



**Technický a skúšobný ústav stavebný, n. o.**  
Building Testing and Research Institute  
Studená 3  
821 04 Bratislava  
Slovak Republic  
Phone: +421 2 49228101  
E-mail: [sternova@tsus.sk](mailto:sternova@tsus.sk)  
Website: [www.tsus.sk](http://www.tsus.sk)



## European Technical Assessment

**ETA 17/0102 – version 01  
of 28/02/2018**

### General Part

**Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: Technický a skúšobný ústav stavebný, n. o.**

**Trade name of the construction product**

EDISON ISOLTHERM PIR

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

Product area code: 4  
External Thermal Insulation Composite Systems with rendering on PIR boards “STIFERITE CLASS SK” for the use as external insulation to walls of buildings

**Manufacturer**

NED s.r.l.  
Via Borghi, 52  
I-52011 Bibbiena (Arezzo)  
Italy  
[www.edisonitalia.it](http://www.edisonitalia.it)

**Manufacturing plant**

NED s.r.l.  
Loc. Il Termine 1/D Rassina  
I-52016 Castel Focognano (AR)  
Italy

**This European Technical Assessment contains**

17 pages including 3 annexes which form an integral part of this assessment.

**This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of**

ETAG 004, edition June 2013, used as European Assessment Document (EAD).

**This version replaces**

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## **Specific part**

### **1 Technical description of the product**

#### **1.1 General**

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

The ETICS kit comprises a prefabricated insulation product of PIR boards “STIFERITE CLASS SK” to be mechanically fixed and partially bonded onto a wall (bonded area over 40 %). The methods of fixing and the relevant components are specified in the table below. The insulation product is faced with a rendering system consisting of one or more layers (site applied), one of which contains reinforcement. The rendering is applied directly to the insulating panels, without any air gap or disconnecting layer.

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

## 1.2 Composition of the ETICS

**Table 1 – Composition of the ETICS**

	<b>Components</b> (see Annex 1 for further description, characteristics and performances of the components)	<b>Coverage</b>	<b>Thickness</b> mm
Insulation materials with associated methods of fixing	Bonded ETICS with supplementary anchors (see Clause 3.4.5) for possible associations PIR/anchors). According to ETA-holder's prescription the bonded surface shall be at least 40 %. National application documents shall be taken into account.		
	<ul style="list-style-type: none"> <li>- <b>Insulation products</b> PIR boards "STIFERITE CLASS SK"</li> <li>- <b>Adhesive</b> <ul style="list-style-type: none"> <li>- <b>Coras dry PIR</b> Preparation: 1 kg of powder requiring addition of 0,24 l of water  Composition: siliceous sand, cement of type CEM I 42,5R grey, noble resin, binding agent and special addition</li> </ul> </li> <li>- <b>Supplementary anchors</b> See Annex 2 for list of anchors and their product characteristics.</li> </ul>	/	20 to 200
		5,0 kg/m <sup>2</sup> (powder)	/

