

## European Technical Assessment

**ETA-19/0279-version 1  
of 12/12/2019**

### GENERAL PART

**Technical Assessment Body issuing the  
European Technical Assessment:**

Centre Scientifique et Technique du Bâtiment  
(CSTB)

**Trade name of the construction product:**

**K-Therm CL PSE**

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

Product Area Code: 04  
External Thermal Insulation Composite System  
with rendering (ETICS)

**Manufacturer:**

**S.C.S.O - UNIKALO**  
18, rue du Meilleur Ouvrier de France  
FR – 33700 MERIGNAC

**Manufacturing plant(s):**

**LICATA SPA**  
Via delle gere  
IT – 24040 Pognano

**This European Technical Assessment  
contains:**

16 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)

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## SPECIFIC PART

### 1. Technical description of the product

The External Thermal Insulation Composite System “**K-Therm CL PSE**”, 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<sup>1</sup>. 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/m <sup>2</sup> )	Thickness (mm)
<b>Bonded ETICS</b> (purely bonded or bonded with supplementary anchors)	<b>Insulation product</b>		
	Standard expanded polystyrene (EPS) boards, see Annex 1		20 to 300
	<b>Adhesives</b>		
	<b>K-Therm Colle MCR (grey version):</b> grey powder requiring addition of about 21% wt. water, consisting of cement binder, sand and specific additives.	2.5 to 3.5 [powder]	—
	<b>K-Therm Colle MCR (white version):</b> white powder requiring addition of about 24% wt. water, consisting of cement binder, sand and specific additives.	2.5 to 3.5 [powder]	—
	<b>K-Therm Colle Ciment:</b> ready-to-use paste requiring addition of an equivalent volume of cement (1 volume for 1 volume cement), formulated with an acrylic copolymer in aqueous dispersion binder.	2.5 to 3.5 [prepared product]	—
	<b>K-Therm Colle PPE:</b> ready-to-use paste, formulated with a synthetic copolymer in aqueous dispersion binder.	2.5 to 3.5	—
	<b>K-Therm Colle MCR Light:</b> white powder requiring addition of about 28% wt. water, consisting of cement binder, sand, polystyrene beads and specific additives.	2.4 to 3.5 [powder]	—
	<b>Supplementary anchors for insulation product</b>		
	Plastic anchors, see Annex 2	—	—

<sup>1</sup> ETAG 004 is available on the EOTA website: [www.eota.eu](http://www.eota.eu).

Method of fixing	Component	Coverage (kg/m <sup>2</sup> )	Thickness (mm)
Mechanically fixed ETICS with anchors and supplementary adhesive	<b>Insulation product</b>		
	Standard expanded polystyrene (EPS) boards, see Annex 1		60 to 300
	<b>Supplementary adhesives</b>		
	<b>K-Therm Colle MCR (grey version):</b> grey powder requiring addition of about 21% wt. water, consisting of cement binder, sand and specific additives.	2.5 to 3.5 [powder]	—
	<b>K-Therm Colle MCR (white version):</b> white powder requiring addition of about 24% wt. water, consisting of cement binder, sand and specific additives.	2.5 to 3.5 [powder]	—
	<b>K-Therm Colle Ciment:</b> ready-to-use paste requiring addition of an equivalent volume of cement (1 volume for 1 volume cement), formulated with an acrylic copolymer in aqueous dispersion binder.	2.5 to 3.5 [prepared product]	—
	<b>K-Therm Colle PPE:</b> ready-to-use paste, formulated with a synthetic copolymer in aqueous dispersion binder.	2.5 to 3.5	—
	<b>K-Therm Colle MCR Light:</b> white powder requiring addition of about 28% wt. water, consisting of cement binder, sand, polystyrene beads and specific additives.	2.4 to 3.5 [powder]	—
	<b>Anchors or fastener for insulation product</b>		
	Plastic anchors or fastener, see Annex 2	—	—
Every method of fixing	<b>Base coats</b>		
	<b>K-Therm Colle MCR (grey version):</b> grey powder requiring addition of about 21% wt. water, consisting of cement binder, sand and specific additives.	About 4.5 [powder]	Mean (dry): 3.5 Minimal (dry): 3.0
	<b>K-Therm Colle MCR (white version):</b> white powder requiring addition of about 24% wt. water, consisting of cement binder, sand and specific additives.	About 4.5 [powder]	Mean (dry): 3.5 Minimal (dry): 3.0
	<b>Meshes</b>		
	Glass fibre meshes (standard and reinforced), see Annex 3		
	<b>Key coats</b>		
	<b>K-Therm Fix O:</b> pigmented liquid (to be diluted with 10% wt. water maximum) formulated with an acrylic copolymer in aqueous dispersion, to be applied optionally before the finishing coats <b>K-Therm RPE Acryl Taloché</b> , <b>K-Therm RPE Acryl Ribbé</b> and <b>K-Therm RPE Siloxane Taloché</b> and to be applied mandatory before the finishing coats <b>K-Therm RME Silikat Taloché</b> , <b>K-Therm RME Silikat Ribbé</b> and <b>K-Therm RME Silikat'Oxane Taloché</b> (if the key coat <b>K-Therm Fix Silikat</b> is not applied).	0.2 [prepared product]	—
	<b>K-Therm Fix Silikat:</b> pigmented liquid (to be diluted with 10% wt. water maximum) formulated with potassium silicate binder, to be applied mandatory before the finishing coats <b>K-Therm RME Silikat Taloché</b> , <b>K-Therm RME Silikat Ribbé</b> and <b>K-Therm RME Silikat'Oxane Taloché</b> (if the key coat <b>K-Therm FIX O</b> is not applied).	0.2 [prepared product]	—

