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Membre de l'EOTA
www.eota.eu

European Technical Assessment

ETA-11/0110 - version 2 of 29/06/2018

GENERAL PART

Technical Assessment Body issuing the European Technical Assessment:	Centre Scientifique et Technique du Bâtiment (CSTB)
Trade name of the construction product:	**PARISO LR - M / PAREXTHERM MW**
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:	26 pages including 3 Annexes which form an integral part of this assessment Annex 4 contains confidential information and is 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)
This version replaces:	ETA-11/0110-version 1 valid from 04/03/2016

SPECIFIC PART

1. Technical description of the product

The External Thermal Insulation Composite System "**PARISO LR - M / PAREXTHERM MW**", 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)
Mechanically fixed ETICS with anchors and supplementary adhesive	**Insulation product**		
	Insulation products, mineral wool (MW): - panels ECOROCK, by Rockwool, see Annex 1 (1/6) - panels 431 IESE, by Rockwool, see Annex 1 (2/6) - panels ECOROCK MONO, by Rockwool, see Annex 1 (3/6) - panels ECOROCK DUO, by Rockwool, see Annex 1 (4/6) - panels ISOVER TF 36, by Saint-Gobain Isover, see Annex 1 (5/6) - panels ISOVER TF, by Saint-Gobain Isover, see Annex 1 (6/6)	— — — — — —	50 to 260 40 to 160 50 to 160 50 to 240 50 to 200 60 to 200
	Supplementary adhesives		
	MAITÉ: white cement-based powder requiring addition of about 17% wt. water **COLLE CCP+**: grey cement-based powder requiring addition of 21 to 22% wt. water **UNITÉ:** cement-based powder requiring addition of 21 to 24% wt. water	2.6 to 3.5 [powder] 2.6 to 3.5 [powder] 2.6 to 3.5 [powder]	— — —
	Anchors for insulation product		
	Plastic anchors, see Annex 2	—	—
	Base coat		
	MAITÉ: powder requiring addition of about 17% wt. water, consisting of white cement, a vinylic micronised copolymer, mineral pigments, calcium carbonate and silica as particles and specific additives	About 6.0 [powder]	Mean: 4.0 [dry] Minimal: 3.0 [dry]
	Meshes		
	Glass fibre meshes (standard and reinforced), see Annex 3		

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

Method of fixing	Component	Coverage (kg/m²)	Thickness (mm)
Mechanically fixed ETICS with anchors and supplementary adhesive	**Key coats**		
	REVLANE+ RÉGULATEUR: ready-to-use pigmented liquid, acrylic binder, to apply mandatory before **GRANILANE+** and **PAREX DÉCO TRAVERTIN** finishing coats and to apply optionally before **REVLANE+ IGNIFUGÉ TALOCHÉ FIN/GROS, REVLANE+ IGNIFUGÉ RIBBÉ FIN and REVLANE+ SILOXANÉ IGNIFUGÉ TF/RB/TG** finishing coats.	0.15 to 0.20	—
	SILICANE FOND: uncoloured liquid, silicate binder: - requiring addition of 100% wt. **SILICANE PEINTURE**, before silicate finishing coats - ready-to-use, to apply optionally before **CALCIFIN** and **CALCILISSE**	0.10 to 0.15 [prepared] 0.08 to 0.12	— —
	Finishing coats		
	Ready-to-use pastes – acrylic binder: - **REVLANE+ IGNIFUGÉ TALOCHÉ FIN** (particles size 1.0 mm) - **REVLANE+ IGNIFUGÉ TALOCHÉ GROS** (particles size 1.6 mm) - **REVLANE+ IGNIFUGÉ RIBBÉ FIN** (particles size 1.6 mm)	2.2 to 2.5 2.7 to 3.0 2.5 to 2.7	Regulated by particle size
	For applications between 1 and 15°C, these pastes can be mixed with 4 to 8% wt. of **PARITÉ+ ACCÉLÉRATEUR** (powder made of hydraulic binder and mineral filler) to accelerate their drying		
	Ready-to-use pastes – acrylsiloxane binder: - **REVLANE+ SILOXANÉ IGNIFUGÉ TF** (particles size 1.0 mm) - **REVLANE+ SILOXANÉ IGNIFUGÉ TG** (particle size 1.6 mm) - **REVLANE+ SILOXANÉ IGNIFUGÉ RB** (particles size 1.6 mm)	2.2 to 2.5 2.5 to 2.7 2.5 to 2.7	Regulated by particle size
	For applications between 1 and 15°C, these pastes can be mixed with 4 to 8% wt. of **PARITÉ+ ACCÉLÉRATEUR** (powder made of hydraulic binder and mineral filler) to accelerate their drying		
	Ready-to-use paste – acrylic binder with coloured marble aggregates: **GRANILANE+** (particles size 1.8 mm)	4.5 to 5.0	Regulated by particle size
	Ready-to-use pastes – silicate binder: - **SILICANE TALOCHÉ FIN** (particles size 1.0 mm) - **SILICANE TALOCHÉ GROS** (particles size 1.6 mm)	1.5 to 2.0 2.5 to 2.7	Regulated by particle size
	Ready-to-use paste – acrylsiloxane binder: - **PAREX DÉCO TRAVERTIN** (particles size 0.8 mm)	1.7 to 2.2	About 1.5
	For applications between 1 and 15°C, this paste can be mixed with 4% wt. of **PARITÉ+ ACCÉLÉRATEUR** (powder made of hydraulic binder and mineral filler) to accelerate their drying.		