<p>Insulation materials with associated methods of fixing</p>	<p>Mechanically fixed ETICS with anchors and supplementary adhesive (see Clause 3.4.5) for possible associations PIR/anchors). According to ETA-holder's prescription the minimal bonded surface shall be at least 40 %. National application documents shall be taken into account.</p> <ul style="list-style-type: none"> <li>- <b>Insulation products</b> PIR boards "STIFERITE CLASS SK"</li> <li>- <b>Supplementary adhesive</b> <ul style="list-style-type: none"> <li>- <b>Coras dry PIR</b> Preparation: 1 kg of powder requiring addition of 0,24 l of water  Composition: siliceous sand, cement of type CEM I 42,5R grey, noble resin, binding agent and special addition</li> </ul> </li> <li>- <b>Anchors</b> See Annex 2 for list of anchors and their product characteristics.</li> </ul>	<p>/</p> <p>5,0 kg/m<sup>2</sup> (powder)</p>	<p>60 to 200</p> <p>/</p>
<p>Base coat</p>	<ul style="list-style-type: none"> <li>• <b>Coras dry PIR</b> Preparation: 1 kg of powder requiring addition of 0,24 l of water Composition: siliceous sand, cement of type CEM I 42,5R grey, noble resin, binding agent and special addition</li> </ul>	<p>(4,8 to 6,0) kg/m<sup>2</sup> (powder)</p>	<p>4,0 to 5,0</p>
<p>Glass fibre meshes</p>	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: glass fibres mesh with mesh size: approx. 4 mm and 4,5 mm, mass per unit area: min. 145 g/m<sup>2</sup> <b>R 117 A101</b></li> </ul>	<p>/</p>	<p>/</p>
	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: glass fibres mesh with mesh size: approx. 3,5 mm and 3,8 mm, mass per unit area: min. 160 g/m<sup>2</sup> <b>R 131 A101</b></li> </ul>	<p>/</p>	<p>/</p>
	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: glass fibres mesh with mesh size: approx. 5,0 mm and 5,0 mm, mass per unit area: min. 145 g/m<sup>2</sup> <b>R5x5/145 A 101</b></li> </ul>	<p>/</p>	<p>/</p>
	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: glass fibres mesh with mesh size: (5,7± 0,5) mm × ( 4 ± 0,5) mm, mass per unit area: 150 g/m<sup>2</sup> ± 5% <b>SSA-1363-145</b></li> </ul>	<p>/</p>	<p>/</p>
	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: glass fibres mesh with mesh size: (5,1 ± 0,5) mm × (4,1 ± 0,5) mm, mass per unit area: 160 g/m<sup>2</sup> ± 5 % <b>SSA-1363-160</b></li> </ul>	<p>/</p>	<p>/</p>
	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: glass fibres mesh with mesh size: approx. (4,5 mm × 4,5 mm), mass per unit area: min. 145 g/m<sup>2</sup> <b>117S</b></li> </ul>		
	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: glass fibres mesh with mesh size: (5,8 ± 0,5) mm × (4,0 ± 0,5) mm, mass per unit area: 145 g/m<sup>2</sup> ± 5 % <b>NAF14002E</b></li> </ul>		

Key coat	<ul style="list-style-type: none"> <li>• <b>Isoton Edison</b> ready to use pigmented acrylic-silicone-resin dispersion liquid</li> </ul>	(0,20 to 0,40) l/m <sup>2</sup>	
Finishing coats	<ul style="list-style-type: none"> <li>• Ready to use pastes – silicone resin binder <b>XILOTEX</b> (particles size (0,8 mm to 1,5 mm), floated structure</li> </ul>	(2,3 to 2,6) kg/m <sup>2</sup>	
	<ul style="list-style-type: none"> <li>• Ready to use pastes – silicone resin binder <b>SILIGRAF</b> (particles size (1,5 mm to 2,0 mm), ribbed structure</li> </ul>	(2,5 to 2,9) kg/m <sup>2</sup>	
Ancillary materials	Descriptions in accordance with 3.2.2.5 of the ETAG 004. Remain under the ETA-holder responsibilities.		

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

### 2.1 Intended use

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

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

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

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

The choice of the method of fixing depends on the characteristics of the substrate, which could need preparation (see 7.2.1 of the ETAG 004) and shall be done in accordance with the national instructions.

The provisions made in this European Technical Assessment (ETA) are based on an assumed intended working life of at least 25 years, provided that the conditions laid down in Clauses 2.3, 2.4 and 2.5 for the packaging, transport, storage and installation as well as appropriate use, maintenance and repair are met. 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.