Method of fixing	Component	Coverage (kg/m²)	Thickness (mm)	
Every method of fixing	Finishing coats			
	Ready-to-use pastes - acrylic binder: <ul style="list-style-type: none"><li>• <b>K-Therm RPE Acryl Taloché</b><ul style="list-style-type: none"><li>- particles size: 1.2 mm</li><li>- particles size: 1.5 mm</li><li>- particles size: 2.0 mm</li></ul></li><li>• <b>K-Therm RPE Acryl Ribbé</b><ul style="list-style-type: none"><li>- particles size: 1.2 mm</li><li>- particles size: 1.5 mm</li><li>- particles size: 2.0 mm</li></ul></li></ul>	2.0 to 2.2 2.6 to 2.8 2.8 to 3.2 2.0 to 2.2 2.6 to 2.8 2.8 to 3.2	Regulated by particles size	
	Ready-to-use pastes – acrylic binder with siloxane additives: <ul style="list-style-type: none"><li>• <b>K-Therm RPE Siloxane Taloché</b><ul style="list-style-type: none"><li>- particles size: 1.2 mm</li><li>- particles size: 1.5 mm</li><li>- particles size: 2.0 mm</li></ul></li></ul>	2.0 to 2.2 2.6 to 2.8 2.8 to 3.2		
	Ready-to-use pastes – silicate binder: <ul style="list-style-type: none"><li>• <b>K-Therm RME Silikat Taloché</b><ul style="list-style-type: none"><li>- particles size: 1.2 mm</li><li>- particles size: 1.5 mm</li><li>- particles size: 2.0 mm</li></ul></li><li>• <b>K-Therm RME Silikat Ribbé</b><ul style="list-style-type: none"><li>- particles size: 1.2 mm</li><li>- particles size: 1.5 mm</li><li>- particles size: 2.0 mm</li></ul></li></ul>	2.2 to 2.4 2.6 to 2.8 2.8 to 3.2 2.2 to 2.4 2.6 to 2.8 2.8 to 3.2		
	Ready-to-use pastes – silicate binder with siloxane additives: <ul style="list-style-type: none"><li>• <b>K-Therm RME Silikat'Oxane Taloché</b><ul style="list-style-type: none"><li>- particles size: 1.2 mm</li><li>- particles size: 1.5 mm</li><li>- particles size: 2.0 mm</li></ul></li></ul>	2.2 to 2.4 2.6 to 2.8 2.8 to 3.2		
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<sup>2</sup>.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 <sup>(1)</sup>	Declared flame retardant content <sup>(1)</sup>	Class according to EN 13501-1
<ul style="list-style-type: none"> <li>Adhesives/supplementary adhesives: <ul style="list-style-type: none"> <li>- <b>K-Therm Colle MCR</b> (grey and white)</li> <li>- <b>K-Therm Colle Ciment</b></li> <li>- <b>K-Therm Colle PPE</b></li> <li>- <b>K-Therm Colle MCR Light</b></li> </ul> </li> <li>Insulation product: White or grey EPS boards, reaction to fire Class E, thickness ≤ 300 mm, density ≤ 19.5 kg/m<sup>3</sup></li> <li>Base coats: <b>K-Therm Colle MCR</b> (grey and white)</li> <li>Meshes: <ul style="list-style-type: none"> <li>- R 131 A 101 C+</li> <li>- R 131 A 102 C+</li> <li>- 0161-CA</li> <li>- SSA-1363 F+</li> <li>- 03-1 C+</li> <li>- ES-049/F</li> </ul> </li> <li>Key coats: <ul style="list-style-type: none"> <li>- <b>K-Therm Fix O</b></li> <li>- <b>K-Therm Fix Silikat</b></li> </ul> </li> <li>Finishing coats: <ul style="list-style-type: none"> <li>- <b>K-Therm RPE Acryl Taloché / Acryl Ribbé</b></li> <li>- <b>K-Therm RPE Siloxane Taloché</b></li> <li>- <b>K-Therm RME Silikat Taloché / Silikat Ribbé</b></li> <li>- <b>K-Therm RME Silikat'Oxane Taloché</b></li> </ul> </li> </ul>	<p>Base coats: 1.9%</p> <p>Key coat: 3.46 to 7.46%</p> <p>Finishing coats: 3.75 to 8.43%</p>	<p>Base coats: 0.0%</p> <p>Key coat: 0.0%</p> <p>Finishing coats: 0.0%</p>	B-s1,d0
Any other configuration	/	/	No Performance Determined

