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Designated according to Article 29 of Regulation (EU) No 305/2011

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European Technical Assessment ETA 24/1252 of 14/02/2025

General Part

Technical Assessment Body issuing the ETA:	**TECNALIA RESEARCH & INNOVATION**
Trade name of the construction product	**SIGMAISOL PIR**
Product family to which the construction product belongs	External Thermal Insulation Composite System with rendering for use as external thermal insulation to the wall of buildings.
Manufacturer	PPG Architectural Coatings ITALY S.r.l Via Monte Rosa 7 28010 Cavallirio (NO), Italy www.ppg.com/it-IT
Manufacturing plant	PPG AC ITALY S.r.l. Via Monte Rosa 7 28010 Cavallirio (NO), Italy
This European Technical Assessment contains	22 pages including 1 Annex which form an integral part of this assessment.
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	EAD 040083-00-0404 External Thermal Insulation Composite Systems (ETICS) with Rendering

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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Specific parts

1. Technical description of the product

This product is an ETICS (External Thermal Insulation Composite System) with rendering – a kit comprising components which are factory-produced by the manufacturer or component suppliers. The ETICS manufacturer is ultimately responsible for all components of the ETICS specified in this ETA (European Technical Assessment).

The ETICS kit comprises a prefabricated insulation product of rigid polyurethane foam (PU) to be bonded and mechanically fixed onto the wall. The methods of fixing and the relevant components are specified in Table 1. The insulation product is faced with a rendering system consisting of one or more layers (site applied), one of which contains reinforcement. The rendering is applied directly to the insulating panels, without any air gap or disconnecting layer.

The ETICS may include special fittings (e.g., base profiles, corner profiles) to treat details such as connections, apertures, corners, parapets, sills, etc. Assessment and performance of these components is not addressed on this ETA; however the ETICS manufacturer is responsible for adequate compatibility and performance within the ETICS when the components are delivered as a part of the kit.

The components of the kit are:

	Components	Coverage (kg/m²)	Thickness (mm)
	• **ETICS bonded with supplementary mechanical fixing. According to ETA holder's prescriptions the minimal bonded surface shall be at least 40% with minimum 6 fixings/m².** • **Purely mechanically fixed ETICS with a bonded area of less than 20% with minimum 6 fixings/m². National application documents shall be taken into account.**		
	Insulation product:		
Insulation material with associated method of fixing	Factory prefabricated expanded polystyrene (PIR) board according to EN 13165	**	40-300
	Adhesive:		
	SIGMAISOL PW Dry Product based on cement with fibres and organic binder addition of 0.23 l/kg of water according to EN 998-1	3.0-6.0	3.0-5.0
	SIGMAISOL PL Dry Product based on cement with fibres and organic binder addition of 0.24-0.29 l/kg according to EN 998-1	3.0-3.5	3.0-5.0
Base coat	**SIGMAISOL PW** Dry Product based on cement with fibres and organic binder addition of 0.23 l/kg of water according to EN 998-1	4.2-8.0	3.0-5.0
Glass fibre mesh	Standard mesh:		
	Alkali and slide resistant glass fibre mesh with mass per unit area 160g/m² and mesh size varies	See Annex 1	
	Reinforced mesh:		
	Alkali and slide resistant glass fibre mesh with mass per unit area 320 g/m2 and mesh size varies	See Annex 1	

