-9}$	2603
17722-WV-4	$2,09 \times 10^{-3}$	$50,19 \times 10^{-9}$	3921
17722-WV-5	$2,04 \times 10^{-3}$	$52,03 \times 10^{-9}$	3817
M.O.: Average	$d = 2,04 \times 10^{-3} \text{ (m)}$	$g = 52,00 \times 10^{-9} \text{ (Kg/m}^2\text{s)}$	$\mu = 3,480$
Παρατηρήσεις – Remarks (1) τουλάχιστον για την περίοδο που προσδιορίζεται από τον παραγωγό/ at least for the period specified by the manufacturer (2) Με την επικόλληση μεταλλικών δακτυλίων d:50mm, πάχους >10mm, επιφάνεια διατομής: 1963,5 mm ² / By attaching metal rings d:50mm, thickness >10mm, cross-sectional area: 1963.5 mm ² (3) Μέση βαρομετρική πίεση στην τοποθεσία δοκιμής : p = 1013hPa/ Average barometric pressure at the test site: p = 1013hPa (4) Αποξηραντικό: Άνυδρο CaCl/ Desiccant/Drying Agent: Anhydrous CaCl.			

The value of Water Vapour Resistance factor is $\mu=3,480$ for thickness of 2,04mm.

3.2.2 Watertightness (2.2.5)

The test was performed according to EAD 030350-00-0402 paragraph 2.2.5 “Watertightness” and TR 003, on 3 samples with 1000 mm hydrostatic water pressure for 24h. The membrane was **watertight** after the test.

3.2.3 Resistance to Wind loads - Resistance to delamination (2.2.6-1)

The test was performed according to EAD.

- The examination was conducted on 5 test samples at 23°C and 50% RH in Concrete Substrate. The delamination strength of the assembled system **shall exceed R >50 kPa**. The test was performed at **2477 kPa**
- The same test was conducted on 6 samples at 23°C and 50% RH in Steel Substrate. The delamination strength of the assembled system **shall exceed R >50 kPa**. **The test was performed at 3045 kPa**

3.2.4 Resistance to dynamic indentation (2.2.7.1)

The test was performed in accordance with EAD 030350-00-0402 paragraph 2.2.7.1 and TR 006 “Determination of the resistance to dynamic indentation” on 3 test specimens, steel, and PU membrane, as substrates. The type of indenter was **I4** for steel and **I3** for PU substrate, and the test was performed at 23°C. The samples were **watertight** after the test.

3.2.5 Resistance to static indentation (2.2.7.2)

The test was performed in accordance with EAD 030350-00-0402 paragraph 2.2.7.2 and TR 007 “Determination of the resistance to static indentation” on 3 test specimens, steel and PU membrane, as substrates. The load P4 250 N was applied on the specimens at 23 °C. The samples were **watertight** after the test, and the categorization was L4.

3.2.6 Resistance to Fatigue Movement (2.2.8)

The examination was performed in accordance with EAD on 3 test samples on which the roof waterproofing was applied. The samples were kept at least 16h at -10 °C before the test.

- The number of cycles applied was 1000 (W3), after the cycles, there were no apparent cracks, loss of adhesion, delamination, or splitting in the membrane.
- Watertightness tests: Watertight

3.2.7 Resistance to low temperatures (2.2.9.1)

The test was performed in accordance with EAD 030350-00-0402 paragraph 2.2.9.1 and TR006 “Determination of the resistance to dynamic indentation”, at a temperature of -30 °C on 3 test specimens of steel and PU membrane, as substrates. The type of indenter was **I4**. The samples were **watertight** after the test.

3.2.8 Extreme Low Temperatures (2.2.9.2)

Determination of crack-bridging capability. Assembled systems are categorized according to minimum surface temperatures as TL4, after testing the crack bridging capability. Between membrane – concrete Watertightness test apparent cracks or ruptures in the membrane, and no adhesion failure between the membrane – concrete.

- Watertightness test: Watertight
- Categorization according to minimum surface temperature (-30°C):

3.2.9 Resistance to wind loads- Resistance to high temperatures (2.2.9.3)

The test was performed in accordance with EAD 030350-00-0402 paragraph 2.2.9.3 “Determination of the resistance to static” at a temperature of 30, 60, 90°C on 3 test specimens of steel and PU membrane, as substrates. The load P4 250 N was applied to the specimens. The samples **were watertight** after the test, and the categorization was **L4** in all temperature ranges

3.2.10 Resistance to heat ageing (2.2.10.1)

The samples were exposed to 80±2 °C **for 200 days**, following EAD 030350-00-0402 paragraph 2.2.10.1 “Resistance to heat aging” **for working life category W3 and Severe climatic zone category**.

(Resistance to dynamic indentation) The test was performed in accordance with EAD 030350-00-0402 paragraph 2.2.9.1 and TR 006 “Determination of the resistance to dynamic indentation” at a temperature of -30 °C on 3 test specimens of steel and PU membrane, as substrates. **The type of indenter was I4**. The samples **were watertight** after the test.

(Resistance to fatigue movement) The test was performed in accordance with EAD 30350-00-0402 paragraph 2.2.8, at -10 °C on 3 test specimens applied on cement pieces. The number of cycles was 50. **No apparent cracks, loss of adhesion, delamination, or splitting in the membrane.**

(Tensile properties) The tests were performed on samples according to EN ISO 527-3 before and after heat aging.