<sup>(1)</sup> 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 coats

- After 1 hour: water absorption < 1 kg/m<sup>2</sup>
- After 24 hours: water absorption ≥ 0.5 kg/m<sup>2</sup>

##### 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 <sup>2</sup>	≥ 0.5 kg/m <sup>2</sup>
With or without K-Therm Fix O: - K-Therm RPE Acryl Taloché - K-Therm RPE Acryl Ribbé	X	
With or without K-Therm Fix O: - K-Therm RPE Siloxane Taloché	X	
With K-Therm Fix O or with K-Therm Fix Silikat: - K-Therm RME Silikat Taloché - K-Therm RME Silikat Ribbé	X	
With K-Therm Fix O or with K-Therm Fix Silikat: - K-Therm RME Silikat'Oxane Taloché	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 absorption of the base coat is more than 0.5 kg/m<sup>2</sup> after 24 hours.

Water absorptions of rendering system with the finishing coats are less than 0.5 kg/m<sup>2</sup> after 24 hours.

The ETICS is therefore not assessed as resistant to freeze-thaw.

### 3.3.3 Impact resistance

Rendering system: Base coat + finishing coat indicated below	Use category		
	Single standard mesh	Double standard meshes	Reinforced mesh + standard mesh
With or without K-Therm Fix O: - K-Therm RPE Acryl Taloché - K-Therm RPE Acryl Ribbé	Category III		
With or without K-Therm Fix O: - K-Therm RPE Siloxane Taloché			
With K-Therm Fix O or with K-Therm Fix Silikat: - K-Therm RME Silikat Taloché - K-Therm RME Silikat Ribbé			
With K-Therm Fix O or with K-Therm Fix Silikat: - K-Therm RME Silikat'Oxane Taloché			

### 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 K-Therm Fix O: - K-Therm RPE Acryl Taloché - K-Therm RPE Acryl Ribbé	$\leq 1.0$ (Test result obtained with K-Therm RPE Acryl Taloché 2.0 mm: 0.5)
With or without K-Therm Fix O: - K-Therm RPE Siloxane Taloché	$\leq 1.0$ (Test result obtained with K-Therm RPE Siloxane Taloché 2.0 mm: 0.6)
With K-Therm Fix O or with K-Therm Fix Silikat: - K-Therm RME Silikat Taloché - K-Therm RME Silikat Ribbé	$\leq 1.0$ (Test result obtained with K-Therm Fix O + K-Therm RME Silikat Taloché 2.0 mm: 0.3)
With K-Therm Fix O or with K-Therm Fix Silikat: - K-Therm RME Silikat'Oxane Taloché	$\leq 1.0$ (Test result obtained with K-Therm Fix O + K-Therm RME Silikat'Oxane Taloché 2.0 mm: 0.3)

### 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  $\geq 0.08$  MPa
- After ageing: bond strength  $\geq 0.08$  MPa
- After freeze-thaw cycles: test not performed (see § 3.3.2.2 of this ETA)

##### 3.4.1.2 Bond strength of adhesives onto substrate and insulation product

- **K-Therm Colle MCR, K-Therm Colle Ciment and K-Therm Colle MCR Light**

	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	$\geq 0.25$	$\geq 0.08$	$\geq 0.25$
Insulation product	$\geq 0.08$	$\geq 0.03$	$\geq 0.08$

- **K-Therm Colle PPE**

	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	$\geq 0.25$	$\geq 0.08$	$\geq 0.25$
Brick	$\geq 0.25$	$\geq 0.08$	$\geq 0.25$
Insulation product	$\geq 0.08$	$\geq 0.03$	$\geq 0.08$