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

### 2.2 Manufacturing

The European Technical Assessment is issued for the ETICS on the basis of agreed data/information, deposited with the Technical Assessment Body Technický a skúšobný ústav stavebný, n. o. (TSÚS), which identified the ETICS that has been assessed and judged. Changes to the ETICS or production process, which could result in this deposited data/information being incorrect, shall be notified to the Technical Assessment Body Technický a skúšobný ústav stavebný, n. o. before the changes are introduced. The Technical Assessment Body Technický a skúšobný ústav stavebný, n. o. will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alternations to the ETA, shall be necessary.

## **2.3 Design and installation**

The installation instructions including special installation techniques and provisions for the qualifications of the personnel are given in the manufacturer's technical documentation.

Design, installation and execution of ETICS are to be in conformity with national documents. Such documents and the level of their implementation in Member States' legislation are different. Therefore, the assessment and declaration of performance are done taking into account general assumptions introduced in 7.1 and 7.2 of ETAG 004 used as EAD, which summarized how information introduced in the ETA and related documents is intended to be used in the construction process and gives advice to all parties interested when normative documents are missing.

## **2.4 Packaging, transport and storage**

The information on packaging, transport and storage is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer(s) to ensure that this information is made known to the concerned people.

## **2.5 Use, maintenance and repair**

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

Maintenance includes at least:

- visual inspection of the ETICS;
- the repairing of localized damaged areas due to accidents;
- the aspect maintenance with products adapted and compatible with the ETICS (possibly after washing or ad hoc preparation).

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

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

The information on use, maintenance and repair is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer(s) to ensure that these provisions are easily accessible to the concerned people.

## **3 Performance of the product and reference to the methods used for its assessment**

### **3.0 The performances of the kit as described in this clause are valid provided that the components of the kit comply with Annexes 1 to 3.**

### **3.1 Mechanical resistance and stability (BWR 1)**

Not relevant.

### 3.2 Safety in case of fire (BWR 2)

#### 3.2.1 Reaction to fire (ETAG 004 – Clause 5.1.2.1, EN 13501-1)

Table 2 – Reaction to fire classification of ETICS

Configuration	The declared organic content / PCS value	The flame retardant content	Euroclass according to STN EN 13501-1
Adhesive Coras dry PIR	0,79 % to 0,84 %	No flame retardant	B-s1, d0
PIR boards “STIFERITE CLASS SK” (from 20 mm to 200 mm)	–	In quantity ensuring Euroclass E according to STN EN 13501-1	
Base coat Coras dry PIR	0,79 % to 0,84 %	No flame retardant	
Glass fibre meshes R 117 A 101 R 131 A 101 R5x5/145 A 101 117S SSA-1363-145 SSA-1363-160 NAF14002E	Declared by manufacturer	No flame retardant	
Key coat Isoton Edison	–	No flame retardant	
Finishing coats XILOTEX SILIGRAF (tested)	max. 10,2 %/ 2,27 MJ/kg	No flame retardant	
All other configurations	–	–	No performance assessed

#### Mounting and fixing:

The assessment of reaction to fire is based on tests with maximal insulation layer thickness of 180 mm and insulation material of density  $(35 \pm 1,5) \text{ kg/m}^3$ , with maximum organic content/heat combustion of finishing coat max. 10,2 %/2,27 MJ/kg and thicknesses 2,0 mm.

For the SBI this ETICS is mounted directly to gypsum plasterboard substrate (reaction to fire: A2, thickness: 12 mm, density: min.  $800 \text{ kg/m}^3$ ).

The installation of the ETICS was carried out by the manufacturer (holder of assessment) following the manufacturer's specifications (instruction sheet) using a single layer of the glass fibre mesh all over the test specimen (no overlapping glass fibre mesh).

The test specimens were prefabricated and did not include any joints. The panel edges were rendered except the upper and bottom edges.

Anchors were not included in the tested ETICS as they have no influence on the test result.

Please note that in some member states the classification on the basis of SBI test is not accepted. Additional tests might be required e.g. large scale tests to demonstrate compliance with a member state's fire regulation.

