

## ETA 25/0947

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UBAtc Assessment Operator

# European Technical Assessment



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**Technical Assessment Body issuing the European Technical Assessment: UBAtc.  
UBAtc has been designated according to Article 29 of Regulation (EU) No 305/2011  
and is member of EOTA (European Organisation for Technical Assessment)**

<b>Trade name of the construction product:</b>	GRANOL'THERM BRICK
<b>Product family to which the construction product belongs:</b>	04 – Kits for external thermal insulation composite system (ETICS) with panels as thermal insulation product and discontinuous claddings as exterior skin
<b>Manufacturer:</b>	Cantillana nv Kortrijksesteenweg 1084 - bus 03.03 B-9051 Sint-Denijs-Westrem (Gent) Belgium
<b>Manufacturing plant(s):</b>	Cantillana nv Oudstrijdersstraat 58 B-9051 Sint-Denijs-Westrem (Gent) Belgium
<b>Website:</b>	<a href="http://cantillana.com">http://cantillana.com</a>
<b>This European Technical Assessment is issued in accordance with Article 95(4) of Regulation (EU) No 2024/3110, on the basis of:</b>	European Assessment Document (EAD): EAD 040287-00-0404
<b>This version replaces</b>	-
<b>This ETA contains:</b>	14 pages including 3 annexes which form an integral part of this assessment



## European Organisation for Technical Assessment

## Legal bases and general conditions

- 1 This European Technical Assessment is issued by UBAtc (Union belge pour l'Agrément technique de la construction, i.e. Belgian Union for technical Approval in construction), in accordance with:
  - Article 95(4) of the Regulation (EU) No 2024/3110<sup>1</sup> of the European Parliament and of the Council of 27 November 2024 laying down harmonised conditions for the marketing of construction products and repealing Regulation (EU) No 305/2011
  - Commission Implementing Regulation (EU) No 1062/2013<sup>2</sup> of 30 October 2013 on the format of the European Technical Assessment for construction products
  - European Assessment Document (EAD): EAD 040287-00-0404.
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- 13 Subject to the application introduced, this European Technical Assessment is issued in English and may be issued by the UBAtc in its official languages. The translations correspond fully to the English reference version circulated in EOTA.
- 14 This European Technical Assessment was first issued by UBAtc on 16 April 2026.

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<sup>1</sup> OJEU, L series of 2024/12/18

<sup>2</sup> OJEU, L 289 of 2013/10/31

## Technical Provisions

### 1 Technical description of the product

#### 1.1 Definition of the kit

This product is an ETICS (External Thermal Insulation Composite System) kit in which the exterior skin is composed by discontinuous claddings and the thermal insulation panels are bonded to the substrate and additionally mechanically fixed with anchors. A kit comprises 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 expanded polystyrene (EPS) to be bonded and mechanically fixed onto a wall. The methods of fixing and the relevant components are specified in the table below. The insulation product is faced with a base coat consisting of one or more layers (site applied), one of which contains reinforcement, and exterior skin consisting of adhesive for claddings, cladding elements and grout. The base coat and all subsequent elements are applied directly to the insulating panels, without any air gap or disconnecting layer.

The ETICS kit may include special fittings (e.g., base profiles, corner profiles) to treat details of ETICS (e.g., connections, apertures, corners, parapets, sills). Assessment and performance of these components are 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 a part of the kit.