Mechanical fixings	Fixing Universal anchor for countersunk and surface fixed installation in concrete and masonry	See Annex 1	
	Fixing Universal Spiral anchor for countersunk installation in concrete and masonry	See Annex 1	
Key coat	**SIGMAPRIM ASSIST** Liquide with acrylic binder and fillers for acrylic plaster, used with ACRYLPUTZ and SIGMA FACADE PUTZ SELF-CLEAN	0.15-0.20	0.030
	SIGMA ACRYLSILOXAN FILLPRIMER Liquide with acryl-siloxan binder and fillers for acryl-siloxan plaster ACRYLSILOXAN PUTZ and SIGMA SILOXAN PUTZ	0.28-0.43	0.30
	HAFTGRUND PIGMENTIERT Liquide with acrylic binder and fillers for acrylic plaster, used with ACRYLPUTZ and ACRYLSILOXAN PUTZ and SIGMA FACADE PUTZ SELF-CLEAN and SIGMA SILOXAN PUTZ	0.13 – 0.15	0.030
Finishing coat	**SIGMA ACRYL PUTZ** Ready to use paste based on acrylic binder. According to EN 15284. - Superfein: granulometry 0.8 (applied in 2 layers) - Fein: granulometry 1.2 - Mittel: granulometry 1.5 - Groβ: granulometry 2.0	 3.0-4.0 2.0-2.2 2.1-2.5 2.5-3.0	 1.6 1.2 1.5 2.0
	SIGMA ACRYLSILOXAN PUTZ Ready to use paste based on acrylsiloxan binder. According to EN 15284. - Superfein: granulometry 0.8 (applied in 2 layers) - Fein: granulometry 1.2 - Mittel: granulometry 1.5 - Groβ: granulometry 2.0	 3.0-4.0 1.7-1.9 1.9-2.2 2.3-2.6	 1.6 1.2 1.5 2.0
	SIGMA SILOXAN PUTZ Ready to use paste based on siloxane binder. According to EN 15284. - Superfein: granulometry 0,8 (applied in 2 layers) - Fein: granulometry 1.2 - Mittel: granulometry 1.5 - Groβ: granulometry 2.0	 3.0-4.0 2.0-2.2 2.1-2.5 2.5-3.0	 1.6 1.2 1.5 2.0
	SIGMA FACADE PUTZ SELFCLEAN Ready to use paste based on acrylic binder. According to EN 15284. - Granulometry 1,5	1.9-2.2	1.5
Ancillary materials	Supplementary profiles:		
	Polyvinyl chloride (PVC) or aluminium profiles for corners	Remain under the ETA holder responsibility	

Table 1: Components SIGMAISOL PIR

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

2.1. Intended use

This ETICS is intended for use as external insulation of building walls. The walls are made of masonry (bricks, block, stones…) or concrete (cast on site or as prefabricated panels). The characteristics of the walls shall be verified prior to use of the ETICS, especially regarding conditions for reaction to fire classification and for fixing of the ETICS either by bonding or mechanically. The ETICS is designed to give the wall, to which it is applied, satisfactory thermal insulation.

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

The ETICS can be used on new or existing (retrofit) vertical walls. It can also be used on horizontal or inclined surfaces which are not exposed to precipitation.

The ETICS is not intended to ensure the airtightness of the building structure.

The choice of the method of fixing depends on the characteristics of the substrate, which could need preparation and shall be done in accordance with the national instructions.

The provisions made in this ETA are based on an assumed working life of 25 years as minimum, provided that the conditions laid down in the sections below (manufacturing, transport, installation, use, maintenance, etc) are met. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but should only be regarded as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

2.2. Manufacturing

The ETA is issued for the ETICS, on the basis of agreed data/information, deposited at Tecnalia Research & Innovation, which identifies the ETICS that has been assessed and judged. Changes to the ETICS or the components or their production process, which could result in this deposited data/information being incorrect, shall be notified to Tecnalia Research & Innovation before the changes are introduced. Tecnalia Research & Innovation will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and, if so, whether further assessment or alterations to the ETA shall be necessary.

2.3. Design and installation

The ETICS is installed on site. The installation instructions, including special installation techniques and provisions for the qualification of the personnel, are given in the manufacturer´s technical documentation. It is responsibility of the manufacturer to guarantee that the information about design and installation are easily accessible to the concerned people.

2.4. Packaging, transport and storage

The information on packaging, transport and storage is given in the manufacturer's technical documentation. It is responsibility of the manufacturer to ensure that this information is easily accessible for the concerned people.

2.5. Use, maintenance and repair

The finishing coat shall normally be maintained in order to fully preserve the ETICS's performance.

Maintenance includes at least:

- Visual inspections of the ETICS.
- The repairing of localised damaged areas due to accidents.
- The application of various products or paints, possibly after washing or ad hoc preparation.

Necessary repairs should be performed as soon as the need has been identified.

It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance. Only products which are compatible with the ETICS shall be used.

The information on use, maintenance and repair is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer to ensure that this information is made know to the concerned people.

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 this ETICS according to the Basic Work Requirements, were carried out in compliance with the EAD 040083-00-0404 External Thermal Insulation Composite Systems (ETICS) with Rendering (hereinafter referred as “EAD”).

Safety in case of fire (BWR 2)

3.1 Reaction to fire (EAD 040083-00-0404, Clause 2.2.1)

3.1.1 Reaction to fire of ETICS (EAD 040083-00-0404, Clause 2.2.1.1)

No performance assessed.