Further the edges of the ETICS always have to be protected against fire.

NOTE A European reference fire scenario has not been laid down for facades. In some Member States, the classification of ETICS according to EN 13501-1 might not be sufficient for the use in facades. 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 State regulations, until the existing European classification system has been completed.

### 3.3 Hygiene, health and environment (BWR 3)

#### 3.3.1 Water absorption (ETAG 004 – Clause 5.1.3.1)

**Table 3 – Water absorption of base coat**

		Water absorption after 24 hours	
		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
<b>Base coat</b>	Coras dry PIR	x	

**Table 4 – Water absorption of rendering systems**

Base coat Coras dry PIR		Water absorption after 24 hours	
		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
Rendering systems: base coat + key coat according to Clause 1.1 + finishing coats indicated hereafter:	XILOTEX	x	
	SILIGRAF	x	

#### 3.3.2 Watertightness (ETAG 004 – Clause 5.1.3.2)

##### 3.3.2.1 Hydrothermal behaviour (ETAG 004 – Clause 5.1.3.2.1)

Hygrothermal cycles have been performed on a rig. None of the following defects occurred during the testing:

- blistering or peeling of any finishing coat;
- failure or cracking associated with joints between insulation product boards or profiles fitted with ETICS;
- detachment of render coat;
- cracking allowing water penetration to the insulation layer (normally not bigger than 0,2 mm).

The ETICS is so assessed resistant to hygrothermal cycles, it means ETICS passed the test without defects.

##### 3.3.2.2 Freeze-thaw behaviour (ETAG 004 – Clause 5.1.3.2.2)

The water absorptions of base coat used in ETICS is less than 0,5 kg/m<sup>2</sup> after 24 hours and so **the corresponding configuration(s) of the ETICS are assessed as freeze/thaw resistant.**

The water absorptions of all rendering systems are less than 0,5 kg/m<sup>2</sup> after 24 hours and so **the corresponding configuration(s) of the ETICS are assessed as freeze/thaw resistant.**



### 3.3.3 Impact resistance (ETAG 004 – Clause 5.1.3.3)

The resistance to hard body impacts (3 Joules and 10 Joules) leads to the following use categories.

**Table 5 – Use categories for ETICS according to impact resistance**

Base coat Coras dry PIR		Single standard mesh
<b>Rendering systems:</b> base coat indicated above + key coats according to Clause 1.1 + finishing coats indicated hereafter:	XILOTEX	No performance assessed
	SILIGRAF	No performance assessed

### 3.3.4 Water vapour permeability of rendering coats (ETAG 004 – Clause 5.1.3.4)

**Table 6 – Water vapour permeability of rendering systems**

Base coat Coras dry PIR		Equivalent air thickness m
<b>Rendering systems:</b> base coat indicated above + key coat + finishing coats indicated hereafter:	XILOTEX	No performance assessed
	SILIGRAF	

### 3.3.5 Release of dangerous substances (ETAG 004 – Clause 5.1.3.5, EOTA TR 034)

No performance assessed.

## 3.4 Safety and accessibility in use (BWR 4)

### 3.4.1 Bond strength between base coat and insulation product (ETAG 004 – Clause 5.1.4.1.1)

- Base coat Coras dry PIR onto PIR boards “STIFERITE CLASS SK” (EN 13165 – TR80)

**Table 7 – Bond strength between base coat Coras dry PIR and PIR board “STIFERITE CLASS SK” (EN 13165-TR80)**

Conditionings		
Initial state	After the hygrothermal cycles (on the rig)	After the freeze/thaw cycles (on samples)
≥ 0,08 MPa	≥ 0,08 MPa	Test not required because freeze/thaw cycles not necessary

**3.4.2 Bond strength between adhesive Coras dry PIR and substrate/insulation product (ETAG 004 – Clauses 5.1.4.1.2 and 5.1.4.1.3)**

