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Membre de l'EOTA
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European Technical Assessment

ETA-18/0106-version 1 of 28/06/2018

GENERAL PART

Technical Assessment Body issuing the European Technical Assessment:	Centre Scientifique et Technique du Bâtiment (CSTB)
Trade name of the construction product:	**PARISO PSE - U**
Product family to which the construction product belongs:	Product Area Code: 04 External Thermal Insulation Composite System with rendering (ETICS)
Manufacturer:	**ParexGroup S.A.** 19 place de la Résistance CS 50053 FR-92445 Issy-les-Moulineaux
Manufacturing plant(s):	**ParexGroup S.A.** 19 place de la Résistance CS 50053 FR-92445 Issy-les-Moulineaux
This European Technical Assessment contains:	12 pages including 3 Annexes which form an integral part of this assessment Annex 4 contains confidential information and is/are not included in the European Technical Assessment when that assessment is publicly available
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of:	European Technical Approval Guideline No 004 (ETAG 004), edition 2013, used as European Assessment Document (EAD)

SPECIFIC PART

1. Technical description of the product

The External Thermal Insulation Composite System "**PARISO PSE - U**", subject to this European Technical Assessment (hereinafter ETA) and called ETICS in the following text, is a kit designed and installed in accordance with the Manufacturer's instructions, deposited with the CSTB. The ETICS comprises the components listed in the following table, which are factory-produced by the Manufacturer or a supplier. The ETICS is made up on site from these components.

The ETICS also includes ancillary materials which are defined in clause 3.2.2.5 of the ETAG 004[1]. They shall be used in accordance with the Manufacturer's instructions.

The ETICS is described according to its method of fixing, as defined in clause 2.2 of the ETAG 004.

Method of fixing	Component	Coverage (kg/m²)	Thickness (mm)
Bonded ETICS (purely bonded or bonded with supplementary anchors)	**Insulation product**		
	Expanded polystyrene (EPS) boards, see Annex 1 (1/2)		20 to 300
	Adhesives		
	UNITÉ: Cement-based powder requiring addition of 22 to 24% wt. water.	2.6 to 3.5 [powder]	—
	COLLE CCP+: cement-based powder requiring addition of 21 to 22% wt. water.	2.6 to 3.5 [powder]	—
	MAITÉ: cement-based powder requiring addition of 17% wt. water.	2.6 to 3.5 [powder]	—
	Supplementary anchors for insulation product		
	Plastic anchors, see Annex 2	—	—
Mechanically fixed ETICS with anchors and supplementary adhesive	**Insulation product**		
	Expanded polystyrene (EPS) boards, see Annex 1 (1/2)		60 to 300
	Supplementary adhesives		
	UNITÉ: Cement-based powder requiring addition of 22 to 24% wt. water.	2.6 to 3.5 [powder]	—
	COLLE CCP+: cement-based powder requiring addition of 21 to 22% wt. water.	2.6 to 3.5 [powder]	—
	MAITÉ: cement-based powder requiring addition of 17% wt. water.	2.6 to 3.5 [powder]	—
	Anchors for insulation product		
	Plastic anchors, see Annex 2 (1/2)	—	—

[1] ETAG 004 is available on the EOTA website: www.eota.eu.

Method of fixing	Component	Coverage (kg/m²)	Thickness (mm)
Every method of fixing	**Base coat**		
	UNITÉ: Cement-based powder requiring addition of 22 to 24% wt. water.	About 9.5 [powder]	Mean: 7.0 [dry] Minimal: 6.0 [dry]
	Meshes		
	Glass fibre meshes (standard), see Annex 3		
	Finishing coat		
	UNITÉ: Cement-based powder requiring addition of about 22% wt. water:		
	- rough / partly smoothed rough	10.0 to 11.0 [powder]	About 8.0
	- scraped	10.0 to 11.0 [powder]	About 6.0 after scraping
	- structured	10.0 to 11.0 [powder]	About 8.0
Ancillary materials	Descriptions in accordance with § 3.2.2.5 of the ETAG 004 Remain under the ETA-Manufacturer responsibilities		

The ETICS is designed to give the walls to which it is applied satisfactory thermal insulation. The minimum thermal resistance of the ETICS shall be higher than 1.0 m^2.K/W.

The components are protected from moisture during transport and storage by means of appropriate packaging, unless other measures are foreseen by the Manufacturer for this purpose.

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

This ETICS is intended to be used as thermal insulation of buildings' external walls made of masonry (bricks, blocks, stones, *etc.*) or concrete (cast on site or as prefabricated panels).