#### 1.2 Composition of the ETICS

**Table 1 – Composition of the Bonded ETICS with supplementary mechanical fixings (anchors)**

Components	Coverage	Thickness
(see Annexes for further description, characteristics and performances of the components)	[kg/m <sup>2</sup> ]	[mm]
<b>Insulation materials with associated methods of fixing</b>		
Insulation product:		
factory-prefabricated expanded polystyrene (EPS) according to EN 13163		≤ 300
Adhesive:		
<b>Granol'therm G/W</b> – dry mix cement-based product requiring addition of 25-27 % water	3,0 – 5,0 (powder)	/
Anchors (fixed through the insulation product and through the mesh):		
– Granol'therm STR U 2G	-	-
– Granol'therm CS 8	-	-
<b>Base coat</b>		
<b>Granol'therm G/W</b> – dry mix cement-based product requiring addition of 24 % - 28 % water	3,0 – 5,0 (powder)	3,0 – 5,0
<b>Glass fibres meshes</b>		
<b>Granol'therm AGG</b> – Standard mesh (glass fibres mesh 200 g/m <sup>2</sup> ; 8 mm by 12 mm)	-	-
<b>Adhesive for claddings</b>		
<b>Granol'therm Brickstick S1</b> – dry mix cement-based adhesive requiring addition of water (~28 %), applied conforming to EN 12004-1 / Paragraph 3.3.3 (floating buttering procedure).	6,0 – 8,2	regulated by floating buttering procedure
<b>Claddings</b>		
– Ceramic tiles according to EN 14411 (types BIa and AIa) Dimensions: up to 900 cm <sup>2</sup> with largest dimension up to 600 mm Joint width from 3 mm up to 5 mm Thickness from 6 mm up to 15 mm		
– Clay brick-slips Length: from 180 mm up to 250 mm Height: from 40 mm to 65 mm Joint width: up to 6 mm (not filled) and from 8 mm up to 12 mm (filled) Thickness from 15 mm up to 22 mm		
– Concrete brick-slips according to EN 15286 (binder = cement) Dimensions: from 180 mm up to 600 mm Joint width: up to 6 mm (not filled) and from 8 mm up to 12 mm (filled) Thickness from 15 mm up to 20 mm		
<b>Grouts</b>		
– <b>Joint'in</b> – dry mix cement-based adhesive requiring addition of water (~9 %), applied by hand.		Regulated by thickness of the claddings and thickness of the fuges (joints width)
– <b>Joint'in P</b> – dry mix cement-based adhesive requiring addition of water (~16 %), applied by hand or mechanically.		
– <b>Joint'fill Nanoclean</b> – dry mix cement-based adhesive with resin requiring addition of water (~25 %), applied by hand.		
<b>Ancillary materials</b>		

Description of the ancillary materials is to be in accordance with § 1.3.14 of the EAD 040287-00-0404. The description and use of the appropriate materials remains under the kit manufacturers' responsibility.

## 2 Specification of the intended use(s) in accordance with the applicable EAD

### 2.1 General

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 classification and for fixing of the ETICS. The ETICS is designed to give the wall to which it is applied satisfactory thermal insulation.

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

The ETICS may be used on new or existing (retrofit) vertical walls. It may 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 ETICS belongs to Category S/W2, according to EOTA Technical Report No 034.

The provisions made in this European Technical Assessment are based on the assumed working life of 25 years<sup>3</sup>, provided that the ETICS is subject to appropriate installation, use and maintenance. These provisions are based upon the current state of the art and the available knowledge and experience.

Assumed intended working life means that it is expected that, when the working life has elapsed, the real working life may be, under normal use conditions, considerably longer without major degradation affecting the Basic requirements for construction works.

### 2.2 Assumptions under which the fitness of the product(s) for the intended use was favourably assessed

#### 2.2.1 Manufacturing directives

The European technical assessment is issued for the ETICS on the basis of agreed data/information, deposited with the approved body, which identifies 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, should be notified to the approved body before the changes are introduced. The approved body 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 alterations to the ETA, shall be necessary.

#### 2.2.2 Design and installation

The installation instructions including special installation techniques and provisions for the qualification of the personnel are given in the manufacturer's technical documentation. It is assumed that the ETICS will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

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 the chapters 3 of EAD 040287-00-0404, which summarizes 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.

#### 2.2.3 Packing, 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 know to the concerned people.

#### 2.2.4 Use, maintenance and repair

It is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the use, maintenance and repair of the product as he considers necessary.

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

Maintenance includes at least:

- visual inspection of the ETICS,
- repair of localised damaged areas due to accidents,
- 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 this information is made know to the concerned people.