**Table 8 – Bond strength of adhesive onto substrate and PIR board “STIFERITE CLASS SK” (EN 13165-TR80)**

		Conditionings		
		Initial state	48 h immersion in water + 2 h 23 °C/50% RH	48 h immersion in water + 7 days 23 °C/50% RH
Coras dry PIR	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	Insulation product PIR board “STIFERITE CLASS SK” (EN 13165-TR80)	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

The minimum bonded surface  $S$ , which shall exceed 20 %, is calculated as follows:  
 $S (\%) = [0,03 \times 100]/B$

where:

$B$  is minimum failure resistance of the adhesive to the insulation product in dry conditions for all failure modes expressed in MPa;

0,03 MPa corresponds to the minimum requirements.

The ETICS shall be installed on the substrate with application of the adhesive on the following minimal surface (% of total) according to Table 9.

**Table 9 – Minimum admissible bonded surface area for bonded ETICS**

Tensile strength perpendicular to the faces of the insulation product	Minimum admissible bonded surface area for bonded ETICS
≥ 80 kPa (PU-EN 13165-TR80)	40 %

**3.4.3 Bond strength after ageing (ETAG 004 – Clauses 5.1.7.1)**

**Table 10 – Bond strength of rendering systems after ageing (PIR board “STIFERITE CLASS SK” (PU-EN 13165-TR80)) (ETAG 004 – Clauses 5.1.7.1)**

Base coat Coras dry PIR		After hygrothermal cycles tested on the rig (Clause 5.1.7.1 ETAG 004)	After freeze/thaw cycles
<b>Rendering systems:</b> base coat + key coat according to Clause 1.1 + finishing coats indicated hereafter:	XILOTEX*	≥ 0,08 MPa	Test not required because freeze/thaw cycles not necessary
	SILIGRAF*		

\* Tested according to ETAG 004, Clause 5.1.7.1 on rig with PIR board “STIFERITE CLASS SK” (EN 13165-TR80).

### 3.4.4 Fixing strength (ETAG 004 – Clause 5.1.4.2)

Test not required (no limitation of ETICS length) because the ETICS fulfils the following criteria:

- The bonded area in case of PIR boards exceeds 40 % in case of mechanically fixed systems with supplementary adhesive.
- $E \times d = 2\,248 \text{ N/mm} < 50\,000 \text{ N/mm}$ , where  $E$  is modulus of elasticity of the base coat Coras dry PIR without glass fibre mesh and  $d$  is mean dried thickness of the base coat.

### 3.4.5 Wind load resistance (ETAG 004 – Clause 5.1.4.3)

Safety in use of mechanically fixed ETICS using anchors

The following values only apply for the combination (anchor's trade name)/(PIR board's characteristics) mentioned in the first lines of each Tables 11 and 12.

**Table 11 – Failure loads of combination of anchors described in below table and insulation product – PIR board “STIFERITE CLASS SK” (PU-EN 13165-TR80)**

<b>Anchors for which the following failure loads apply</b>	Trade name Method of mounting	ejotherm STR U flush mounted	
	Plate diameter (mm)	≥ 60	
<b>Characteristic of the insulation product panels for which the following failure loads apply</b>	Thickness (mm)	≥ 60	
	Tensile strength perpendicular to the face (kPa)	≥ 80	
<b>Failure loads (N)</b>	Anchors not placed at the panel joint (pull – through test)	$R_{\text{panel}}$ :	Minimum: <b>1 179</b> Average: <b>1 230</b>
	Anchors placed at the panel joint (pull – through test)	$R_{\text{joint}}$ :	Minimum: <b>1 007</b> Average: <b>1 080</b>

**Table 12 – Failure loads of combination of anchors described in below table and insulation product – PIR board “STIFERITE CLASS SK” (PU-EN 13165-TR80)**