Determination of tensile strength/elongation at break

Sample code	Standard/ Method	TEST PARAMETERS		RESULTS	
		Shape type	Speed (mm/min)	Elongation at break (%)	Tensile strength (MPa)
1	EN ISO 527-1:2019 EN ISO 527-3:2018	1B	200	138	3,1
2				118	3,4
3				121	3,4
4				128	3,3
5				123	3,3
Mean				126	3,3

Determination of tensile strength/elongation at break after heat aging

Sample code	Standard/ Method	TEST PARAMETERS		RESULTS	
		Shape type	Speed (mm/min)	Elongation at break (%)	Tensile strength (MPa)
1	EN ISO 527-1:2019 EN ISO 527-3:2018	1B	200	150	3,3
2				138	2,7
3				125	2,7
4				132	2,8
5				138	2,7
Mean				137	2,7

3.2.11 Resistance to UV-radiation in the presence of moisture (2.2.10.2)

The samples were exposed to UV radiation for 5000 hours in accordance with EAD 030350-00-0402 paragraph 2.2.10.2, for the **expected working life category W3** and **Severe climatic zone category**. (*Resistance to dynamic indentation*). The test was performed in accordance with EAD 030350-00-0402 paragraph 2.2.9.1 and TR 006 "Determination of the resistance to dynamic indentation" at a temperature of -30 °C on 3 test specimens steel and PU membrane, as substrates. The type of indenter was **I4 for steel** and **I3 for PU substrate**. The samples were watertight after the test.

(Tensile properties) The tests were performed on samples according to EN ISO 527-3 before and after UV radiation ageing media.

Determination of tensile strength/elongation at break

Sample code	Standard/ Method	TEST PARAMETERS		RESULTS	
		Shape type	Speed (mm/min)	Elongation at break (%)	Tensile strength (MPa)
1	EN ISO 527-1:2019 EN ISO 527-3:2018	1B	200	138	3,1
2				118	3,4
3				121	3,4
4				128	3,3
5				123	3,3
Mean				126	3,3

Determination of tensile strength/elongation at break after UV aging

Sample code	Standard/ Method	TEST PARAMETERS		RESULTS	
		Shape type	Speed (mm/min)	Elongation at break (%)	Tensile strength (MPa)
1	EN ISO 527-1:2019 EN ISO 527-3:2018	1B	200	138	3,2
2				107	3,6
3				108	3,1
4				96	3,2
5				97	2,9
Mean				102	3,2

3.2.12 Resistance to water ageing (2.2.10.3)

(Resistance to static indentation- bottom of page 15/50 EAD 030350-00-0402): The samples were exposed to the water tank at $60 \pm 2^\circ\text{C} \pm$ for 60 days in accordance with EAD 030350-00-0402 paragraph 2.2.10.3, for the **expected working life category W3** and **Severe climatic zone category**. The test was performed in accordance with EAD 030350-00-0402 paragraph 2.2.9.3 “Determination of the resistance to static” at a temperature of 30, 60, 90°C on 3 test specimens of steel and PU membrane, as substrates. The load **P4** 250 N was applied to the specimens. The samples were watertight after the test, and the categorization was **L4** in all temperature ranges.

3.2.13 Resistance to delamination after water ageing, Annex A4.1

Categorization according to working life : **W3**

3.2.14 Effects of day joints (2.2.13 - p.17/50)

The delamination strength (Concrete and PU membrane) is upper the required value of 50 kPa (Main value R= 2212 kPa).

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

According to the Decision 1999/91/EC¹, as amended, the system of assessment and verification of constancy of performance (according to Annex V of Regulation (EU) No 305/2011) **is system 3** for all characteristics.

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

The manufacturer has to implement and continuously maintain a factory production control system at the manufacturing plant for the values he chooses to declare.

All elements, requirements and provisions adopted by the manufacturer in this respect are documented in a systematic manner in the form of written policies and procedures.

The records shall be kept at least for ten years and presented to **MIRTEC S.A.** on request.

The factory production control system ensures that the product's performance conforms with the European Technical Assessment.

If test results are unsatisfactory, the manufacturer shall immediately implement measures to eliminate the defects. Construction products not in conformity with the requirements shall not be CE marked.

Technical details of the actions to be undertaken by the manufacturer in relation to the factory production control are laid down in the control plan deposited at **MIRTEC S.A.**

When all criteria of the assessment and verification of constancy of performance are met, the manufacturer

OVERALL conclusion

The results have been conducted in accordance with EAD 030350-00-0402.

The assessment shows that the Roof Waterproofing DESMOFLEX PU System meets all relevant requirements for the intended use.

Issued in Athens on 20th of June 2025

By

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(MIRTEC S.A Head of EOTA activity)

Annex A

Characteristics of the product of the test according to EAD 030350-00-0402 lead to the classification of the Roof Waterproofing **DESMOFLEX PU System** (Thrakon Company), which has the following performances and classifications in the following performance levels:

Performance	Classification
External fire Performance	B roof (t4) (EN 13501-5)
Expected working life	W3 (25 years)
Climatic zone of use	S (Severe)
Minimum surface temperatures	TL4 (-30°C)
Maximum surface temperatures	TH4 -TH1
Resistance to wind loads	≥50 kPa (Concrete substrate, steel, PU.)
Water vapour diffusion resistance factor	μ=3,480 for thickness of 2,04mm