<sup>3</sup> The indications given as to the working life of the products cannot be interpreted as a guarantee given by the ETA-holder or the assessment body. It should only be regarded as a means for specifiers to choose the

appropriate criteria for this product in relation to the expected, economically reasonable working life of the works.

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

#### 3.1 General

The performances of the ETICS kit as described in this chapter are valid, provided that the components of the ETICS kit comply with Annexes I to III.

#### 3.2 Safety in case of fire (BWR2)

##### 3.2.1 Reaction to fire

Table 2 – Reaction to fire

Configuration	Maximum declared organic contact of the base coat and of the skin	Declared flame retardant content of the base coat of the system	Reaction to fire classe according to EN 13501-1
ETICS <b>Granol'therm Brick</b> with EPS panels as insulation material	Organic content of the base coat: < 2,85 % <hr/> Organic content of the skin : fire class A1 for discontinuous cladding	base coat contains fire retardant	B-s1,d0

##### 3.2.2 Façade fire performance

No performance assessed.

#### 3.3 Hygiene, health and the environment (BWR3)

##### 3.3.1 Water absorption by capillarity

Table 3 – Water absorption by capillarity

Configuration	Mean water absorption		
	after 3 min [kg/m <sup>2</sup> ]	after 1 h [kg/m <sup>2</sup> ]	after 24 h [kg/m <sup>2</sup> ]
Insulation (EPS) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> )	0,03	0,04	0,19
Insulation (EPS) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> ) + skin ( <b>ceramic tiles</b> ) + grout ( <b>Joint'fill Nanoclean</b> )	NPA	NPA	NPA
Insulation (EPS) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> ) + skin ( <b>clay brick-slips</b> ) + grout ( <b>Joint'in</b> )	0,38	0,96	1,93
Insulation (EPS) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> ) + skin ( <b>concrete brick-slips</b> ) + grout ( <b>Joint'in</b> )	NPA	NPA	NPA

### 3.3.2 Water vapour permeability (resistance to water vapour diffusion)

Water vapour permeability of Granol'therm Brick and its' components was determined for all ETICS configurations by calculation. Several cases (various thicknesses of cladding elements, with various thicknesses of EPS insulation product) have been assessed.

**Table 4 – Water vapour permeability of the ETICS components**

Component	Thickness [mm]	$\mu$ [-]	Z [(m <sup>2</sup> ×s×Pa)/kg]	Sd [m]
Adhesive for insulation: <b>Granol'therm G/W</b>	5,0 – 10,0	35	8,8×10 <sup>8</sup> – 1,8×10 <sup>9</sup>	0,18 – 0,35
Insulation: <b>EPS panels</b>	60 – 300	60	1,8×10 <sup>10</sup> – 9,0×10 <sup>10</sup>	3,6 – 18,0
Base coat: <b>Granol'therm G/W</b>	2,5 – 6,5	35	4,4×10 <sup>8</sup> – 1,1×10 <sup>9</sup>	0,09 – 0,23
Adhesive for cladding: <b>Granol'therm Brickstick S1</b>	2,0 – 5,0	20	2,0×10 <sup>8</sup> – 5,0×10 <sup>9</sup>	0,04 – 0,10
Grout:				
– <b>Joint'in</b>	regulated by cladding thickness	35	-	-
– <b>Joint'in P</b>				
– <b>Joint'fill Nanoclean</b>				
Skin:				
– <b>Ceramic tiles</b>	6,0 – 15,0	∞	∞	∞
– <b>Brick-slips</b>	15,0 – 22,0	10	7,5×10 <sup>8</sup> – 1,1×10 <sup>9</sup>	0,15 – 0,22
– <b>Agglomerated stone</b>	15,0 – 20,0	150	1,1×10 <sup>10</sup> – 1,5×10 <sup>10</sup>	2,25 – 3,00