Method of fixing	Component	Coverage (kg/m²)	Thickness (mm)
Mechanically fixed ETICS with anchors and supplementary adhesive	Cement-based powder associated with a decorative paint: **MAITÉ** with **SILICANE PEINTURE**: - **MAITÉ**: same product as base coat - **SILICANE PEINTURE**: silicate-based pigmented liquid, requiring addition of about 20% wt. **SILICANE FOND**	About 2.0 [powder] About 0.4 [prepared]	About 1.5
	Cement-based powder associated with marble aggregates: **MAITÉ** with **MARBRI GRANULATS**: - **MAITÉ**: same product as base coat - **MARBRI GRANULATS**: coloured marble aggregates (particles size 3 to 6 mm)	3.4 to 4.3 [powder] at least 8.0	About 6.0
	Hydrated calcic lime-based powder requiring addition of 24 to 26% wt. water: - **CALCIFIN** (particles size 1.0 mm)	1.8 to 2.2 [powder]	Regulated by particle size
	Hydrated calcic lime-based powder requiring addition of 22 to 23% wt. water: - **CALCILISSE** (particles size 0.8 mm)	3.0 to 3.4 [powder]	2.5 to 3.0
	Cement-based powders requiring addition of 20 to 24% wt. water: - **EHI GM** (particle size 3.0 mm) - **EHI GF** (particle size 2.0 mm)	14.0 to 18.0 [powder]	8.0 to 10.0
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 3 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
• Supplementary adhesives: - **MAITÉ** - **COLLE CCP+** - **UNITÉ** • Insulation product: Mineral wool panels, reaction to fire Class A1, thickness ≤ 300 mm, density ≤ 155 kg/m^3 • Base coat: **MAITÉ** • Meshes: - R 131 A 101 C+ - R 131 A 102 C+ - SSA-1363 F+ • Key coats: - **REVLANE+ RÉGULATEUR** - **SILICANE FOND + SILICANE PEINTURE** - **SILICANE FOND** • Finishing coats: - **EHI GM** - **EHI GF** - **MAITÉ with MARBRI GRANULATS** - **SILICANE TALOCHÉ FIN/GROS** - **CALCIFIN** - **CALCILISSE** - **MAITÉ with SILICANE PEINTURE** - **PAREX DÉCO TRAVERTIN(2)** - **REVLANE+ SILOXANÉ IGNIFUGÉ TG(2)**	Base coat: 7.0% Finishing coats: 2.6 to 11.9% Except for MAITÉ (7.0%) with: - SILICANE PEINTURE (13.7%) - MARBRI GRANULATS (0.0%)	Base coat: 0.0% Finishing coats: 0.0 to 18.3%	A2-s1, d0