3.1.2 Reaction to fire of thermal insulation material (EAD 040083-00-0404, Clause 2.2.1.2)

No performance assessed. See Annex 1 for thermal insulation product characteristics.

3.1.3 Reaction to fire of PU foam adhesive (EAD 040083-00-0404, Clause 2.2.1.3)

Not relevant.

3.2 Facade fire performance (EAD 040083-00-0404, Clause 2.2.2)

No performance assessed.

3.3 Propensity to undergo continuous smouldering (EAD 040083-00-0404, Clause 2.2.3)

Not relevant.

Hygiene, health and environment (BWR 3)

3.4 Content, emission and/or release of dangerous substances (EAD 040083-00-0404, Clause 2.2.4)

No performance assessed.

3.5 Water absorption (EAD 040083-00-0404, Clause 2.2.5)

3.5.1 Water absorption of the base coat and the rendering system

Base Coat	Rendering	Water absorption (kg/m².h)	
		After 1 hour	After 24 hours
SIGMAISOL PW	Without rendering	0.12	0.47
	With finishing coat SIGMA ACRYL PUTZ	0.03	0.24
	With finishing coat SIGMA FACADE PUTZ SELFCLEAN	0.03	0.27
	With finishing coat SIGMA ACRYSILOXAN PUTZ	0.04	0.34
	With finishing coat SIGMA SILOXAN PUTZ	0.05	0.39

Table 2: Water absorption (capillarity test)

3.5.2 Water absorption of the thermal insulation product.

No performance assessed. See Annex 1 for thermal insulation product characteristics.

3.6 Hygrothermal behaviour (EAD 040083-00-0404, Clause 2.2.6)

The hygrothermal performance of the ETICS was tested on the rig.

None of the following defects occurred on the assessed external renderings or the base coat during and after the hygrothermal cycles:

- Blistering or peeling of any finishing coat.
- Failure or cracking associated with joints between insulation product boards or profiles fitted with ETICS.
- Detachment of the render coat.
- Cracking allowing water penetration to the insulating layer (normally ≤ 0.2 mm).

Therefore, the ETICS is considered resistant to hygrothermal cycles.

3.7 Freeze-thaw behaviour (EAD 040083-00-0404, Clause 2.2.7)

Water absorption of the base coat and all the finishing coats is lower than 0.5 kg/m² after 1 hour and 24 hours. Based on these test results, the system can be considered freeze-thaw resistant and there is no need for further testing.

3.8 Impact resistance (EAD 040083-00-0404, Clause 2.2.8)

The impact resistance of the ETICS was tested on the rig.

Rendering system	Maximum Impact diameter (mm)/damage		Category of use
	3 J	10 J	
Base coat SIGMAISOL PW + glass fibre standard mesh + finishing coat SIGMA ACRYL PUTZ.	12/no cracking	33/cracks without reaching the thermal insulation product	II
Base coat SIGMAISOL PW + glass fibre standard mesh + finishing coat SIGMA ACRYSILOXAN PUTZ.	18/no cracking	29/cracks without reaching the thermal insulation product	II
Base coat SIGMAISOL PW + glass fibre standard mesh + finishing coat SIGMA FACADE PUTZ SELF-CLEAN.	15/no cracking	34/cracks without reaching the thermal insulation product	II
Base coat SIGMAISOL PW + glass fibre standard mesh + finishing coat SIGMA SILOXAN PUTZ.	18/no cracking	31/cracks without reaching the thermal insulation product	II