**Table 5 – Water vapour permeability of the ETICS**

Configuration	Water vapour diffusion resistance Z (*) [(m <sup>2</sup> ×s×Pa)/kg]	Water vapour diffusion-equivalent air layer thickness Sd (*) [m]
Insulation ( <b>EPS</b> ) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> ) + skin ( <b>ceramic tiles</b> ) + grout ( <b>Joint'fill Nanoclean</b> ) (**)	≤ 4,0×10 <sup>10</sup>	≤ 8,0
Insulation ( <b>EPS</b> ) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> ) + skin ( <b>clay brick-slips</b> ) + grout ( <b>Joint'in</b> or <b>Joint'in P</b> ) (***)	≤ 1,0×10 <sup>10</sup>	≤ 2,0
Insulation ( <b>EPS</b> ) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> ) + skin ( <b>clay brick-slips</b> ) (**)	≤ 1,0×10 <sup>10</sup>	≤ 2,0
Insulation ( <b>EPS</b> ) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> ) + skin ( <b>concrete brick-slips</b> ) grout ( <b>Joint'in</b> or <b>Joint'in P</b> ) (***)	≤ 1,8×10 <sup>10</sup>	≤ 3,0
Insulation ( <b>EPS</b> ) + base coat ( <b>Granol'therm G/W</b> ) + adhesive for cladding ( <b>Granol'therm Brickstick S1</b> ) + skin ( <b>concrete brick-slips</b> ) (**)	≤ 1,8×10 <sup>10</sup>	≤ 3,5

(\*) the range is given for the minimal and maximal declared thickness of the claddings and EPS

(\*\*) For a joint thickness of 3 mm

(\*\*\*) For a joint thickness of 10 mm

### 3.3.3 Accelerated ageing behaviour

In accordance with EAD 040287-00-0404 clause 2.2.6.3, the accelerated ageing behaviour of the ETICS has been assessed by means of bond strength tests of specimens taken from the ETICS submitted to the combined hygrothermal cycles and freeze-thaw cycles indicated in EAD 040287-00-0404 section F.3 of Annex F.

None of the following defects occurred during testing:

- deterioration such as cracking or delamination of cladding elements or grout, allowing water penetration to the internal layers,
- deterioration and/or cracking of grout between cladding elements,
- failure or cracking associated with joints between insulation product boards or with joint between cladding elements,
- detachment of the skin, cladding elements or grout,
- cracking allowing water penetration to the insulation layer,
- irreversible deformations.

**Table 6 – Accelerated ageing behaviour**

Configuration	Bond strength		
	Initial (minimum value) [N/mm <sup>2</sup> ]	After combined cycles (minimum value) [N/mm <sup>2</sup> ]	Ratio initial/after (mean value) [N/mm <sup>2</sup> ]
Insulation (EPS) + base coat (Granol'therm G/W) + adhesive for cladding (Granol'therm Brickstick S1) + skin (ceramic tiles) + grout (Joint'fill Nanoclean)	0.08	0.11	1.4
Insulation (EPS) + base coat (Granol'therm G/W) + adhesive for cladding (Granol'therm Brickstick S1) + skin (clay brick-slips)	0.06*	0.06*	0.8
Insulation (EPS) + base coat (Granol'therm G/W) + adhesive for cladding (Granol'therm Brickstick S1) + skin (clay brick-slips) + grout (Joint'in or Joint'in P)	0.08	0.06*	0.8
Insulation (EPS) + base coat (Granol'therm G/W) + adhesive for cladding (Granol'therm Brickstick S1) + skin (concrete brick-slips)	0.06*	0.07*	1.1
Insulation (EPS) + base coat (Granol'therm G/W) + adhesive for cladding (Granol'therm Brickstick S1) + skin (concrete brick-slips) + grout (Joint'in or Joint'in P)	0.06*	0.10	1.6

\* failure in the insulation product

### 3.4 Safety and accessibility in use (BWR4)

#### 3.4.1 Wind load resistance

No performance assessed.