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

(2) With or without PARITÉ+ ACCÉLÉRATEUR

Configuration	Declared organic content (1)	Declared flame retardant content (1)	Class according to EN 13501-1
• Supplementary adhesives: - **MAITÉ** - **COLLE CCP+** - **UNITÉ** • Insulation product: Mineral wool panels, reaction to fire Class A1, thickness ≤ 300 mm, density ≤ 155 kg/m^3 • Base coat: **MAITÉ** • Key coat: **REVLANE+ RÉGULATEUR** • Meshes: - R 131 A 101 C+ - R 131 A 102 C+ - SSA-1363 F+ • Finishing coats: - **REVLANE+ IGNIFUGÉ TALOCHÉ FIN/GROS(2)** - **REVLANE+ IGNIFUGÉ RIBBÉ FIN(2)** - **REVLANE+ SILOXANÉ IGNIFUGÉ TF/RB(2)**	Base coat: 7.0% Finishing coats: 9.9 to 11.4%	Base coat: 0.0% Finishing coats: 17.5%	A2-s2, d0
• Supplementary adhesives: - **MAITÉ** - **COLLE CCP+** - **UNITÉ** • Insulation product: Mineral wool panels, reaction to fire Class A1, thickness ≤ 300 mm, density ≤ 155 kg/m^3 • Base coat: **MAITÉ** • Meshes: - R 131 A 101 C+ - R 131 A 102 C+ - SSA-1363 F+ • Key coat: **REVLANE+ RÉGULATEUR** • Finishing coat: **GRANILANE+**	Base coat: 7.0% Finishing coat: 8.0%	Base coat: 0.0% Finishing coat: 0.0%	B-s1, d0

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

(2) With or without PARITÉ+ ACCÉLÉRATEUR

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/m^2	**≥ 0.5 kg/m^2**
With or without REVLANE+ RÉGULATEUR: - REVLANE+ IGNIFUGÉ TALOCHÉ FIN/GROS(1) - REVLANE+ IGNIFUGÉ RIBBÉ FIN (1)	X	
With REVLANE+ RÉGULATEUR: GRANILANE+		
With or without REVLANE+ RÉGULATEUR: REVLANE+ SILOXANÉ IGNIFUGÉ TF/TG/RB(1)		
With SILICANE FOND + SILICANE PEINTURE: - SILICANE TALOCHÉ FIN - SILICANE TALOCHÉ GROS		
With REVLANE+ RÉGULATEUR: PAREX DÉCO TRAVERTIN(1)		
MAITÉ with MARBRI GRANULATS		
- EHI GM - EHI GF		
With or without SILICANE FOND: CALCIFIN		
With or without SILICANE FOND: CALCILISSE		
MAITÉ with SILICANE FOND with SILICANE PEINTURE		

(1) With or without PARITÉ+ ACCÉLÉRATEUR.

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

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

3.3.3 Impact resistance

Rendering system: **Base coat + finishing coat indicated below**	**Use category**		
	single standard mesh	**double standard mesh**	**reinforced mesh + standard mesh**
With or without REVLANE+ RÉGULATEUR: - REVLANE+ IGNIFUGÉ TALOCHÉ FIN(1) - REVLANE+ IGNIFUGÉ TALOCHÉ GROS(1) - REVLANE+ IGNIFUGÉ RIBBÉ FIN(1)	Category I		
With REVLANE+ RÉGULATEUR: GRANILANE+	Category II	Category I	
With or without REVLANE+ RÉGULATEUR: - REVLANE+ SILOXANÉ IGNIFUGÉ TF(1) - REVLANE+ SILOXANÉ IGNIFUGÉ TG(1) - REVLANE+ SILOXANÉ IGNIFUGÉ RB(1)	Category I		
With SILICANE FOND + SILICANE PEINTURE: - SILICANE TALOCHÉ FIN - SILICANE TALOCHÉ GROS	Category II	Category I	
With REVLANE+ RÉGULATEUR: PAREX DÉCO TRAVERTIN(1)	Category I		
MAITÉ with SILICANE FOND with SILICANE PEINTURE	Category II		
MAITÉ with MARBRI GRANULATS	Category I		
With or without SILICANE FOND: CALCIFIN	Category II	Category I	
With or without SILICANE FOND: CALCILISSE	Category II	Category I	
- EHI GM - EHI GF	Category I		

