



**INSTITUTO DE CIENCIAS
DE LA CONSTRUCCIÓN
EDUARDO TORROJA**

C/ Serrano Galvache, 4. 28033 Madrid (Spain)
Tel.: (+34) 91 302 0440 www.ietcc.csic.es
gestiondit@ietcc.csic.es dit.ietcc.csic.es



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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

SISTEMA AISTERM

Product family to which the construction product belongs

External Thermal Insulation Composite System with rendering for use on building walls

Manufacturer

PROPAMSA, S.A.U.
MOLINS CONSTRUCTION SOLUTIONS
Ctra N-340 Km 1242,3. 08620 Sant Vicenç dels Horts
(Barcelona) – Spain. www.propamsa.es

Manufacturing plant(s)

C/ Vega del Tajo 8. Pol. Industrial de Quer.19209 Quer
(Guadalajara) – Spain.
Polígono Industrial Chan da Ponte. Parcela 21.
36450 Salvaterra de Miño (Pontevedra) – Spain.
C/ Ciments Molins s/n. Polígono Industrial Les Fallulles.
08620 Sant Vicenç dels Horts (Barcelona) - Spain

This European Technical Assessment contains

9 pages
+1-2 Annexes, which form an integral part of this assessment.
+ Annex 3 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

040083-00-0404:
External thermal insulation composite systems (ETICS) with renderings

This version replaces

ETA 09/0005 issued on 28/ 04/ 2021

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Specific parts

1 Technical description of the product

This ETA applies for External Thermal Insulation Composite Systems (ETICS) with renderings "AISTERM" to be applied as external thermal insulation on the walls of buildings. The walls are made of masonry (bricks, blocks, stones) or concrete (cast on site or as prefabricated panels) with rendering systems.

The manufacturer is ultimately responsible for the ETICS, which are defined as:

- bonded system with supplementary mechanical fixings with EPS panel and,
- mechanically fixed ETICS with supplementary adhesive on MW panel,

The minimum number of fasteners per square metres are 6 for EPS/MW¹.

This ETICS comprises the following components, which are factory produced and supplied by the manufacturer:

Components					Coverage [(kg/m²)]	Thickness [mm]
Adhesive	PROPAM® AISTERM. Minimum bonded surface: 60 %. EPS/XPS and 80 % MW, Cement based powder requiring addition of 19 ± 2 % of water,				1.40 for each mm thickness	3 -12
	PROPAM® AISTERM FLEX. Minimum bonded surface: 60 %. EPS. Cement based powder requiring addition of 19 ± 2 % of water, Only used on EPS.				1.35 for each mm thickness	
Thermal Insulation + method of fixing	PANEL EPS / EPS grafito: Bonded Board of Expanded polystyrene (EPS) (EN 13163) with supplementary mechanical fixings (minimum 6 fasteners/m²)				0.5– 6.0	30 - 200
	PANEL XPS: Bonded Board of Extruded polystyrene (XPS) (EN 13164) with supplementary mechanical fixings (minimum 6 fasteners/m²)				1.2 – 7.0	30 - 150
Fasteners	PANEL MW: Mechanically fixed Mineral wool (MW) (EN 13162) with supplementary adhesive (minimum 6 fasteners/m²)				3.0- 11.0	40 - 140
	1. PROPAM® AISTERM TACO FIJACION H1 SOPORTES ABCDE. 8 mm diameter polyamide plug with metal nail. 2. PROPAM® AISTERM TACO FIJACION H3 SOPORTES ABC. 8 mm diameter polyethylene plug with polyamide nail reinforced with fiberglass.					
	Fasteners	ETA nº	Diameter Plate (mm)	Stiffness (kN/mm²)	Minimum tension load (N)*	Remain under the manufacturer responsibility
	1	11 / 0192	60	0,6	250	
	2	14 / 0130	60	0,6	160	
*These values show the minimum pull out of the fastener in the weakest support (enclosed in its ETA). Other higher values appear in their ETAs. Other fasteners can be used with CE marking (EAD 330196-00-0604), they have to have a plate dimension ≥ 60 mm diameter and Stiffness ≥ 0,3 kN/mm.						
Ancillary elements	Aluminium and PVC profiles: base, corners, top and window sills, expansion joint and its fixing devices					
Rendering systems are composed by base coat + key coat+ finishing coats:						
Base coat	PROPAM® AISTERM + MALLA AISTERM 160 PROPAM® AISTERM + double MALLA AISTERM 160 PROPAM® AISTERM + MALLA AISTERM 330 PROPAM® AISTERM FLEX+ MALLA AISTERM 160 PROPAM® AISTERM FLEX + double MALLA AISTERM 160				1.4 (powder, and per mm layer thickness)	3,0 - 6,0
Glass fibre mesh	MALLA AISTERM 160. Glass fibre alkali resistant standard mesh				0.16	≤ 1,0
	MALLA AISTERM 330. Glass fibre alkali resistant reinforcement mesh, use in plinth				0.33	
	Other different mesh can be used in this ETICS, if they have the CE marking according to EAD 040016-00-0404 and the following characteristics					
	Characteristics			Values (standard / reinforcement)		
	Mesh size (mm)			3 - 6		
	Tensile strength after ageing (N/mm)			30 - 60 / 120-180		
	Elongación (%)			≥ 3 / ≥ 4		
	Mass per unit area (g/m²)			≥ 140 / ≥ 340		
Primer	Thickness			0.58 / 0,9		
	Organic content			20 ± 4		
	After ageing (alkali conditioning), the mean value of residual strength of the standard mesh (see EAD 1.3.8.1) in the weft and warp direction shall be at least: 50 % of the strength in the as-delivered state and ≥ 20 N/mm.					
	After ageing, the mean value of the reinforced mesh (see EAD.1.3.8.1) in the weft and warp direction shall be at least: 40 % of the strength in the as-delivered state and ≥20 N/m					
	PROPAM® COAT FILM . Acrylic binder based paint which may require optionally 10-15% water				0,17 – 0,20	< 0,5
Finishing coat	PROPAM® COAT TOP 0.8 (0.8 mm)			Acrylic binder based ready to use paste with 2 different size grading particles.	1.5 – 1.8	0.8 -1,2
	PROPAM® COAT TOP 1.2 (1.2 mm)				1.8 - 2.0	1.2 – 1.5
	PROPAM® COAT TOP 0.8 SLX (0.8 mm)			Based on acrylic emulsion with modified silicone resin and polysiloxanes, with 2 different size grading particles.	1.5 – 1.8	0.8 -1,2
	PROPAM® COAT TOP 1.2 SLX (1.2 mm)				1.8 - 2.0	1.2 – 1.5
	REVAT CAL NATURE			Lime based powder coating requiring 38 ± 2 % of water	1.5 – 2.0	3 - 4

¹ The numbers of fasteners used with MW must comply with the National requirements.



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

2.1 Intended use(s)

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

This ETICS gives the building wall to which is applied additional thermal insulation and protection from effects of weathering.

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

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

This ETA covers application of ETICS on supports of masonry or concrete.

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 EAD 040083-00-0404, if 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 ETICS is installed on site. It is the responsibility of the manufacturer to guarantee that the information about design and installation of this ETICS 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.

The wall on which the ETICS is applied shall be sufficiently stable and airtight. Its stiffness shall be large enough to ensure that ETICS is not subjected to deformations, which could lead to damage.

Design. In any case, the user shall comply with the national regulations and particularly concerning fires and wind load resistance. Only the components described in clause 1 with characteristics according to clause 3 of this ETA can be used for this ETICS.

The works including the details (connection, joint,...) shall be designed in order to avoid water penetration behind the system. The minimal surface area for the bonded ETICS, and the method of bonding shall comply with the characteristics of the ETICS as well as the national regulations. In any case, the minimal surface shall be at least 60 % for EPS/XPS and 80% for MW. Besides, the numbers of fasteners used with MW must comply with the National requirements⁽²⁾.

Execution. The recognition and preparation of the substrate as well as the generalities about the execution of the ETICS shall be carried out in compliance with the manufacturer prescriptions and the corresponding national regulations.