Table 3: Impact resistance

3.9 Water vapour permeability (resistance to water vapour diffusion) (EAD 040083-00-0404, Clause 2.2.9)

3.9.1 Water vapour permeability of the rendering system

Composition of the system		Thickness (m)	Equivalent air thickness S_d (m)
Reinforced base coat + finishing coat	Base coat SIGMAISOL PW + glass fibre mesh + key coat SIGMAPRIM ASSIST + finishing coat SIGMA ACRYL PUTZ.	0.007	0.2
	Base coat SIGMAISOL PW + glass fibre mesh + key coat SIGMAPRIM ASSIST + finishing coat SIGMA FACADE PUTZ SELF-CLEAN.	0.0063	0.8
	Base coat SIGMAISOL PW + glass fibre mesh + key coat SIGMA ACRYLSILOXAN FILLPRIMER + finishing coat SIGMA ACRYLSILOXAN PUTZ.	0.0068	0.2
	Base coat SIGMAISOL PW + glass fibre mesh + key coat SIGMA ACRYLSILOXAN FILLPRIMER + finishing coat SIGMA SILOXAN PUTZ.	0.0069	0.3
	Base coat SIGMAISOL PW + glass fibre mesh + key coat + HAFTGRUND PIGMENTIERT + finishing coat SIGMA ACRYL PUTZ.	0.0067	0.2
	Base coat SIGMAISOL PW + glass fibre mesh + key coat + HAFTGRUND PIGMENTIERT + finishing coat SIGMA ACRYLSILOXAN PUTZ.	0.0069	0.3
	Base coat SIGMAISOL PW + glass fibre mesh + key coat + HAFTGRUND PIGMENTIERT + finishing coat SIGMA FACADE PUTZ SELFCLEAN.	0.0062	0.6
	Base coat SIGMAISOL PW + glass fibre mesh + key coat + HAFTGRUND PIGMENTIERT + finishing coat SIGMA SILOXAN PUTZ.	0.0071	0.3

Table 4: Water vapour permeability of the rendering system

3.9.2 Water vapour permeability of thermal insulation product

No performance assessed. See Annex 1 for thermal insulation product characteristics.

Safety and accessibility in use (BWR 4)

3.10 Bond strength

3.10.1 Bond strength between base coat and thermal insulation product (EAD 040083-00-0404, Clause 2.2.11.1)

Composition	Initial State		After hygrothermal cycles		After freeze/thaw cycles	
	Minimum value	Mean value	Minimum value	Mean value	Minimum value	Mean value
PIR panel + base coat SIGMAISOL PW	80 kPa	89 kPa	83 kPa	88 kPa	Test not performed (system is considered freeze thaw resistant)	

Table 5: bond strength between base coat and insulation product

Rupture type: Adhesive rupture.

3.10.2 Bond Strength between adhesive and substrate (EAD 040083-00-0404, Clause 2.2.11.2)

Composition	Initial State		Immersion in water for 2 days and 2h drying		Immersion in water for 2 days and 7 days drying	
	Minimum value	Mean value	Minimum value	Mean value	Minimum value	Mean value
Concrete slab + adhesive SIGMAISOL PW (4 mm thickness)	475 kPa	491 kPa	204 kPa	215 kPa	712 kPa	741 kPa
Concrete slab + adhesive SIGMAISOL PL (4 mm thickness)	482 kPa	494 kPa	197 kPa	199 kPa	802 kPa	854 kPa

Table 6: Bond strength between adhesive and substrate

Rupture type: cohesive rupture in the adhesive.

3.10.3 Bond Strength between adhesive and insulation product (EAD 040083-00-0404, Clause 2.2.11.3)

Composition	Initial State		Immersion in water for 2 days and 2h drying		Immersion in water for 2 days and 7 days drying	
	Minimum value	Mean value	Minimum value	Mean value	Minimum value	Mean value
PIR board + adhesive SIGMAISOL PW (4 mm thickness)	84 kPa	88 kPa	51 kPa	58 kPa	87 kPa	90 KPa
PIR board + adhesive SIGMAISOL PL (4 mm thickness)	112 kPa	124 kPa	63 kPa	78 kPa	107 kPa	116 KPa

Table 7: bond strength between adhesive and insulation product

Rupture type: adhesive rupture between the insulation and the base coat.

The minimal bonded surface S is calculated as follows:

$$S\ (\%) = [0.03 \times 100] / B$$

Where:

B= minimum mean failure resistance of the adhesive to the insulation product in dry conditions (MPa)

0.03 MPa correspond to the minimum requirements.

3.11 Fixing strength (transverse displacement strength) (EAD 040083-00-0404, Clause 2.2.12)

No performance assessed.

3.12 Wind load resistance of ETICS (EAD 040083-00-0404, Clause 2.2.13)

3.12.1 Pull-through test (EAD 040083-00-0404, Clause 2.2.13.1)

Characteristics of components				
Anchors	Plate diameter		≥ 60 mm	
	Plate stiffness		≥ 0.6 kN/mm	
	Load resistance		≥ 1.25 kN	
PIR panels	Thickness (mm)		≥ 40	
	Tensile strength perpendicular to the faces (kPa)		≥ 80	
Pull-through test				
Failure loads (N)	Anchors not placed at the panel joints	**R_{panel}**	In dry conditions	Minimum: 737 Average: 750
	Anchors placed at the panel joints	**R_{joint}**		Minimum: 452 Average: 496

Table 8: Pull-through test of fixings.