(1) With or without PARITÉ+ ACCÉLÉRATEUR.

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)
With or without REVLANE+ RÉGULATEUR: - REVLANE+ IGNIFUGÉ TALOCHÉ FIN(1) - REVLANE+ IGNIFUGÉ TALOCHÉ GROS(1) - REVLANE+ IGNIFUGÉ RIBBÉ FIN(1)	≤ 1.0 (Test result obtained with REVLANE+ IGNIFUGÉ TALOCHÉ GROS: 0.8)
With REVLANE+ RÉGULATEUR: GRANILANE+	≤ 1.0 (Test result obtained: 0.6)
With or without REVLANE+ RÉGULATEUR: - REVLANE+ SILOXANÉ IGNIFUGÉ TF(1) - REVLANE+ SILOXANÉ IGNIFUGÉ TG(1 - REVLANE+ SILOXANÉ IGNIFUGÉ RB(1)	≤ 1.0 (Test result obtained with REVLANE+ SILOXANÉ IGNIFUGÉ TF: 0.8)
With SILICANE FOND + SILICANE PEINTURE: - SILICANE TALOCHÉ FIN - SILICANE TALOCHÉ GROS	≤ 1.0 (Test result obtained with SILICANE TALOCHÉ GROS: 0.2)
With REVLANE+ RÉGULATEUR: PAREX DÉCO TRAVERTIN(1)	≤ 1.0 (Test result obtained: 0.5)
MAITÉ with SILICANE FOND with SILICANE PEINTURE	≤ 1.0 (Test result obtained: 0.3)
MAITÉ with MARBRI GRANULATS	≤ 1.0 (Test result obtained with MAITÉ Sprayed (not included in this ETA): 0.2)
CALCIFIN	≤ 1.0 (Test result obtained: 0.1)
With SILICANE FOND: CALCIFIN	≤ 1.0 (Test result obtained: 0.1)
CALCILISSE	≤ 1.0 (Test result obtained: 0.1)
With SILICANE FOND: CALCILISSE	≤ 1.0 (Test result obtained: 0.2)
- EHI GM - EHI GF	≤ 1.0 (Test result obtained with EHI GM: 0.2)

(1) With or without PARITÉ+ ACCÉLÉRATEUR.

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 of the base coat onto insulation products

Conditionings		
Initial state	**After ageing**	**After the freeze/thaw cycles (on samples)**
< 0.08 MPa but cohesive failure into insulation product	< 0.08 MPa but cohesive failure into insulation product	Test not required because freeze/thaw cycles not necessary

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 of mechanically-fixed ETICS using anchors

Anchors	**Plate diameter (mm)**	≥ 60	
	Plate stiffness (kN/mm)	≥ 0.4	
Insulation product	**Type**	**ECOROCK** (Rockwool)	
	Tensile strength perpendicular to the face (kPa)	≥ 7.5	
		Dual density product	
	Thickness (mm)	≥ 50	≥ 120
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (dry conditions):** R_{panel} **(N)**	Minimal: 382	Minimal: 479
		Average: 392	Average: 530