<b>Anchors for which the following failure loads apply</b>	Trade name Method of mounting	ejotherm STR U mounted counter-sunk	
	Plate diameter (mm)	≥ 60	
<b>Characteristic of the insulation product panels for which the following failure loads apply</b>	Thickness (mm)	≥ 100	
	Tensile strength perpendicular to the face (kPa)	≥ 80	
<b>Failure loads (N)</b>	Anchors not placed at the panel joint (pull – through test)	$R_{\text{panel}}$ :	Minimum: <b>828</b> Average: <b>841</b>
	Anchors placed at the panel joint (pull – through test)	$R_{\text{joint}}$ :	Minimum: <b>677</b> Average: <b>733</b>

The wind load resistance of the ETICS  $R_d$  is calculated as follows:

$$R_d = [R_{\text{panel}} \times n_{\text{panel}} + R_{\text{joint}} \times n_{\text{joint}}] / \gamma_m$$

$n_{\text{panel}}$  is number (per m<sup>2</sup>) of anchors placed at the body of the insulation product;

$n_{\text{joint}}$  is number (per m<sup>2</sup>) of anchors placed at joints;

$\gamma_m$  is national safety factor.

### 3.4.6 Render strip tensile test (ETAG 004 – Clause 5.5.4.1)

The mean value of the crack width of the base coat Coras dry PIR with glass fibre R 117 A101 or R 131 A101 or R5x5/145 A 101 or SSA-1363-145 or SSA-1363-160 or 117S or R5x5/145 A 101 or NAF14002E is no performance assessed.

## 3.5 Protection against noise (BWR 5)

### 3.5.1 Airborne sound insulation (ETAG 004 – Clause 5.1.5.1)

No performance assessed.

## 3.6 Energy economy and heat retention (BWR 6)

### 3.6.1 Thermal resistance (ETAG 004 – Clause 5.1.6.1)

The thermal transmittance of the substrate wall covered by the ETICS is calculated in accordance with the standard EN ISO 6946:

$$U_c = U + \chi_p \cdot n$$

where  $\chi_p \cdot n$  has only to be taken into account if it is greater than 0,04 W/(m<sup>2</sup>·K);  
 $U_c$  global (corrected) thermal transmittance of the covered wall (W/(m<sup>2</sup>·K));  
 $n$  number of anchors (through insulation product) per m<sup>2</sup>;  
 $\chi_p$  local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:  
 = 0,002 W/K for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw ( $\chi_p \cdot n$  negligible for  $n < 20$ );  
 = 0,004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material ( $\chi_p \cdot n$  negligible for  $n < 10$ );  
 = negligible for anchors with plastic nails (reinforced or not with glass fibres ...);  
 $U$  thermal transmittance of the current part of the covered wall (excluding thermal bridges) (W/(m<sup>2</sup>·K)) determined as follows:

$$U_c = \frac{1}{R_i + R_{render} + R_{substrate} + R_{se} + R_{si}}$$

where  $R_i$  thermal resistance of the insulation product (according to declaration in reference to EN 13163) in (m<sup>2</sup>·K)/W;  
 $R_{render}$  thermal resistance of the render (about 0,02 in (m<sup>2</sup>·K)/W or determined by test according to EN 12667 or EN 12664);  
 $R_{substrate}$  thermal resistance of the substrate of the building (concrete, brick ...) in (m<sup>2</sup>·K)/W;  
 $R_{se}$  external superficial thermal resistance in (m<sup>2</sup>·K)/W;  
 $R_{si}$  internal superficial thermal resistance in (m<sup>2</sup>·K)/W.

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

## 3.7 Sustainable use of natural resources (BWR 7)

No performance assessed.

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

According to the European Commission Decision 97/556/EC amended by the European Commission Decision 2001/596/EC, the AVCP systems (further described in Annex V to Regulation (EU) No. 305/2011) 1 and 2+ apply.