### 3.4.2 Impact resistance

Table 7 – Impact resistance

Configuration	Use category (*)
Insulation (EPS) + base coat (Granol'therm G/W) + adhesive for cladding (Granol'therm Brickstick S1) + skin (ceramic tiles) + grout (Joint'fill Nanoclean)	Category I to IV
Insulation (EPS) + base coat (Granol'therm G/W) + adhesive for cladding (Granol'therm Brickstick S1) + skin (brick-slips)	
Insulation (EPS) + base coat (Granol'therm G/W) + adhesive for cladding (Granol'therm Brickstick S1) + skin (brick-slips) + grout (Joint'in or Joint'in P)	

(\*) Use category:

- Category I: This category means that the degree of exposure in use should be a zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use.
- Category II: This category means that the degree of exposure in use should be a zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care.
- Category III: This category means that the degree of exposure in use should be a zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.
- Category IV: This category means that the degree of exposure in use should be a zone out of reach from ground level.

### 3.4.3 Bond strength

#### 3.4.3.1 Bond strength between adhesive and substrate / insulation product

Table 8 – Bond strength between adhesive and substrate / insulation product

Connection	Initial state		48 h immersion in water + 2 h 23°C/50% RH		48 h immersion in water + 7 days 23°C/50% RH	
	Criteria	Result	Criteria	Result	Criteria	Result
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
Connection between the base adhesive and the substrate (concrete)	≥ 0.25	Min.: 0.34 Mean: 0.39 Failure: 100%CA	≥ 0.08	Min.: 0.69 Mean: 0.87 Failure: 78%AS	≥ 0.25	Min.: 0.98 Mean: 1.24 Failure: 100%AS
Connection between the base adhesive and the insulation panel	≥ 0.08	Min.: 0.11 Mean: 0.14 Failure: 100%CS	≥ 0.03	Min.: 0.09 Mean: 0.11 Failure: 100%CS	≥ 0.08	Min.: 0.11 Mean: 0.12 Failure: 100%CS
Connection between the external layers (skin and reinforced base coat) and the insulation panel	See section 3.3.3.					

Rupture type:

- AS = adhesive rupture
- CS = cohesive rupture in substrate/insulation product
- CA = cohesive rupture in adhesive

### 3.4.4 Tensile strength of the thermal insulation panel

The insulation panels "Granol'therm DP 100", "Granol'therm DP 160" and "Granol'therm DP 162" are made of expanded polystyrene, which as material, is considered as resistant to moisture in combination with 70°C of heat, therefore no tests in wet conditions have been performed and NPA is stated.

**Table 9 – Tensile strength of EPS**

Tensile strength of the insulation panel standard EPS according to EN 13163	Acceptance criteria	Mean value	Minimum value
	[kPa]	[kPa]	[kPa]
Under dry conditions	≥ 100	≥ 100	≥ 100
After 7 days at 70°C and 95 % RH + drying	≥ 100	NPA	NPA
After 7 days at 70°C and 95 % RH + drying	≥ 100	NPA	NPA

### 3.4.5 Shear strength and shear modulus of the thermal insulation panel

The insulation panels "Granol'therm DP 100", "Granol'therm DP 160" and "Granol'therm DP 162" are made of expanded polystyrene, which as material, is considered as resistant to moisture in combination with 70°C of heat, therefore no tests in wet conditions have been performed and NPA is stated.

**Table 10 – Shear strength of EPS**

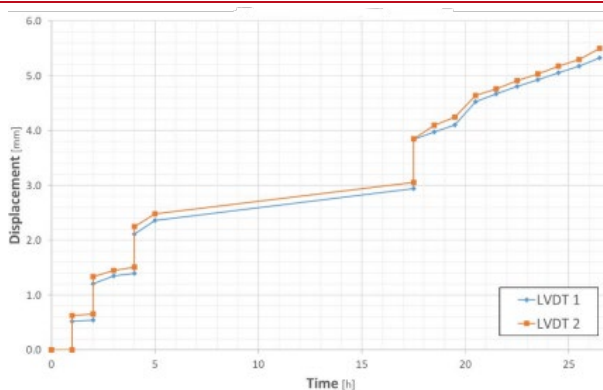
Shear strength of the insulation panel standard EPS according to EN 13163	Acceptance criteria	Mean value	Minimum value
	[kPa]	[kPa]	[kPa]
Under dry conditions	≥ 20	≥ 20	≥ 20
After 7 days at 70°C and 95 % RH + drying	≥ 20	NPA	NPA
After 7 days at 70°C and 95 % RH + drying	≥ 20	NPA	NPA