Anchors	**Plate diameter (mm)**	≥ 90	
	Plate stiffness (kN/mm)	≥ 0.4	
Insulation product	**Type**	**ECOROCK** (Rockwool)	
	Tensile strength perpendicular to the face (kPa)	≥ 7.5	
		Dual density product	
	Thickness (mm)	≥ 50	≥ 100
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (dry conditions):** R_{panel} **(N)**	Minimal: 427	Minimal: 712
		Average: 450	Average: 788
	Anchors placed at the panel joints (dry conditions): R_{joint} **(N)**	Minimal: 333	Minimal: 616
		Average: 368	Average: 646

Anchor	**Trade name**	Ejotherm STR U, STR U 2G + Ejotherm VT 2G	
	Dimensions	Diameter: STR U, STR U 2G: 60 mm Ejotherm VT 2G: 110 mm	
Insulation product	**Type**	**ECOROCK** (Rockwool)	
	Tensile strength perpendicular to the face (kPa)	≥ 7.5 (Dual density product)	
	Thickness (mm)	≥ 80	≥ 120
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (dry conditions):** R_{panel} **(N)**	Minimal: 506	Minimal: 736
		Average: 535	Average: 804
	Anchors placed at the panel joints (dry conditions): R_{joint} **(N)**	Minimal: 386	Minimal: 534
		Average: 413	Average: 650

Anchors Ejotherm STR U or Ejotherm STR U 2G, associated with Ejotherm VT 2G can only be used as mounted countersunk.

Anchors	**Plate diameter (mm)**	≥ 60	
	Plate stiffness (kN/mm)	≥ 0.4	
Insulation product	**Type**	**431 IESE** (Rockwool)	
	Tensile strength perpendicular to the face (kPa)	≥ 10	
		Mono-density product	
	Thickness (mm)	≥ 40	≥ 100
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (dry conditions):** R_{panel} **(N)**	Minimal: 441	Minimal: 758
		Average: 555	Average: 893
	Anchors placed at the panel joints (dry conditions): R_{joint} **(N)**	Minimal: 278	Minimal: 464
		Average: 352	Average: 559
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (wet conditions*):** R_{panel} **(N)**	Minimal: 204	Minimal: 433
		Average: 251	Average: 518
	Anchors placed at the panel joints (wet conditions*): R_{joint} **(N)**	Minimal: 144	Minimal: 302
		Average: 177	Average: 364

* 28 days at (70 ± 2)°C / (95 ± 5)% RH + drying period at (23 ± 2)°C / (50 ± 5)% HR until constant weight.

Anchors	**Plate diameter (mm)**	≥ 60	
	Plate stiffness (kN/mm)	≥ 0.4	
Insulation product	**Type**	**ECOROCK MONO** (Rockwool)	
	Tensile strength perpendicular to the face (kPa)	≥ 10	
		Mono-density product	
	Thickness (mm)	≥ 50	≥ 120
Maximum load ***(Pull-through test)***	**Anchors placed at the panel joints (dry conditions): R_{joint} (N)**	Minimal: 362	Minimal: 500
		Average: 404	Average: 679
	Anchors not placed at the panel joints (dry conditions): R_{panel} (N)	Minimal: 444	Minimal: 1023
		Average: 475	Average: 1044

Anchors	**Plate diameter (mm)**	≥ 60		
	Plate stiffness (kN/mm)	≥ 0.4		
Insulation product	**Type**	**ECOROCK DUO** (Rockwool)		
	Tensile strength perpendicular to the face (kPa)	≥ 7.5		
		Dual density product		
	Thickness (mm)	≥ 50	≥ 80	≥ 100
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (dry conditions): R_{panel} (N)**	Minimal: 339	Minimal: 348	Minimal: 454
		Average: 365	Average: 410	Average: 503
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (wet conditions*): R_{panel} (N)**	Minimal: 198	-	Minimal: 368
		Average: 229	-	Average: 406

* 28 days at (70 ± 2)°C / (95 ± 5)% RH + drying period at (23 ± 2)°C / (50 ± 5)% HR until constant weight.