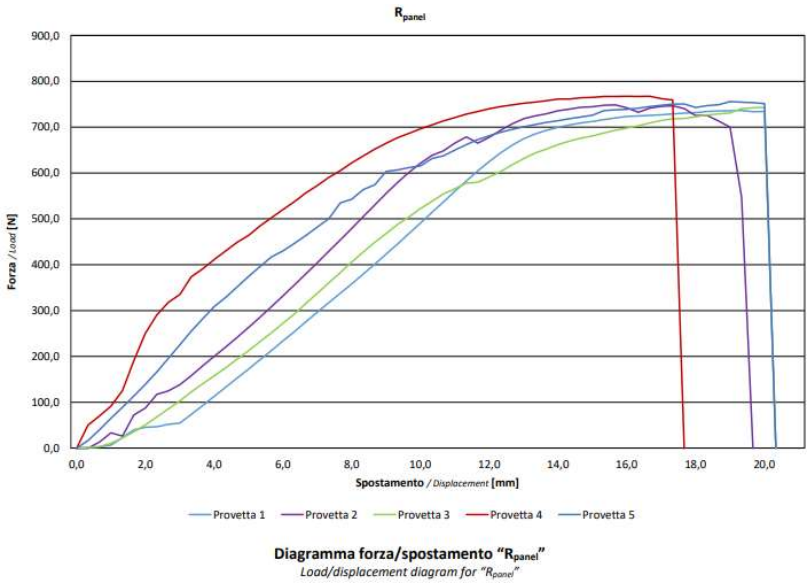

Figure 1: Load displacement graph of pull through tests (EJOT H3) at the body of the panel In dry conditions.

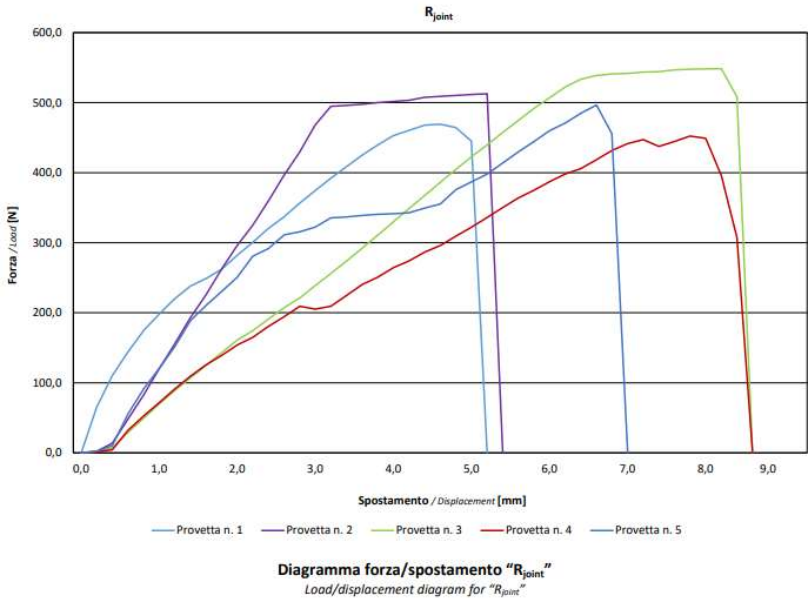

Figure 2: Load displacement graph of pull through tests (EJOT H3) at the joint of the panel In dry conditions.

Characteristics of spiral component				
Anchors	Trade name		Termoz SV II ecotwist	
	washer diameter		66 mm	
PIR panels	Thickness (mm)		≥ 100	
	Tensile strength perpendicular to the faces (kPa)		≥ 80	
Pull-through test				
Failure loads (N)	Anchors not placed at the panel joints	R_{panel}	In dry conditions	Minimum: 691 Average: 718
	Anchors placed at the panel joints	R_{joint}		Minimum: 646 Average: 674