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

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

The ETICS is not intended to ensure the airtightness of the walls.

The provisions made in this ETA are based on an assumed working life of at least 25 years, provided that the construction works are subject to appropriate design, execution, maintenance and repair. The indications given as to the working life cannot be interpreted as a guarantee given by the Manufacturer or the Technical Assessment Body, 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.

Design, execution, maintenance and repair of the construction works shall take into account principles given in chapter 7 of the ETAG 004 and shall be done in accordance with national instructions.

3. Performances of the product and references to the methods used for their assessment

Performances of the ETICS, related to the basic requirements for construction works (hereinafter BWR), were determined according to chapters 4, 5 and 6 of the ETAG 004.

These performances, given in the following paragraphs, are valid as long as the components are the ones described in § 1 and Annexes 1 to 4 of this ETA.

3.1 Mechanical resistance and stability (BWR 1)

Not relevant.

3.2 Safety in case of fire (BWR 2)

Reaction to fire:

Configuration	Declared organic content (1)	Declared flame retardant content (1)	Class according to EN 13501-1
• Adhesives / supplementary adhesives: - **UNITÉ** - **MAITÉ** - **COLLE CCP+** • Insulation product: EPS boards, reaction to fire Class E, thickness ≤ 300 mm, density ≤ 20 kg/m^3 • Base coat: **UNITÉ** • Meshes: - SSA-1363 F+ - R 131 A 101 C+ - R 131 A 102 C+ • Finishing coat: **UNITÉ**	**UNITÉ**: 2.6%	**UNITÉ**: 0.0%	B–s1, d0

(1) Percentage declared by the Manufacturer, relative to the dried weight of the component as delivered.

Note: a European reference fire scenario has not been laid down for façades. In some Member States, the classification of ETICS according to EN 13501-1 might not be sufficient for the use in façades. An additional assessment of ETICS according to national provisions (e.g., on the basis of a large scale test) might be necessary to comply with Member States regulations, until the existing European classification system has been completed.

3.3 Hygiene, health and the environment (BWR 3)

3.3.1 Water absorption – capillarity test

3.3.1.1 Water absorption of the base coat

- After 1 hour: water absorption < 1 kg/m^2
- After 24 hours: water absorption < 0.5 kg/m^2

3.3.1.2 Water absorption of the rendering system

Rendering system: Base coat + finishing coat indicated below	Water absorption after 24 hours	
	< 0.5 kg/m²	**≥ 0.5 kg/m²**
UNITÉ: - rough / partly smoothed rough - scraped - structured	X	

3.3.2 Watertightness

3.3.2.1 Hygrothermal behaviour

Heat-rain and heat-cold cycles have been performed on a rig. The ETICS is assessed as resistant to hygrothermal cycles.

3.3.2.2 Freeze-thaw behaviour

Water absorptions of both the base coat and the rendering systems are less than 0.5 kg/m² after 24 hours. The ETICS is therefore assessed as resistant to freeze-thaw.

3.3.3 Impact resistance

Rendering system: Base coat + finishing coat indicated below	Use category
	single standard mesh
UNITÉ: - rough / partly smoothed rough - scraped - structured	Category I

3.3.4 Water vapour permeability – resistance to water vapour diffusion

Rendering system: Base coat + finishing coat indicated below	Equivalent air thickness s_d (m)
UNITÉ: - rough / partly smoothed rough - scraped - structured	≤ 1.0 (Test result obtained with **UNITÉ** scraped: 0.2)

3.3.5 Release of dangerous substances

The ETICS belong to Category S/W2, according to EOTA Technical Report No 034.

A written declaration was submitted by the Manufacturer.

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the ETICS falling within its scope (e.g., transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

3.4 Safety and accessibility in use (BWR 4)

3.4.1 Bond strength

3.4.1.1 Bond strength of the base coat onto insulation product

- Initial state: bond strength ≥ 0.08 MPa
- After hygrothermal cycles: bond strength ≥ 0.08 MPa.
- After freeze-thaw cycles: test not required (see § 3.3.2.2 of this ETA)

3.4.1.2 Bond strength of the adhesive onto substrate and insulation product

MAITÉ, COLLE CCP+ and UNITÉ:

	Bond strength (MPa) after:		
	Initial state	**48 h immersion water + 2 h at 23°C-50% RH**	**48 h immersion water + 7 days at 23°C-50% RH**
Concrete	≥ 0.25	≥ 0.08	≥ 0.25
Insulation product	≥ 0.08	≥ 0.03	≥ 0.08