The particularities in execution linked to the method of bonding and the application of the rendering system shall be handled in accordance with manufacturer prescriptions. In particular, it is suitable to comply with the quantities of rendering applied, the thickness regularity and the drying periods between layers.

Use, maintenance and repair of the works. It is accepted that the finishing coats shall normally be maintained in order to fully preserve the system's performance. Maintenance will include at least:

- 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 done rapidly. It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance.

⁽²⁾ The value of the pull through to calculate the numbers of fasteners will be the minor value between the average value of pull through fastener-MW (defined in this ETA) and the average value pull out of the fastener-support (defined in its ETA).



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 (BWR) were carried out in compliance with EAD 040083-00-0404, 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	Assessment method	Type of expression of product performance
Reaction to fire	2.2.1	
- Reaction to fire of ETICS	2.2.1.1	
System composition		Euroclass
Adhesive (any) + Insulation (EPS/XPS/MW) + Base coat + Primer	Finishing coat	
MW (thickness 40 to 140 mm)	PROPAM® COAT TOP 0.8	A2-s1, d0
EPS (thickness 30 to 200 mm)	PROPAM® COAT TOP 1.2	B-s2, d0
XPS (thickness 30 to 150 mm)	PROPAM® COAT TOP SLX 0.8	B-s2, d0
	PROPAM® COAT TOP SLX 1.2	
- Reaction to fire of thermal insulation material	2.2.1.2	EPS / XPS : E MW : A1 / Q _{PCS} :0.93 MJ/kg
Facade fire performance	2.2.2	NPA
Propensity to undergo continuous smouldering of ETICS	2.2.3	NPA

3.2 Hygiene, health and environment (BWR 3)

Basic requirement for construction works 3: Hygiene, health, and the environment				
Essential characteristic	Assessment method	Type of expression of product performance		
Content, emission and/or release of dangerous substances. Leachable substances	2.2.4	NPA		
Water absorption	2.2.5			
- of the base coat and rendering system	2.2.5.1	Rendering	After 1h	After 24h
			kg/m ²	
		PROPAM® AISTERM	0.06	0.38
		PROPAM® AISTERM FLEX	0.02	0.49
		BASE COAT+ PROPAM® COAT FILM + PROPAM® COAT TOP	0.12	0.33
		BASE COAT + PROPAM® COAT FILM + PROPAM® COAT TOP SLX	0.05	0.24
- of the thermal insulation	2.2.5.2	BASE COAT + PROPAM® CAL NATURE	0.16	0.46
		PANEL EPS EN 29767: ≤ 1 kg/m ²		
		PANEL XPS EN 29767: ≤ 1 kg/m ²		
Water-tightness of the ETICS	2.2.6	The ETICS is assessed resistant to hygrothermal cycles on a rig, passed the test without defects and without pass through of water		
Hygrothermal behaviour	2.2.7	The water absorption of the base coat and of rendering system is less than 0.5 kg/m ² after 24 hours and so the system can be assessed as freeze/thaw resistant without any further testing.		
Water tightness of the ETICS: Freeze-thaw behaviour	2.2.7			
Impact resistance (Category)	2.2.8	Rendering	Samples	Single 160
				Double 160
		MW / EPS / XPS + Base coat (5 mm) + finishing coat		
		PROPAM® AISTERM		
		PROPAM® AISTERM + PROPAM® COAT TOP	Rig	II (EPS)
				II (MW)
				II (XPS)
		PROPAM® AISTERM + PROPAM® COAT TOP	7 immersion water	II (EPS) (13 / 29)
				I (EPS) (10 / 26)
				II (MW) (8 / 38)
				I (MW) (0 / 21)
		PROPAM® AISTERM + PROPAM® COAT TOP SLX		I (XPS) (4 / 29)
				I (XPS) (4 / 21)
				II (EPS) (26 / 47)
				II (EPS) (8 / 24)



