UBAtc
Union belge pour l'Agrément technique de la construction

member of EOTA and UEAtc

European Technical Assessment

ETA 09/0151
Version 01
Date of issue: 2018-06-12

UBAtc Assessment Operator:
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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)

Trade name of the construction product:	GRANOL'THERM EPS KB
Product family to which the construction product belongs:	External Thermal Insulation Composite System with rendering on polystyrene for use as external insulation to the walls of buildings
Manufacturer:	CANTILLANA N.V. Pontstraat 84 B-9831 Deurle Belgium
Manufacturing plant:	CANTILLANA N.V. Oudstrijdersstraat 58 B-1600 Sint-Pieters-Leeuw Belgium
Website:	http://www.cantillana.com/
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	ETA-Guideline Nr 004, amended November 2012, used as European Assessment Document (EAD)
This version replaces:	ETA 09/0151 issued on 7 June 2013
This European Technical Assessment contains:	12 pages, including 5 annexes, which form an integral part of this ETA

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:

- Regulation (EU) N° 305/2011[1] of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
- Commission Implementing Regulation (EU) N° 1062/2013[2] of 30 October 2013 on the format of the European Technical Assessment for construction products
- European Technical Approval Guideline (ETAG) 004, External Thermal Insulation Composite Systems with Rendering, used as European Assessment Document (EAD)

2 Under the provisions of Regulation (EU) No 305/2011, UBAtc is not authorized to check whether the provisions of this European Technical Assessment are met once the ETA has been issued.

3 The responsibility for the conformity of the performances of the products with this European Technical Assessment and the suitability of the products for the intended use remains with the holder of the European Technical Assessment.

4 Depending on the applicable Assessment and verification of constancy of performance (AVCP) system, (a) notified body(ies) may carry out third-party tasks in the process of assessment and verification of constancy of performance under this Regulation once the European Technical Assessment has been issued.

5 This European Technical Assessment allows the manufacturer of the construction product covered by this ETA to draw up a declaration of performance for the construction product.

6 CE marking should be affixed to all construction products for which the manufacturer has drawn up a declaration of performance.

7 This European Technical Assessment is not to be transferred to other manufacturers, agents of manufacturers, or manufacturing plants other than those indicated on page 1 of this European Technical Assessment.

8 The European Technical Assessment holder confirms to guarantee that the product(-s) to which this assessment elates, is/are produced and marketed in accordance with and comply with all applicable legal and regulatory provisions, including, without limitation, national and European legislation on the safety of products and services. The ETA-holder shall notify the UBAtc immediately in writing of any circumstance affecting the aforementioned guarantee. This assessment is issued under the condition that the aforementioned guarantee by the ETA-holder will be continuously observed.

9 According to Article 11(6) of Regulation (EU) No 305/2011, when making a construction product available on the market, the manufacturer shall ensure that the product is accompanied by instructions and safety information in a language determined by the Member State concerned which can be easily understood by users. These instructions and safety information should fully correspond with the technical information about the product and its intended use, which the manufacturer has submitted to the responsible TAB for the issuing of the European Technical Assessment.

10 Pursuant to Article 11(3) of Regulation (EU) No 305/2011, manufacturers shall adequately take into account changes in the product-type and in the applicable harmonised technical specifications. Therefore, when the contents of the issued European Technical Assessment do not any longer correspond to the product-type, the manufacturer should refrain from using this European Technical Assessment as the basis for their declaration of performance.

11 All rights of exploitation in any form and by any means of this European Technical Assessment are reserved for UBAtc and the ETA-holder, subject to the provisions of the applicable UBAtc regulations.

12 Reproduction of this European Technical Assessment including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of UBAtc. In this case, partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Assessment.

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 on 12 June 2018 and replaces European Technical Approval, ETA 09/0151, issued on 7 June 2013. Compared with the European Technical Approval, a PU foam adhesive and different finishing coats (Granol RS KR/RP, Granol Freestyle, Granosil RS KR/RP and Granosilan KR) have been included.