**Table 11 – Shear modulus of EPS**

Shear modulus of the insulation panel standard EPS according to EN 13163	Acceptance criteria	Mean value	Minimum value
	[kPa]	[kPa]	[kPa]
Under dry conditions	≥ 1000	≥ 1000	≥ 1000
After 7 days at 70°C and 95 % RH + drying	≥ 1000	NPA	NPA
After 7 days at 70°C and 95 % RH + drying	≥ 1000	NPA	NPA

### 3.4.6 Dead load behaviour

Maximum load	Maximum difference of displacement
(N)	(mm)
1370	0,58



### 3.4.7 Pull-through resistance

Table 12 – Pull-through resistance

Anchor plate diameter (mm)	Insulation product thickness (mm)	Insulation product tensile strength perpendicular to face (kPa)	Failure	Failure
			$R_{panel}$ (N)	$R_{joint}$ (N)
$\geq 60$	$\geq 60$	$\geq 100$	Anchors not placed at the panel joints Min = 510 Mean = 520	Anchors placed at the panel joints Min = 400 Mean = 430

### 3.4.8 Pull-out resistance

No performance assessed.

### 3.5 Protection against noise (BWR5)

#### 3.5.1 Improvement of airborne sound insulation

No performance assessed.

### 3.6 Energy economy and heat retention (BWR6)

#### 3.6.1 Thermal conductivity and thermal resistance

Thermal resistance (R-value) has been assessed according to section 2.2.18 of the EAD 040287-00-0404.

Thermal resistance (R-value) of the whole ETICS Granol' therm Brick ( $R_{ETICS}$ ) has been calculated from thermal values and geometry of the components by the addition of thermal resistances of the different layers as described in Annex L of the EAD 040287-00-0404.

$$R_{ETICS} = R_{skin} + R_{cladding\ adhesive} + R_{base\ coat} + R_{insulation} + R_{adhesive}$$

The general equation for thermal resistance (R) of each material of the wall is:

$$R = \frac{d}{\lambda}$$

where:

- $d$  = thickness of the material [m]
- $\lambda$  = thermal conductivity of the material [(m<sup>2</sup>·K)/W]

Because the skin is composed of cladding elements and grout of the joints, the thermal resistance –  $R_{skin}$  – was calculated considering the proportionality of the areas of both components and according to method described in ISO 6946:2017:

$$\frac{1}{R_{skin}} = \frac{P_{cladding}}{R_{cladding}} + \frac{P_{joint}}{R_{grout}}$$

where:

- $P_{cladding}$  = percentage surface of cladding element [%]
- $P_{joint}$  = percentage surface of joints [%]
- $R_{cladding}$  = thermal resistance of the cladding [(m<sup>2</sup>·K)/W]
- $R_{grout}$  = thermal resistance of the grout [(m<sup>2</sup>·K)/W]

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

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

where:

- $U_c$  = corrected thermal transmittance of the external wall, including thermal bridge (W/ (m<sup>2</sup>·K))
- $n$  = number of anchors per unit area (1/m<sup>2</sup>)
- $\chi_p$  = point thermal transmittance value of the anchor. The values listed below can be taken into account if not specified [W/K] (see EOTA TR 25):
  - = 0.002 W/K for anchors with a plastic screw/nail, stainless steel screw/nail with the head covered by plastic material and for anchors with an air gap at the head of the screw/nail,
  - = 0.004 W/K for anchors with a galvanized steel screw/nail with the head covered by a plastic material,
  - = 0.008 W/K for all other anchors (worst case)

The influence of thermal bridges can also be calculated as described in EN ISO 10211. It shall be calculated according to this standard if there are more than 16 anchors per m<sup>2</sup> foreseen. The declared  $\chi_p$  values do not apply in this case.

$U_c$  = thermal transmittance of the current part of the covered wall (excluding thermal bridges) (W/ (m<sup>2</sup>·K)) determined as follows:

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

where:

- $R_{si}$ : internal superficial thermal resistance [(m<sup>2</sup>·K)/W]
- $R_{substrate}$ : thermal resistance of the substrate [(m<sup>2</sup>·K)/W]
- $R_{se}$ : external superficial thermal resistance [(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.