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		
	$\geq 100$ kPa	$\geq 120$ kPa	$\geq 150$ kPa
<b>K-Therm Colle MCR</b>	30%	25%	25%
<b>K-Therm Colle Ciment</b>	30%	25%	20%
<b>K-Therm Colle PPE</b>	30%	25%	20%
<b>K-Therm Colle MCR Light</b>	45%	45%	45%

### 3.4.2 Fixing strength (transverse displacement)

Test not required because the ETICS fulfils the following criteria:

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

$E$  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

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

<b>Anchors</b>	<b>Plate diameter (mm)</b>	$\geq 60$		
	<b>Plate stiffness (kN/mm)</b>	$\geq 0.6$		
<b>Insulation product</b>	<b>Type</b>	EPS boards		
	<b>Tensile strength perpendicular to the face (kPa)</b>	$\geq 120$		
	<b>Thickness (mm)</b>	$\geq 60$	$\geq 80$	$\geq 100$
<b>Maximum load (Pull-through test)</b>	<b>Anchors not placed at the panel joints: <math>R_{\text{panel}}</math> (N)</b>	Minimal: 509	Minimal: 707	Minimal: 949
		Average: 520	Average: 720	Average: 968
	<b>Anchors placed at the panel joints: <math>R_{\text{joint}}</math> (N)</b>	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.

<b>Anchor</b>	<b>Trade name</b>	termoz SV II ecotwist
	<b>Helix dimensions (mm)</b>	Diameter: 66
		Height: 27
<b>Insulation product</b>	<b>Type</b>	EPS boards
	<b>Tensile strength perpendicular to the face (kPa)</b>	≥ 100
	<b>Thickness (mm)</b>	≥ 100
<b>Maximum load (Pull-through test)</b>	<b>Anchors not placed at the panel joints: <math>R_{\text{panel}}</math> (N)</b>	Minimal: 510
		Average: 520
	<b>Anchors placed at the panel joints: <math>R_{\text{joint}}</math> (N)</b>	Minimal: 390
		Average: 430

Anchor termoz SV II ecotwist can only be used as mounted countersunk.

<b>Anchor</b>	<b>Trade name</b>	Hilti ETICS HTH
	<b>Helix dimensions (mm)</b>	Diameter: 75
<b>Insulation product</b>	<b>Type</b>	EPS boards
	<b>Tensile strength perpendicular to the face (kPa)</b>	≥ 100
	<b>Thickness (mm)</b>	≥ 100
<b>Maximum load (Pull-through test)</b>	<b>Anchors not placed at the panel joints: <math>R_{\text{panel}}</math> (N)</b>	Minimal: 558
		Average: 565

Anchor Hilti HTH can only be used as mounted countersunk and out of the joints.

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

$$R_d = \frac{R_{\text{panel}} \cdot n_{\text{panel}} + R_{\text{joint}} \cdot n_{\text{joint}}}{\gamma}$$

$n_{\text{panel}}$  number of anchors not placed at the panel joints, per m<sup>2</sup>

$n_{\text{joint}}$  number of anchors placed at the panel joints, per m<sup>2</sup>

$\gamma$  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 K-Therm Fix O: - K-Therm RPE Acryl Taloché - K-Therm RPE Acryl Ribbé	≥ 0.08
With or without K-Therm Fix O: - K-Therm RPE Siloxane Taloché	
With K-Therm Fix O or with K-Therm Fix Silikat: - K-Therm RME Silikat Taloché - K-Therm RME Silikat Ribbé	
With K-Therm Fix O or with K-Therm Fix Silikat: - K-Therm RME Silikat'Oxane Taloché	

#### 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)<sup>2</sup>, 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 <sup>(1)</sup> , A2 <sup>(1)</sup> , B <sup>(1)</sup> or C <sup>(1)</sup>	1
		- A1 <sup>(2)</sup> , A2 <sup>(2)</sup> , B <sup>(2)</sup> , C <sup>(2)</sup> - D, E, F - (A1 to E) <sup>(3)</sup>	2+
	in external walls not subject to fire regulation	any	2+

<sup>(1)</sup> 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).

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

<sup>(3)</sup> 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 5. As the control plan contains confidential information, Annex 5 is not included in the published parts of this ETA.

Issued in Marne-la-Vallée on 12/12/2019 by Christine GILLIOT  
Head of Division Coating, Waterproofing, Rendering and Mortars  
Department Envelope, Insulation and Flooring

<sup>2</sup> Decisions are published in the *Official Journal of the European Union (OJEU)*, see [www.new.eur-lex.europa.eu/oj/direct-access.html](http://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". Mass per unit area (kg/m<sup>2</sup>) depends on both thickness of the board and density of EPS.