Impact resistance (Category)	2.2.8	PROPAM® AISTERM FLEX	Rig with EPS	II (EPS) (15 / 35)	II (EPS) (12 / 24)
		PROPAM® AISTERM FLEX + PROPAM® COAT TOP SLX		II (EPS) (11 / 32)	I (0 / 20)
		PROPAM® AISTERM FLEX + PROPAM® COAT TOP		II (EPS) (10 / 32)	I (10 / 25)
		PROPAM® AISTERM FLEX + PROPAM® CAL NATURE		III (EPS) (22 / 55)	II (10 / 26)
Water vapour permeability	2.2.9				
- of the rendering system	2.2.9.1	Base coat + finishing coat		(S _d , m)	Required
		PROPAM® AISTERM		0.23	< 1
		PROPAM® AISTERM FLEX		0.10	
		PROPAM® COAT TOP		0.64	
		PROPAM® COAT TOP SLX		0.63	
		PROPAM® CAL NATURE		0.13	
- of the thermal insulation	2.2.9.2	PANEL EPS: EN 12086: μ = 30 -70			
		PANEL XPS: EN 12086: μ = 60			
		PANEL MW: EN 12086: u = 1			

3.3 Safety and accessibility in use (BWR 4)

Basic requirement for construction works 4: Safety and accessibility in use					
Essential characteristic	Assessment method	Type of expression of product performance			
Bond strength	2.2.11	minimum / mean value (kPa)			
- between base coat and insulation product)	2.2.11.1	Thermal insulation	Initial state	After hydrothermal cycles (rigs)	After free/thaw cycles samples)
		PROPAM® AISTERM			
		EPS	100 /110	110 /120	-----
		XPS	120 / 140	120 / 140	-----
		MW	20 / 20	20 / 20	-----
		PROPAM® AISTERM FLEX			
		EPS	144 /145	118 /140	-----
		The breakage location was 100% on the insulation board MW and EPS, on XPS was adhesive between the insulation and the base coat.			
		- between adhesive and substrate	2.2.11.2	Adhesive	Initial state
AISTERM	800/ 1000			250 / 350	600 / 700
ASITERM FLEX	710 / 730			580 / 630	1420/ 1570
- between adhesive and insulation product	2.2.11.3	Thermal insulation	Initial state	Immersion 48 h and 2 h drying	Immersion 48 h and 7 d drying
		PROPAM® AISTERM			
		EPS	100 / 110 ≥ 80	50 / 60 ≥ 30	95 / 100 ≥ 80
		XPS	120 / 140 ≥ 80	90 / 100 ≥ 30	95 / 120 ≥ 80
		MW	20 / 20	20 / 20	20 / 20
		PROPAM® AISTERM FLEX			
		EPS	144 / 145	122 / 140	85 / 111
		The breakage location was 100% on the insulation board MW and EPS, on XPS was adhesive between the insulation and the base coat.			
		Fixing strength (transverse displacement test)	2.2.12	The test is not required since mechanically fixed ETICS with supplementary adhesive, where the bonded area exceeds 20 %.	
- Pull-through of the fasteners.	2.2.13.1	In the middle of PANEL MW of 4 cm with TR ≥ 7,5 (Rpanel) (minimum / mean value) (kN/fixing)			
		Dry condition 0.25 / 0.20		Wet condition 0.21 / 0.20	
- static foam block test	2.2.13.2	NPA			
Tensile perpendicular to the faces of thermal insulation	2.2.14				
- in dry conditions	2.2.14.1	PANEL EPS: EN 1607, TR = 100 kPa			
		PANEL XPS: EN 1607, TR = 100 kPa			
		PANEL MW: EN 1607, TR = 7.5 kPa			
- in wet conditions	2.2.14.2	NPA			
Shear strength / shear modulus of elasticity Insulation	2.2.15	PANEL XPS: EN 12090: Shear strength(kPa): 50; Shear modulus (kPa):1000			
		PANEL EPS: EN 12090: Shear strength(kPa): 20; Shear modulus (kPa):1000			
Rendering strip tensile test: base coat	2.2.17	NPA			
Bond strength after ageing	2.2.20				