Anchors	**Plate diameter (mm)**	≥ 90
	Plate stiffness (kN/mm)	≥ 0.4
Insulation product	**Type**	**ECOROCK DUO** (Rockwool)
	Tensile strength perpendicular to the face (kPa)	≥ 7.5
		Dual density product
	Thickness (mm)	≥ 120
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (dry conditions): R_{panel} (N)**	Minimal: 511
		Average: 611

Anchors	**Trade name**	Ejotherm STR U, STR U 2G + Ejotherm VT 2G
	Dimensions	Diameter: STR U, STR U 2G: 60 mm Ejotherm VT 2G: 110 mm
Insulation product	**Type**	**ECOROCK DUO** (Rockwool)
	Tensile strength perpendicular to the face (kPa)	≥ 7.5
		Dual density product
	Thickness (mm)	≥ 120
Maximum load ***(Pull-through test)***	**Anchors not placed at the panel joints (dry conditions): R_{panel} (N)**	Minimal: 699
		Average: 838

Anchors	**Plate diameter (mm)**	≥ 60	
	Plate stiffness (kN/mm)	≥ 0.4	
Insulation product	**Type**	**ISOVER TF 36** (Saint-Gobain ISOVER)	
	Tensile strength perpendicular to the face (kPa)	≥ 10	
		Mono-density product	
	Thickness (mm)	≥ 50	≥ 120
Maximum load *(Pull-through test)*	**Anchors not placed at the panel joints (dry conditions): R_{panel} (N)**	Minimal: 292	Minimal: 414
		Average: 342	Average: 432
	Anchors placed at the panel joints (dry conditions): R_{joint} (N)	Minimal: 238	Minimal: 332
		Average: 281	Average: 398
Maximum load *(Pull-through test)*	**Anchors not placed at the panel joints (wet conditions*): R_{panel} (N)**	Minimal: 243	Minimal: 355
		Average: 286	Average: 375
	Anchors placed at the panel joints (wet conditions*): R_{joint} (N)	Minimal: 177	Minimal: 263
		Average: 215	Average: 301

* 28 days at (70 ± 2)°C / (95 ± 5)% RH + drying period at (23 ± 2)°C / (50 ± 5)% HR until constant weight.

Anchors	**Plate diameter (mm)**	≥ 60	
	Plate stiffness (kN/mm)	≥ 0.4	
Insulation product	**Type**	**ISOVER TF** (Saint-Gobain ISOVER)	
	Tensile strength perpendicular to the face (kPa)	≥ 15	
		Mono-density product	
	Thickness (mm)	≥ 60	≥ 100
Maximum load *(Pull-through test)*	**Anchors not placed at the panel joints (dry conditions): R_{panel} (N)**	Minimal: 481	Minimal: 716
		Average: 524	Average: 793
	Anchors placed at the panel joints (dry conditions): R_{joint} (N)	Minimal: 447	Minimal: 654
		Average: 471	Average: 680
Maximum load *(Pull-through test)*	**Anchors not placed at the panel joints (wet conditions*): R_{panel} (N)**	Minimal: 335	Minimal: 472
		Average: 376	Average: 512
	Anchors placed at the panel joints (wet conditions*): R_{joint} (N)	Minimal: 301	Minimal: 368
		Average: 320	Average: 412

* 28 days at (70 ± 2)°C / (95 ± 5)% RH + drying period at (23 ± 2)°C / (50 ± 5)% HR until constant weight.

Anchors which can be used are described in Annex 2.