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

<b>ETICS K-Therm CL PSE</b>	<b>ANNEX 1</b> of ETA-19/0279-version 1
<b>Insulation product for bonded ETICS or mechanically-fixed ETICS with anchors</b>	

Anchors or powder actuated fasteners with ETA according to European Technical Approval Guideline No 014 (hereafter ETAG 014) and to European Assessment Documents (EAD) 330196-ED-0604 (hereafter EAD anchors) and 330965-ED-0601 (for the fastener). 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. The powder actuated fasteners are composed of a plastic expansion sleeve with a plate having diameter of 60 mm and a metallic fastener.

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 <sup>(1)</sup>	Plate stiffness (kN/mm)
Ejothrm NTK-U	ETA-07/0026	a	≥ 0.3
Etanco Super Iso II Long Ø10, Ø10mt Etanco Super Iso II Ø10, Ø10mt	ETA-11/0280	a	
Hilti XI-FV (fastener)	ETA-17/0304	a	
Hilti ETICS nailed-in anchor SDK-FV 8	ETA-07/0302	a	
Koelner KI-10, KI-10 M, KI-10 PA	ETA-07/0291	a	
Koelner KI-10N, KI-10 NS	ETA-07/0221	a	
Koelner TFIX-8P	ETA-13/0845	a	
Spit ISO	ETA-04/0076	a	
BRAVOLL® PTH-KZ	ETA-05/0055	a	≥ 0.6
BRAVOLL® PTH-S	ETA-08/0267	a, b	
BRAVOLL® PTH-SX	ETA-10/0028	a, 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	
Ejot SDF-S plus with TE	ETA-04/0064	a	
Fischer TERMOZ CS 8	ETA-14/0372	a, b	
Fischer TERMOZ CN 8 / CN 8 R	ETA-09/0394	a	
Fischer TERMOZ CNplus 8	ETA-09/0394	b	
Fischer TERMOZ PN 8	ETA-09/0171	a	
FM-ISOMAX	ETA-08/0094	a	
ISOPLUS	ETA-14/0306	a	
ISOGRIP	ETA-14/0306	b	
HTR-M	ETA-16/0116	a	
T-Save HTS-P / HTS-M	ETA-14/0400	a	
Koelner TFIX-8M	ETA-07/0336	a	
Koelner TFIX-8S	ETA-11/0144	a	
Koelner TFIX-8ST	ETA-11/0144	b	
Rawplug Insulation System R-TFIX-8S	ETA-11/0161	a	
Rawplug Façade Insulation Fixing R-TFIX-8M	ETA-17/0591	a	
SPIT ISO S	ETA-13/0560	a,b	
SPIT ISO N	ETA-13/0994	a	
SPIT ISO X/EX	ETA-17/0173	a	
termoz SV II ecotwist	ETA-17/0161	b	-
Hilti ETICS HTH	ETA-15/0464	b	-

<sup>(1)</sup> a : surface mounting ; b : countersunk mounting.

Additionally, every anchor with an ETA according to ETAG 014 and 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 No 026;
- load resistance of the plate ≥ 1.0 kN according to EOTA Technical Report No 026.

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

<b>ETICS K-Therm CL PSE</b>	<b>ANNEX 2</b> ETA-19/0279-version 1
<b>Anchors and fastener for insulation product</b>	

Glass fibre meshes:

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

Trade name	Mass per unit area (g/m <sup>2</sup> )	Residual strenght after ageing (N/mm)		Relative residual strenght after ageing (%) <sup>(1)</sup>	
		Warp	Weft	Warp	Weft
Standard meshes					
R 131 A 101 C+	166	≥ 20	≥ 20	≥ 50	≥ 50
R 131 A 102 C+	161	≥ 20	≥ 20	≥ 50	≥ 50
0161-CA	156	≥ 20	≥ 20	≥ 50	≥ 50
SSA-1363 F+	167	≥ 20	≥ 20	≥ 50	≥ 50
03-1 C+	160	≥ 20	≥ 20	≥ 50	≥ 50
ES-049/F	166	≥ 20	≥ 20	≥ 50	≥ 50
Reinforced meshes					
G-WEAVE 660L 55AB X 100 CM	710	≥ 20	≥ 20	≥ 40	≥ 40
R 585 A 101	696	≥ 20	≥ 20	≥ 40	≥ 40
PZ 700	735	≥ 20	≥ 20	≥ 40	≥ 40

<sup>(1)</sup> Percentage of the strenght in the as-delivered state.

**ETICS K-Therm CL PSE**

**Glass fibre meshes**

**ANNEX 3**

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