The ETICS can so be installed on the substrate with application of the adhesive on the following minimal surfaces:

	Tensile strength perpendicular to the faces of EPS		
	≥ 100 kPa	≥ 120 kPa	≥ 150 kPa
UNITÉ	35%	35%	35%
MAITÉ	30%	25%	20%
COLLE CCP+	30%	25%	25%

3.4.2 Fixing strength (transverse displacement)

Test not required because the ETICS fulfils the following criteria:

$$E.d < 50{,}000 \text{ N/mm}$$

E modulus of elasticity of the base coat without mesh (MPa)

d mean dried thickness of the base coat (mm)

3.4.3 Resistance to wind load

3.4.3.1 Resistance to wind load of mechanically-fixed ETICS using anchors

Anchors	**Plate diameter (mm)**	≥ 60		
	Plate stiffness (kN/mm)	≥ 0.3		
Insulation product	**Type**	EPS boards		
	Tensile strength perpendicular to the face (kPa)	≥ 120		
	Thickness (mm)	≥ 60	≥ 80	≥ 100
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints:** R_{panel} **(N)**	Minimal: 506	Minimal: 649	Minimal: 658
		Average: 512	Average: 657	Average: 688
	Anchors placed at the panel joints: R_{joint} **(N)**	Minimal: 429	Minimal: 554	Minimal: 611
		Average: 455	Average: 570	Average: 616

Anchors	**Plate diameter (mm)**	≥ 60		
	Plate stiffness (kN/mm)	≥ 0.6		
Insulation product	**Type**	EPS boards		
	Tensile strength perpendicular to the face (kPa)	≥ 120		
	Thickness (mm)	≥ 60	≥ 80	≥ 100
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints:** R_{panel} **(N)**	Minimal: 509	Minimal: 707	Minimal: 949
		Average: 520	Average: 720	Average: 968
	Anchors placed at the panel joints: R_{joint} **(N)**	Minimal: 433	Minimal: 610	Minimal: 806
		Average: 464	Average: 617	Average: 821

For the use of anchors mounted countersunk, the above indicated values apply for insulation thickness greater or equal to 80 mm and plate diameter equal to 60 mm.

Anchors which can be used are described in Annex 2 of this ETA.

The design wind load resistance of the ETICS fixed with anchors is determined as follows:

$$R_{\mathrm{d}} = \frac{R_{\mathrm{panel}} . n_{\mathrm{panel}} + R_{\mathrm{joint}} . n_{\mathrm{joint}}}{\gamma}$$

n_{panel} number of anchors not placed at the panel joints, per m²

n_{joint} number of anchors placed at the panel joints, per m²

γ national safety factor

3.4.4 Width of crack – Render Strip Tensile Test

No performance was determined for the ETICS.

3.5 Protection against noise (BWR 5)

No performance was determined for the ETICS.

3.6 Energy economy and heat retention (BWR 6)

Thermal resistance and thermal transmittance are defined in clause 5.1.6 of the ETAG 004.

3.7 Sustainable use of natural resources (BWR 7)

No performance was determined for the ETICS.

3.8 Aspects of durability and serviceability

Bond strength after ageing:

Rendering system: **Base coat + finishing coat indicated below**	**Bond strength (MPa)**
UNITÉ: - rough / partly smoothed rough - scraped - structured	≥ 0.08

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

According to Decision 97/556/EC (Decision of the Commission of 14 July 1997, L 229 of 20.8.1997, p. 15), as amended by Decision 2001/596/EC (Decision of the Commission of 8 January 2001, L 209 of 2.8.2001, p. 33)[2], the systems of AVCP given in the following table apply:

Product	Intended use	Levels or classes (Reaction to fire)	System
External Thermal Insulation Composite Systems with rendering	in external walls subject to fire regulation	A1(1), A2(1), B(1) or C(1)	1
		- A1(2), A2(2), B(2), C(2) - D, E, F - (A1 to E)(3)	2+
	in external walls not subject to fire regulation	any	2+

(1) Products/materials for which as clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material).

(2) Products/materials not covered by footnote 1.

(3) Products/materials that do not require to be tested for reaction to fire (e.g. Products/materials of Classes A1 according to Commission Decision 96/603/EC).

The systems of AVCP 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 AVCP system are laid down in the control plan deposited at the CSTB.

The control plan is given in Annex 4. As the control plan contains confidential information, Annex 4 is not included in the published parts of this ETA.