- of finishing coat tested on the rig	2.2.20.1	Base coat + Rendering	EPS		XPS	MW
			(minimum / mean value)(kPa)			
		AISTERM + PROPAM® COAT TOP	100 / 110		120 / 150	20 / 20
		AISTERM + PROPAM® COAT TOP SLX				
		AISTERM FLEX + PROPAM® COAT TOP	100 / 110	----	-----	
AISTERM FLEX + PROPAM® COAT TOP SLX						
The breakage location was 100 % on the insulation board MW and EPS, on XPS was adhesive between the insulation and the base coat.						
- of finishing coat no tested on the rig	2.2.20.2	-----				
Mechanical and physical characteristics of the mesh	2.2.21					
- tensile strength of the glass fibre mesh	2.2.21.1 2.2.21.2	Status	MALLA AISTERM 160 (Warp/ Weft)		MALLA AISTERM 330 (Warp/ Weft)	
		Initial / After ageing (N/ mm)	32 / 46	22 / 36	128 / 137	121 / 132
		Deference (%)	----	≤ 50	----	≤ 60
		Elongation after ageing (%)	< 3.0		< 3.0	

2.4 Energy economy and heat retention (BWR 6)

Thermal resistance and thermal transmittance of ETICS (2.2.23). The performance of the thermal resistance of thermal insulation product according to 2.2.23.1 is representative for the assessment of the thermal resistance and the thermal transmittance of ETICS.

The additional thermal resistance provided by the ETICS (R_{ETICS}) to the substrate wall is calculated from the thermal resistance of the thermal insulation product ($R_{insulation}$), determined in accordance with 2.2.23.1, and from either the tabulated R_{render} value of the render system (R_{render} is about $0.02 \text{ m}^2\text{K/W}$) or R_{render} determined by test according to EN 12667 or EN 12664 (depending on expected thermal resistance).

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

as described in EN ISO 10456.

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:

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

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

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

$R_{substrate}$ thermal resistance of the substrate wall [(m²·K)/W]

R_{se} external surface thermal resistance [(m²·K)/W]

R_{si} internal surface thermal resistance [(m²·K)/W]

ΔU correction term of the thermal transmittance for mechanical fixing devices

$\Delta U = \chi_p \cdot n$ (for anchors) + $\sum \psi_i \cdot \ell_i$ (for profiles) (formula x)

χ_p point thermal transmittance value of the anchor [W/K]. If not specified in ETA for anchors, the following values apply:
= 0.002 W/K for anchors with a plastic screw/nail, stainless steel screw/nail with the head covered by at least 15 mm plastic material, or with a minimum 15 mm air gap at the head of the screw/nail.

= 0.004 W/K for anchors with a galvanized carbon steel screw/nail with the head covered by at least 15 mm a plastic material or a minimum 15 mm air gap at the head of the screw/nail.

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

n number of anchors per m². In case n is more than 16, the formula (x) is not applied.

ψ_i linear thermal transmittance value of the profile [W/(m·K)]

ℓ_i length of the profile per m².

The influence of thermal bridges can also be calculated as described in EN ISO 10211.

It shall be calculated according to this standard if there are more than 16 anchors per m² foreseen. The declared χ_p -values do not apply in this case.

Basic requirement for construction works 6: Energy economy and heat retention		
Essential characteristic	Assessment method	Type of expression of product performance



Thermal resistance thermal	2.2.23.1	PANEL EPS 0.9 – 5.4 m ² K/W $\lambda_D = 0.034 - 0.037$ W/mK
		PANEL XPS 0.83 – 4.4 m ² K/W $\lambda_D = 0.034 - 0.036$ W/mK
		PANEL MW 1.14 - 4 m ² K/W $\lambda_D = 0.035$ W/mK
		PANEL EPS GRAFITO 0.9 – 6.25 m ² K/W $\lambda_D = 0.032$ W/mK

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

According to the decision 97/556/EC of the European Commission amended by 2001/596/EC, a system 2+ 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
SISTEMA AISTERM	External Thermal Insulation Composite System with rendering for use on building walls	Any	2+

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 IETcc⁽³⁾.

Issued in Madrid on 7 of December of 2024
by

Director

On behalf of the Instituto de Ciencias de la Construcción Eduardo Torroja

⁽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.