**Table 13 – Assessment and verification of constancy of performance system**

Product(s)	Intended use(s)	Level(s) or class(es) (Reaction to fire)	System(s)
External thermal insulation composite systems/kits (ETICS) with rendering	in external wall subject to fire regulations	A1 <sup>(1)</sup> , A2 <sup>(1)</sup> , B <sup>(1)</sup> , C <sup>(1)</sup>	1
		A1 <sup>(2)</sup> , A2 <sup>(2)</sup> , B <sup>(2)</sup> , C <sup>(2)</sup> , D, E, (A1 to E) <sup>(3)</sup> , F	2+
	in external wall not subject to fire regulations	any	2+
<sup>(1)</sup> Products/materials for which a 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 <sup>(1)</sup> . <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).			

#### 5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

In order to help the Notified Body to make an evaluation of conformity, the Technical Assessment Body issuing the ETA shall supply the information detailed below. This information together with the requirements given in EC Guidance Paper B will generally form the basis on which the factory production control (FPC) is assessed by the Notified Body.

This information shall initially be prepared or collected by the Technical Assessment Body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

##### 1) The ETA

Where confidentiality of information is required, this ETA makes reference to the manufacturer's technical documentation which contains such information.

##### 2) Basic manufacturing process

The basic manufacturing process is described in sufficient detail to support the proposed FPC methods.

The different components of ETICS are generally manufactured using conventional techniques. Any critical process or treatment of the components which affects performance are highlighted in the manufacturer's documentation.

##### 3) Product and materials specifications

The manufacturer's documentation includes:

- detailed drawings (possibly including manufacturing tolerances);
- incoming (raw) materials specifications and declarations;
- references to European and/or International Standards;
- technical data sheets.

4) Control Plan (as a part of FPC)

The manufacturer and the Technický a skúšobný ústav stavebný, n. o. have agreed a Control Plan which is deposited with the Technický a skúšobný ústav stavebný, n. o. in documentation which accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted during production and on the final product. This includes the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product.

Products not manufactured by the ETICS manufacturer shall also be tested according to the Control Plan. It must be demonstrated to the Notified Body that the FPC system contains elements securing that the ETICS manufacturer takes products conforming to the Control Plan from his supplier(s).

Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, then where appropriate they shall be subject to suitable checks/tests by the ETICS manufacturer before acceptance.

In cases where the provisions of the European Technical Assessment and its Control Plan are no longer fulfilled, the Notified Body shall withdraw the certificate and inform Technický a skúšobný ústav stavebný, n. o. without delay.

**Technický a skúšobný ústav stavebný, n. o.**

Building Testing and Research Institute  
Studená 3, 821 04 Bratislava, Slovak Republic

On behalf of the Technický a skúšobný ústav stavebný, n. o.  
Bratislava, 28 February 2017



prof. Ing. Zuzana Sternová, PhD.  
Head of Technical Assessment Body

**Annexes**

- Annex 1 Insulation product characteristics
- Annex 2 Description and characteristics of the anchors
- Annex 3 Description and characteristics of the reinforcement