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

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

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)**
With or without REVLANE+ RÉGULATEUR: - REVLANE+ IGNIFUGÉ TALOCHÉ FIN(1) - REVLANE+ IGNIFUGÉ TALOCHÉ GROS(1) - REVLANE+ IGNIFUGÉ RIBBÉ FIN(1)	≥ 0.08 (tests on EPS or on concrete)
With REVLANE+ RÉGULATEUR: GRANILANE+	< 0.08 but cohesive failure into the insulation product (tests on MW)
With or without REVLANE+ RÉGULATEUR: - REVLANE+ SILOXANÉ IGNIFUGÉ TF(1) - REVLANE+ SILOXANÉ IGNIFUGÉ TG(1) - REVLANE+ SILOXANÉ IGNIFUGÉ RB(1)	≥ 0.08 (tests on EPS)
With SILICANE FOND + SILICANE PEINTURE: - SILICANE TALOCHÉ FIN - SILICANE TALOCHÉ GROS	≥ 0.08 (tests on EPS)

(1) With or without PARITÉ+ ACCÉLÉRATEUR.

Rendering system: Base coat + finishing coat indicated below	Bond strength (MPa)
With REVLANE+ RÉGULATEUR: PAREX DÉCO TRAVERTIN(1)	≥ 0.08 (tests on EPS)
MAITÉ with SILICANE FOND with SILICANE PEINTURE	< 0.08 but cohesive failure into the insulation product (tests on MW)
MAITÉ with MARBRI GRANULATS	
With or whitout SILICANE FOND: CALCIFIN	≥ 0.08 (tests on EPS)
With or whitout SILICANE FOND: CALCILISSE	
- EHI GM - EHI GF	

(1) With or without PARITÉ+ ACCÉLÉRATEUR.

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.

[2] Decisions are published in the *Official Journal of the European Union (OJEU)*, 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 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.

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by

Charles BALOCHE, Technical Manager of the CSTB

Factory-prefabricated, uncoated boards made of mineral wool **ECOROCK** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m^2) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13163		Defined in the CE marking
Dimensional tolerances	**Thickness / EN 823**	T5 [-1% or -1 mm / +3 mm]
Dimensional stability	**Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH**	DS(70,90) [≤ 1%]
Water absorption (partial immersion) / EN 1609 – method A		WS [≤ 1.0 kg/m²]
Longterm water absorption (partial immersion) / EN 12087		WL(P) [≤ 3.0 kg/m²]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 7.5 [≥ 7.5 kPa]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		No performance determined
Compressive strength / EN 826		CS(10/Y)20 [≥20 kPa]

ETICS PARISO LR - M / PAREXTHERM MW	**ANNEX 1 (1/6)**
Insulation product for mechanically-fixed ETICS with anchors	of ETA-11/0110 - version 2

Factory-prefabricated, uncoated boards made of mineral wool **431 IESE** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m²) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13163		Defined in the CE marking
Dimensional tolerances	**Thickness / EN 823**	T5 [-1% or -1 mm / +3 mm]
Dimensional stability	**Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH**	DS(70,90) [≤ 1%]
Water absorption (partial immersion) / EN 1609 – method A		WS [≤ 1.0 kg/m²]
Longterm water absorption (partial immersion) / EN 12087		WL(P) [≤ 3.0 kg/m²]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 10 [≥ 10 kPa]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		A Fr40 [40 kPa.s/m²]
Compressive strength / EN 826		CS(10/Y)30 [≥30 kPa]

ETICS PARISO LR - M / PAREXTHERM MW	**ANNEX 1 (2/6)**
Insulation product for mechanically-fixed ETICS with anchors	of ETA-11/0110 - version 2

Factory-prefabricated, uncoated boards made of mineral wool **ECOROCK MONO** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m²) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13163		Defined in the CE marking
Dimensional tolerances	**Thickness / EN 823**	T5 [-1 % or -1 mm / +3 mm]
Dimensional stability	**Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH**	DS(70,90) [≤ 1%]
Water absorption (partial immersion) / EN 1609 – method A		WS [≤ 1.0 kg/m²]
Longterm water absorption (partial immersion) / EN 1609		WL(P) [≤ 3.0 kg/m²]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 10 [≥ 10 kPa]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		No performance determined
Compressive strength / EN 826		CS(10)30

ETICS PARISO LR - M / PAREXTHERM MW	**ANNEX 1 (3/6)** of ETA-11/0110 - version 2
Insulation product for mechanically-fixed ETICS with anchors	