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

In accordance with Regulation (EU) N° 305/2011, Directive 89/106/EEC is repealed, but references to the repealed Directive shall be construed as references to the Regulation.

For the products covered by this ETA the applicable European legal act is Commission Decision 1997/556/EC<sup>4</sup>, amended by the Commission Decision 2001/596/EC and Commission Decision 2011/14/EU. The systems to be applied for the products covered by this EAD have been specified in Table 13.

**Table 13 – System of assessment and verification of constancy of performance applicable to products covered by this EAD**

Intended use(s)	Level(s) or class(es)	AVCP system(s) <sup>a</sup>
In external wall not subject to fire regulations	Any	2+
In external wall subject to fire regulations	A1*, A2*, B*, C*	1
	A1**, A2**, B**, C**, D, E, F	3
	(A1 to F)***, NPD****	4
Units with a specified mean compressive strength with a probability of failure to reach it not exceeding 5 %	-	2+

<sup>a</sup> See Annex V to Regulation (EU) N° 305/2011

\* 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).

\*\* Products/materials not covered by footnote (\*).

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

\*\*\*\* 'No Performance Declared' in accordance with Regulation (EU) N° 305/2011, Article 6(f)

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

### 5.1 Tasks for the manufacturer

#### 5.1.1 Factory production control (FPC)

The manufacturer shall set up a production control system at his factory and perform regular controls of the production process according to the control plan<sup>5</sup>, as laid down in chapter 3 of EAD 040287-00-0404.

This ensures that the product shows the properties stated in this ETA.

The manufacturer may only use incoming materials according to the material data sheets. He shall control the incoming materials according to the provisions specified in the factory production control plan.

The results of the factory production control shall be recorded and evaluated. The records shall include at least the following information:

- Name of the product,
- Date of manufacturing of the product, batch N° if needed, and date of inspection or control of the product,
- Result of inspections or controls and, as far as applicable, comparison with the requirements,
- Signature of the person responsible for the factory production control.

The records shall be kept for at least five years. On request they shall be presented to UBAtc.

Details concerning extent, type and frequency of the tests or inspections to be performed within the scope of the factory production control shall correspond to the factory production control plan.

### 5.2 Tasks for the Notified Body

#### 5.2.1 Assessment of the construction product

Assessment of the product has been conducted under the responsibility by the Technical Assessment Body (UBAtc) in accordance with EAD 040287-00-0404.

These assessment results should be used for the purposes of assessment of the performance of the construction product in accordance with Regulation (EU) N° 305/2011, Annex V, clause 1.6.

#### 5.2.2 Initial inspection and continuous surveillance of the factory production

Assessment of the FPC is the responsibility of a Notified Body.

An assessment shall be carried out on the required manufacturing steps of each manufacturing plant to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. This assessment is based on an initial inspection of the factory.

<sup>4</sup> Commission Decision 97/556/EC of 14 July 1997 on the procedure for attesting the conformity of construction products pursuant to Article 20 (2) of Council Directive 89/106/EEC as regards external thermal insulation composite systems/kits with rendering (ETICS) (OJ L 229, 20.8.1997, p. 14-16)

<sup>5</sup> The control plan is a confidential part of the technical file and deposited with UBAtc and contains the required information on the factory production control and on the initial type-testing.

Subsequently continuous surveillance of factory production control is necessary to ensure continuing conformity with the ETA.