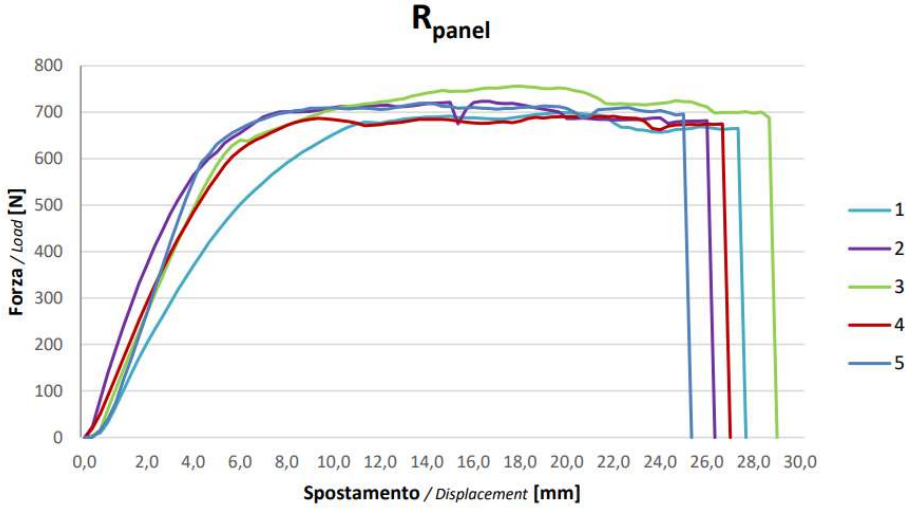

Figure 3: Load displacement graph of pull through tests (Termoz SV II ecotwist) at the body of the panel In dry conditions.

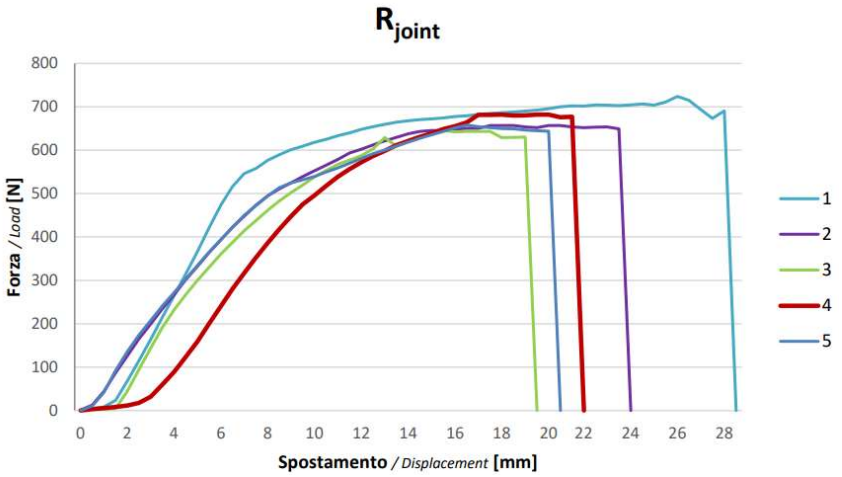

Figure 4: Load displacement graph of pull through tests (Termoz SV II ecotwist) at the body of the panel In dry conditions.

3.12.2 Static foam block test (EAD 040083-00-0404, Clause 2.2.13.2)

Not relevant.

3.12.3 Dynamic wind uplift EAD 040083-00-0404, Clause 2.2.13.3)

Not relevant.

3.13 Tensile test perpendicular to the faces of thermal insulation product (EAD 040083-00-0404, Clause 2.2.14)

No performance assessed. See Annex 1 for thermal insulation product characteristics.

3.14 Shear strength and shear modulus of elasticity test of ETICS (EAD 040083-00-0404, Clause 2.2.15)

Performance not assessed. See Annex 1 for thermal insulation product characteristics.

3.15 Pull-through resistance of fixing from profiles (EAD 040083-00-0404, Clause 2.2.16)

Not relevant.

3.16 Render strip tensile test (EAD 040083-00-0404, Clause 2.2.17)

No performance assessed.

3.17 Shear strength and shear modulus of foam adhesive (EAD 040083-00-0404, Clause 2.2.18)

Not relevant.

3.18 Post expansion behaviour of foam adhesives (EAD 040083-00-0404, Clause 2.2.19)

Not relevant.