Factory-prefabricated, uncoated boards made of mineral wool **ECOROCK DUO** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m²) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13163		Defined in the CE marking
Dimensional tolerances	**Thickness / EN 823**	T5 [-1 % ou -1 mm / +3 mm]
Dimensional stability	**Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH**	DS(70,90) [≤ 1%]
Water absorption (partial immersion) / EN 1609 – method A		WS [≤ 1.0 kg/m²]
Longterm water absorption (partial immersion) / EN 1609		WL(P) [≤ 3.0 kg/m²]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 7.5 [≥ 7.5 kPa]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		No performance determined
Compressive strength / EN 826		CS(10)15

ETICS PARISO LR - M / PAREXTHERM MW	**ANNEX 1 (4 /6)** of ETA-11/0110 - version 2
Insulation product for mechanically-fixed ETICS with anchors	

Factory-prefabricated, uncoated boards made of mineral wool **ISOVER TF 36** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m^2) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13163		Defined in the CE marking
Dimensional tolerances	**Thickness / EN 823**	T5 [-1% or -1 mm / +3 mm]
Dimensional stability	**Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH**	DS(70,90) [≤ 1%]
Water absorption (partial immersion) / EN 1609 – method A		WS [≤ 1.0 kg/m²]
Longterm water absorption (partial immersion) / EN 1609		WL(P) [≤ 3.0 kg/m²]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 10 [≥ 10 kPa]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		AFr 43 [43 kPa.s/m²]
Compressive strength / EN 826		CS(10/Y)30 [≥ 30 kPa]

ETICS PARISO LR - M / PAREXTHERM MW	**ANNEX 1 (5/6)**
Insulation product for mechanically-fixed ETICS with anchors	of ETA-11/0110 - version 2

Factory-prefabricated, uncoated boards made of mineral wool **ISOVER TF** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m^2) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13163		Defined in the CE marking
Dimensional tolerances	**Thickness / EN 823**	T5 [-1% or -1 mm / +3 mm]
Dimensional stability	**Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH**	DS(70,90) [≤ 1%]
Water absorption (partial immersion) / EN 1609 – method A		WS [≤ 1.0 kg/m²]
Longterm water absorption (partial immersion) / EN 12087		WL(P) [≤ 3.0 kg/m²]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 15 [≥ 15 kPa]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		No performance determined
Compressive strength / EN 826		CS(10/Y)40 [≥40 kPa]

ETICS PARISO LR - M / PAREXTHERM MW	**ANNEX 1 (6/6)** of ETA-11/0110 - version 2
Insulation product for mechanically-fixed ETICS with anchors	

Anchors with ETA according to European Technical Approval Guideline No 014 (hereinafter ETAG 014) or to EAD 330196-ED-0604. 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)
Koelner KI-10, KI-10M, KI-10PA	ETA-07/0291	a	≥ 0.4
Koelner KI-10N, KI-10NS	ETA-07/0221	a	
Ejotherm NTK U	ETA-07/0026	a	
Koelner TFIX-8M	ETA-07/0336	a	
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.

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

ETICS PARISO LR - M / PAREXTHERM MW	ANNEX 2 of ETA-11/0110 - version 2
Anchors for insulation product	

Glass fibre meshes:

- standard mesh: with mesh size between 3 and 6 mm;
- reinforced mesh: implemented in addition to the standard mesh, to improve the impact resistance.

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)	166	≥ 20	≥ 20	≥ 50	≥ 50
R 131 A 102 C+ (IAVU)	161	≥ 20	≥ 20	≥ 50	≥ 50
Reinforced meshes					
G-WEAVE 660L 55 AB X 100CM (IAVR)	710	≥ 20	≥ 20	≥ 40	≥ 40
R 585 A 101 (IAVR)	696	≥ 20	≥ 20	≥ 40	≥ 40

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

ETICS PARISO LR - M / PAREXTHERM MW	**ANNEX 3** of ETA-11/0110 - version 2
Glass fibre meshes	