## Annex 1

## Insulation product characteristics

Table 14 – Characteristics of the insulation product STIFERITE CLASS SK

Description and characteristics	STIFERITE CLASS SK	
	for bonded ETICS and bonded ETICS with supplementary anchors and mechanically fixed with supplementary adhesives	
Composition	Rigid polyurethane-polyisocyanurate foam covered on both side with saturated fibre glass. It contains flame retardant and blowing agents	
Designation code	PU-EN 13165-T2-DS(70,9)4-DS(-20,0)2-WL(T)-CS(10/Y)150-TR80-MU56	
Reaction to fire / STN EN 13501-1	Euroclass E (thickness: from 20 mm to 200 mm, density: (35 ± 1,5) kg/m <sup>3</sup> )	
Thermal resistance ((m <sup>2</sup> .K)/W)	Defined in the CE marking in reference to EN 13165 "Thermal insulation products for buildings. Factory made rigid polyurethane foam (PU) products. Specification" Declared value $\lambda_{ins}$ : 0,028 W/(m·K) (thickness 20 mm to 70 mm) Declared value $\lambda_{ins}$ : 0,026 W/(m·K) (thickness 80 mm to 110 mm) Declared value $\lambda_{ins}$ : 0,025 W/(m·K) (thickness 120 mm to 200 mm)	
Color	White coating	
Density according to EN 1602	35 kg/m <sup>3</sup> ± 1,5 kg/m <sup>3</sup>	
Width, tolerancy	600 mm ± 5 mm	
Length, tolerancy	1 200 mm ± 7,5 mm	
Thickness (mm) / EN 823	PU - EN 13165 – T2	
Length (mm) / EN 822	5 mm/m	
Width (mm) / EN 822	7,5 mm/m	
Squareness (mm) / EN 824	max. 5 mm/m	
Flatness (mm) / EN 825	± 5 mm	
Surface condition	Cut surface (homogeneous and with "skin")	
Dimensional stability under	specified temperature and humidity / EN 1604	PU - EN 13165 – DS(70;90)3 (valid for thickness from 20 mm to 40 mm) PU - EN 13165 – DS(70;90)4 (valid for thickness from 41 mm to 200 mm)
	specified temperature / EN 1604	PU - EN 13165 – DS(-20;0)2
Compressive stress or compressive strength (kPa) / EN 826	PU - EN 13165 – CS(10/Y)150	
Tensile strength perpendicular to the faces in dry conditions / EN 1607	PU - EN 13165 – TR80	
Short term water absorption by partial immersion / EN 1609	< 0,2 kg/m <sup>2</sup>	
Long term water absorption by total immersion (% weight) / EN 12087	WL(T)2 for thickness < 120 mm WL(T)1 for thickness ≥ 120 mm	
Water vapour diffusion resistance factor ( $\mu$ ) / EN 12086	56 ± 2	
Shear strength (N/mm <sup>2</sup> ) / EN 12090	≥ 0,02 MPa	
Shear modulus (N/mm <sup>2</sup> ) / EN 12090	≥ 1,0 MPa	

## Annex 2

### Description and characteristics of anchors

Table 15 – References to ETA for anchor used in ETICS

Trade name	Description Plate stiffness/Load resistance of the anchor plate	Plate diameter mm	Characteristic resistance in substrate stated in
Ejothem STR U Ejothem STR U 2G	Screwed-in plastic anchor with steel screw and plastic head 0,6 kN/mm/2,08 kN Use of category: A, B, C, D, E	60	ETA-04/0023



## Annex 3

## Description and characteristics of the reinforcement

Table 16 – Description and characteristics of the reinforcement

Mesh trade name	Description	Alkalis resistance (5.6.7.1 of ETAG 004)			
		Residual strength after ageing N/mm		Relative residual resistance: % (after ageing) of the strength in the as delivered state	
		Warp	Weft	Warp	Weft
R 117 A101	Standard mesh: Mass per unit area: min. 145 g/m <sup>2</sup>	≥ 20		≥ 50	
R 131 A101	Standard mesh: Mass per unit area: min. 160 g/m <sup>2</sup>	≥ 20		≥ 50	
R5x5/145 A 101	Standard mesh: Mass per unit area: min. 145 g/m <sup>2</sup>	≥ 20		≥ 50	
117S	Standard mesh: Mass per unit area: min. 145 g/m <sup>2</sup>	≥ 20		≥ 50	
SSA-1363-145	Standard mesh: Mass per unit area: 150 g/m <sup>2</sup> ± 5 %	≥ 20		≥ 50	
SSA-1363-160	Standard mesh: Mass per unit area: 160 g/m <sup>2</sup> ± 5 %	≥ 20		≥ 50	
NAF14002E	Standard mesh: Mass per unit area: 145 g/m <sup>2</sup> ± 5 %	≥ 20		≥ 50	