3.19 Bond strength after ageing (EAD 040083-00-0404, Clause 2.2.20)

Bond strength after ageing of finishing coats tested on the rig

Rendering system	After hygrothermal cycles		After freeze/thaw cycles	
	Individual value/type of failure	Mean value	Minimum value	Mean value
Base coat SIGMAISOL PW + glass fibre mesh + finishing coat SIGMA ACRYL PUTZ.	97 kN/m²/ AS(2)	90 kN/m²	Test not performed (system is considered freeze thaw resistant)	
	94 kN/m²/ CS(1)			
	82 kN/m²/ CS(1)			
	81 kN/m²/ CS(1)			
	95 kN/m²/ AS(2)			
Base coat SIGMAISOL PW + glass fibre mesh + finishing coat SIGMA ACRYSILOXAN PUTZ.	86 kN/m²/ AS(2)	88 kN/m²	Test not performed (system is considered freeze thaw resistant)	
	92 kN/m²/ AS(2)			
	80 kN/m²/ AS(2)			
	83 kN/m²/ CS(1)			
	97 kN/m²/ AS(2)			
Base coat SIGMAISOL PW + glass fibre mesh + finishing coat SIGMA FACADE PUTZ SELF-CLEAN.	95 kN/m²/ AS(2)	88 kN/m²	Test not performed (system is considered freeze thaw resistant)	
	86 kN/m²/ AS(2)			
	80 kN/m²/ AS(2)			
	93 kN/m²/ AS(2)			
	84 kN/m²/ CS(1)			
Base coat SIGMAISOL PW + glass fibre mesh + finishing coat SIGMA SILOXAN PUTZ.	94 kN/m²/ AS(2)	90 kN/m²	Test not performed (system is considered freeze thaw resistant)	
	98 kN/m²/ AS(2)			
	90 kN/m²/ CS(1)			
	84 kN/m²/ CS(1)			
	86 kN/m²/ AS(2)			

Table 9: Bond strength after ageing of finishing coats tested on the rig

(1) CS: cohesive rupture in insulation material.
(2) AS: adhesive rupture

3.20 Mechanical and physical characteristics of the mesh (EAD 040083-00-0404, Clause 2.2.21)

		Tensile strength in as delivered state (N/mm)	Residual tensile strength after ageing (N/mm)	Relative residual strength after ageing, of the strength in the as delivered state (%)	Elongation in as-delivered state (%)	Elongation after ageing (%)
Standard mesh	Warp	48	36	75	3.7	2.8
	Weft	40	34	85	3.3	2.5
Reinforced mesh	Warp	88.5	48.8	55.14	4.6	2.1
	Weft	114.6	57.8	50.44	4.5	2.5

Table 10: Mechanical and physical characteristics of the mesh

Protection against noise (BWR 5)

3.21 Airborne sound insulation of ETICS (EAD 040083-00-0404, Clause 2.2.22)

Performance not assessed.

Energy economy and heat retention (BWR 6)

3.22 Thermal resistance and thermal transmittance of ETICS (EAD 040083-00-0404, Clause 2.2.23)

The additional thermal resistance provided by the ETICS (R_{etics}) to the substrate wall is calculated from the thermal resistance of the insulation product ($R_{insulation}$), determined as described in the appropriate harmonized standard (EN 13165 for PU insulation), and the tabulated R_{render} value of the render system (R_{render} is about 0.02 m^2K/W).

$$R_{etics} = R_{insulation} + R_{render} \ [(m^2K)/W]$$

The thermal bridges caused by mechanical fixing devices influence the thermal transmittance of the entire wall and shall be taken into account using the following calculation:

$$U_c = U + \Delta U \ [W/(m^2K)]$$

With:

U_c = corrected thermal transmittance of the entire wall, including thermal bridges.

U = thermal transmittance of the entire wall, including ETICS, without thermal bridges.

$$U = \frac{1}{R_{etics} + R_{substrate} + R_{se} + R_{si}}$$

R_{etics} = thermal resistance of the ETICS [$(m^2K)/W$]

$R_{substrate}$= thermal resistance of the substrate wall [$(m^2K)/W$]

R_{se} = external surface thermal resistance [$(m^2K)/W$]

R_{si} = internal surface thermal resistance [$(m^2K)/W$]

ΔU = correction term of the thermal transmittance for mechanical fixing devices.

$$\Delta U = X_p * n \text{ (for anchors)} + \mathbf{\Sigma}\psi i * \ell i \text{ (for profiles)}$$

X_p = point thermal transmittance value of the anchor [W/K]. See Technical Report no 25. If not specified in the anchors ETA, the following values apply:

= 0.002 W/K for anchors with a plastic screw/nail, stainless steel screw/nail with the head covered by plastic material, and for anchors with an air gap at the head of the screw/nail.

= 0.004 W/K for anchors with a galvanized steel screw/nail with the head covered by a plastic material.

= 0.008 W/K for all other anchors (worst case).

n = number of anchors per m^2

ψi = linear thermal transmittance value of the profile [W/(mK)]

ℓi = length of the profile per m^2

Thermal resistance of ETICS is ≥ 1.0 $(m^2.K)/W$.