## 6 Bibliography

- EAD 040287-00-0404 Kits for external thermal insulation composite system (ETICS) with panels as thermal insulation product and discontinuous claddings as exterior skin (2021)
- EOTA TR 034 General BWR3 Checklist for EADs/ETAs Dangerous substances (2015)
- EN 822 Thermal insulating products for building applications - Determination of length and width (2013)
- EN 823 Thermal insulating products for building applications - Determination of thickness (2013)
- EN 824 Thermal insulating products for building applications - Determination of squareness (2013)
- EN 825 Thermal insulating products for building applications - Determination of flatness (2013)
- EN 1603 Thermal insulating products for building applications - Determination of dimensional stability under constant normal laboratory conditions (2013)
- EN 1604 Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions (2013)
- EN 1607 Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces (2013)
- EN 1609 Thermal insulating products for building applications - Determination of short-term water absorption (2013)
- EN 12004-1: adhesives for ceramic tiles - Part 1: Requirements, assessment and verification of consistency of performance, classification and marking (2017)
- EN 12086 Thermal insulating products for building applications - Determination of water vapour transmission properties (2013)
- EN 12090 Thermal insulating products for building applications - Determination of shear behaviour (2013)
- EN 12664 Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Dry and moist products of medium and low thermal resistance (2001)
- EN 12667 Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance (2001)
- EN 13163 Thermal insulation products for buildings - Factory made expanded polystyrene (EPS) products - Specification (2012+A1:2015)
- EN 13501-1 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests (2018)
- EN 14411 Ceramic tiles - Definitions, classification, characteristics, evaluation of conformity and marking (2012)
- EN 15286 Agglomerated stone - Slabs and tiles for wall finishes (internal and external) (2013)
- EN ISO 6946 Building components and building elements - Thermal resistance and thermal transmittance - Calculation method (2017)

NOTE: The editions of reference documents given above are those which have been adopted by the UBAtc for its specific use when establishing this ETA. When new editions become available, these supersede the editions mentioned only when confirmed by the UBAtc.

## Annex I – Insulation product characteristics

Description and characteristics	Reference	Unit	EPS Panel
Reaction to fire	EN 13501-1	-	Manufacturer's declaration
Thermal resistance	EN 13163	m <sup>2</sup> K/W	Manufacturer's declaration
Thickness	EN 823	mm	EPS – EN 13163 – T2
Length	EN 822	mm	EPS – EN 13163 – L2
Width	EN 822	mm	EPS – EN 13163 – W2
Squareness	EN 824	mm	EPS – EN 13163 – S(2)
Flatness	EN 825	mm	EPS – EN 13163 – P(5)
Surface condition	-	-	Cut surface (homogeneous and without "skin")
Dimensional stability	Specified temperature and humidity / EN 1604 (70°C)	%	EPS-EN 13163 DS (70,-)
	Laboratory conditions / EN 1603		EPS-EN 13163 DS(N)2
Water absorption (partial immersion)	EN 12087	kg/m <sup>2</sup>	EPS-EN 13163 WL(P)1
Water vapour diffusion resistance factor ( $\mu$ )	EN 12086	-	20 to 50
Tensile strength perpendicular to the faces in dry conditions (standard EPS)	EN 1607	kPa	≥ 100 (EPS-EN 13163 – TR 100)
Shear strength	EN 12090	MPa	≥ 0,02
Shear modulus of elasticity (standard EPS)	EN 12090	MPa	≥ 1

## Annex II – Anchors for insulation product

Trade name	Plate diameter (mm)	Characteristic resistance in the substrate
Granol'therm STR U 2G (Ejot STR U 2 G)	≥ 60	ETA-04/0023
Granol'therm CS 8 (Fischer TERMOZ CS 8)		ETA-14/0372

## Annex III – Alkali resistance of the reinforcement mesh Granol'therm AGG

Residual resistance after ageing		Relative residual resistance: (after ageing) of the strength in the as delivered state	
Warp	Weft	Warp	Weft
[N/mm]	[N/mm]	(%)	(%)
≥ 44	≥ 44	≥ 65	≥ 65

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This European Technical Assessment has been issued by UBA<sub>tc</sub> asbl, in Sint-Stevens-Woluwe, on the basis of the technical work carried out by the Assessment Operators, Buildwise and SECO Belgium.

On behalf of UBA<sub>tc</sub> asbl,



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The most recent version of this European Technical Assessment may be consulted on the UBA<sub>tc</sub> website ([www.butgb-ubatc.be](http://www.butgb-ubatc.be)).