Issued in Marne-la-Vallée on 28/06/2018

by

Charles BALOCHE, Technical Manager of the CSTB

[2] Decisions are published in the *Official Journal of the European Union (OJEU)*, see www.new.eur-lex.europa.eu/oj/direct-access.html.

Factory-prefabricated, uncoated boards made of expanded polystyrene (EPS) according to EN 13163 and having characteristics described in the following table. The surface of the boards is homogeneous and without “skin”. Coverage (kg/m^2) depends on both thickness of the board and density of EPS.

Reaction to fire / EN 13501-1		Class E
Thermal resistance / EN 13163		Defined in the CE marking
Dimensional tolerances	**Thickness / EN 823**	± 1.0 mm [T2]
	Length / EN 822	± 2.0 mm [L2]
	Width / EN 822	± 2.0 mm [W2]
	Squareness / EN 824	± 2% [S2]
	Flatness / EN 825	≤ 5 mm [P5]
Dimensional stability	**Under specified temperature and humidity / EN 1604: 48 h at 70°C**	≤ 1% [DS (70,-)1]
	Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH	≤ 1% [DS(70,90)1]
	Under laboratory condition / EN 1603	± 0.2% [DS(N)2]
Water absorption (partial immersion) / EN 1609 – method A		< 1 kg/m^2
Water vapour diffusion resistance factor (μ) / EN 12086		20 to 60
Tensile strength perpendicular to the faces in dry conditions / EN 1607		≥ 100 kPa
Shear strength / EN 12090		≥ 0.02 N/mm^2
Shear modulus / EN 12090		≥ 1.0 N/mm^2
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		Not relevant

ETICS PARISO PSE - U	**ANNEX 1** of ETA-18/0106-version 1
Insulation product for bonded ETICS or mechanically-fixed ETICS with anchors	

Anchors with ETA according to European Technical Approval Guideline 014 (hereinafter ETAG 014) or EAD 330196-ED-0604 (hereinafter EAD “anchors”). The anchors are composed of a plastic expansion sleeve with a plate having diameter of 60 mm and a plastic or metallic nail or screw. Use categories and characteristic resistances in the substrate are given in each anchor’s ETA. Validity of the anchor’s ETA shall be checked before using the anchor.

Trade name	ETA reference	Mounting(1)	Plate stiffness (kN/mm)
Ejotherm NTK U	ETA-07/0026	a	≥ 0.3
Koelner KI-10, KI-10M, KI-10PA	ETA-07/0291	a	
Koelner KI-10N, KI-10NS	ETA-07/0221	a	
Koelner TFIX-8M	ETA-07/0336	a	≥ 0.6
Koelner TFIX-8S	ETA-11/0144	a	
Koelner TFIX-8ST	ETA-11/0144	b	
Ejotherm STR U, STR U 2G	ETA-04/0023	a, b	
Ejot H1 eco	ETA-11/0192	a	
Ejot H3	ETA-14/0130	a	
Rawlplug Insulation System R-TFIX-8S	ETA-17/0161	a, b	
Rawlplug Façade Insulation Fixing R-TFIX-8M	ETA-17/0592	a	

(1) a: surface mounting; b: countersunk mounting.

Additionally, every anchor with an ETA according to ETAG 014 or EAD “anchors” and having the following characteristics can be used:

- plate diameter ≥ 60 mm;
- plate stiffness ≥ 0.3 kN/mm according to EOTA Technical Report 026;
- load resistance of the plate ≥ 1.0 kN according to EOTA Technical Report 026.

These characteristics, the use categories and the characteristic resistances in the substrate shall be taken from the corresponding anchor’s ETA.

ETICS PARISO PSE - U	ANNEX 2 of ETA-18/0106-version 1
Anchors for insulation product	

Glass fibre meshes: standard meshes: with mesh size between 3 and 6 mm.

Trade name	Mass per unit area (g/m^2)	Residual strength after ageing (N/mm)		Relative residual strength after ageing (%)(1)	
		Warp	Weft	Warp	Weft
Standard meshes					
SSA-1363 F+ (IAVPC)	167	≥ 20	≥ 20	≥ 50	≥ 50
R 131 A 101 C+ (IAVPC)	167	≥ 20	≥ 20	≥ 50	≥ 50
R 131 A 102 C+ (IAVU)	161	≥ 20	≥ 20	≥ 50	≥ 50

(1) Percentage of the strength in the as-delivered state.

ETICS PARISO PSE - U	**ANNEX 3** of ETA-18/0106-version 1
Glass fibre meshes	