The value of thermal resistance of each insulation product shall be given in the manufacturer´s documentation along with the possible range of thicknesses. In addition, the point thermal conductivity of anchors shall be given when anchors are used in the ETICS.

Thermal resistance of the thermal insulation product: No performance assessed. See Annex 1 for declared values.

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

According to the European Commission Decision 1997/556/EC, amended by the European Commission Decision 2001/596/EC, system AVCP 2+ applies.

In addition, for uses subject to regulations on reaction to fire and according to the European Commission Decision 1997/556/EC, amended by the European Commission Decision 2001/596/EC, system AVCP 2+ applies.

The AVCP systems are described in Annex V of Regulation (EU) Nº 305/2011, as amended by Delegated Regulation (EU) Nº 568/2014.

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 Assessment and Verification of Constancy of Performance (AVCP) system are laid down in the control plan deposited at Tecnalia Research & Innovation.

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

Issued in Azpeitia, on 14/02/2025

TECNALIA LAB_SERVICES

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Miguel Mateos

Innovation and Conformity Assessment Point

Tecnalia Research & Innovation

ANNEX 1 CHARACTERISTICS OF THE COMPONENTS

Detailed information on the chemical composition and other identifying characteristics of the components has been deposited at Tecnalia Research & Innovation. Further information can be observed from the product data sheets, which are part of the Technical Documentation for this ETA.

Insulation product

PIR Factory-made panels made of polyisocyanurate (PIR) according to EN 13165 "Thermal insulation products for buildings. Factory made rigid polyurethane foam (PU) products. Specifications".

Description and characteristics	Standard	Value	
Density (kg/m^3)		≤ 42	
Thickness (mm)		40-300	
Thickness tolerance (mm)	EN 823	T2	
Reaction to fire	EN 13501-1	Euroclass E	
Dimensional stability	EN 1604	DS(70,90)4 DS (-20,-)2	
Compressive stress	EN 826	CS(10/Y)150	
Water absorption (partial immersion)	EN 1609	WS(P)0.2	
Water absorption (total immersion)	EN 12087	WL(T)2	
Water vapour permeability – diffusion factor	EN 12086	40-120	
Tensile strength perpendicular to the faces in dry conditions (kPa)	EN 1607	TR80	
Shear Strength (kPa)	EN 12090	≥ 20	
Shear Modulus of elasticity (kPa)	EN 12090	≥ 1000	
Thermal conductivity (W/mK)	EN 12667	40 mm ≤ e < 80 mm	≤ 0.027
		80 mm ≤ e < 100mm	≤ 0.026
		100 mm ≤ e < 170 mm	≤ 0.025
		170 mm ≤ e ≤ 300 mm	≤ 0.024
Thermal resistance (m²K/W)	EN 12667	Thickness: 40 mm	1.45
		Thickness: 300 mm	12.5

Mesh

Standard mesh Alkali resistant glass fibre mesh with mass per unit area of about 160 g/m^2 and mesh size of about 4.0 x 3.8 mm.

Characteristics	Reference	Value
Mass per unit area (g/m^2)	EAD 040016-00-0404	160 (± 5%)
Mesh size (mm)		4.0 x 3.8 (± 0.5)
Thickness (mm)		0.5
Organic content (%)		20 (± 4)
Heat of combustion (PCS-value) (MJ/kg)		7.35

Reinforced mesh Alkali resistant glass fibre mesh with mass per unit area of about 320 g/m^2 and mesh size of about 6.0 x 8.4 mm.

Characteristics	Reference	Value
Mass per unit area (g/m^2)	EAD 040016-00-0404	320 (± 5%)
Mesh size (mm)		6.0 x 8.4 (± 0.5)
Thickness (mm)		-
Organic content (%)		16 (± 4)
Heat of combustion (PCS-value) (MJ/kg)		5.47

Plastic fixings

Nailed-in or screwed in plastic anchor for fixing of external thermal insulation composite systems with rendering in concrete and masonry. EAD 040083-00-0404

GENERAL CHARACTERISTICS	
Plate diameter (mm)	≥ 60
Load resistance of the anchor plate (kN)	≥ 1.25
Plate stiffness (kN/mm)	≥ 0.6

Screwed in spiral plastic anchor for fixing of external thermal insulation composite systems with rendering in concrete and masonry. EAD 040083-00-0404

GENERAL CHARACTERISTIC	
Trade name	Termoz SV II ecotwist
Washer diameter	66 mm