[1] OJEU, L 88 of 2011-04-04

[2] OJEU, L 289 of 2013-10-31

Technical Provisions

1 Technical description of the product

1.1 Characteristics of the products

1.1.1 General

This ETA is being issued for the products specified on the cover page on the basis of agreed data/information, deposited with the UBAtc, which identifies the products that have been assessed and judged.

Changes to the product/production process, which could result in the deposited data/information being incorrect, should be notified to the UBAtc before the changes are introduced. The UBAtc will decide whether or not such changes affect the ETA and if so whether further assessment/alterations to the ETA, shall be necessary.

1.1.2 Granol'therm EPS KB

This European Technical Assessment specifies an ETICS (External Thermal Insulation Composite System with rendering), i.e. 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 polystyrene to be bonded onto a wall. The insulation product is faced with a rendering system consisting of more layers (site applied), one of which contains the 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 a part of the kit.

1.1.3 Composition of the ETICS

	Components (see Annexes for further description, characteristics and performances of the components)	Coverage [kg/m²]	Thickness [mm]
Insulation materials with associated methods of fixing	**Bonded ETICS (partially or fully bonded. National application documents shall be taken into account)**		
	– Insulation product: Factory-prefabricated expanded polystyrene (EPS) according to EN 13163 - standard EPS - elasticised EPS		≤ 400 ≤ 200
	– Adhesive: - Granol'therm KB (*) (CEM I cement base powder requiring addition of 23-26 % water) - Granol'therm G/W (**) (CEM I cement base powder requiring addition of 25-27 % water) - Granol'therm PU-Fix (one component PU foam adhesive)	3,0 – 5,0 (powder) 3,0 – 5,0 (powder) 150 ml	
Insulation materials with associated methods of fixing	**Mechanically fixed ETICS with profiles**		
	– Insulation product: Factory-prefabricated expanded polystyrene (EPS) according to EN 13163 - standard EPS		60 to 200
	– Supplementary adhesive: - Granol'therm KB (*) (CEM I cement base powder requiring addition of 23-26 % water) - Granol'therm G/W (**) (CEM I cement base powder requiring addition of 25-27 % water) - Granol'therm PU-Fix (one component PU foam adhesive)	3,0 – 5,0 (powder) 3,0 – 5,0 (powder) 150 ml	
	– Profiles (Halteleiste – Verbindungsleiste PVC) - Polyvinyl chloride (PVC) profiles		
	– Anchors for profiles: see Annex II of anchors with an ETA according to ETAG 014		
Insulation materials with associated methods of fixing	**Mechanically fixed ETICS with anchors and supplementary adhesive (see 2.2.8.3.b for possible associations EPS/anchors)**		
	– Insulation product: Factory-prefabricated expanded polystyrene (EPS) according to EN 13163 - standard EPS - elasticised EPS		60 to 400 60 to 200
	– Supplementary adhesive: - Granol'therm KB (*) (CEM I cement base powder requiring addition of 23-26 % water) - Granol'therm G/W (**) (CEM I cement base powder requiring addition of 25-27 % water) - Granol'therm PU-Fix (one component PU foam adhesive)	3,0 – 5,0 (powder) 3,0 – 5,0 (powder) 150 ml	
	– Anchors for EPS: see Annex II of anchors with an ETA according to ETAG 014		
Base coat	Granol'therm KB (CEM I cement base powder requiring addition of 23-26 % water)	About 4,5	mean: 4,0 min 3,0
Glass fibres meshes	Standard mesh: Granol'therm AGF – glass fibre mesh 4 x 4 mm Reinforced mesh: Granol'therm PZG (implemented in addition to the standard mesh to improve impact resistance) – glass fibre mesh 6 x 5 mm	0,165 0,540	
Key coat	Granol'plus STG: ready to use pigmented liquid (***) Granol'plus STF: ready to use pigmented liquid (***)	0,2 – 0,3 0,2 – 0,3	

	Components (see Annexes for further description, characteristics and performances of the components)	Coverage [kg/m²]	Thickness [mm]
Finishing coats	Ready to use paste – acrylic binder: – Granol KR/RP (1 – 5 mm) – Granol RS KR/RP (1 – 5 mm) – Granol Freestyle (0,2 mm)	 2,3 – 5,7 2,3 – 5,7 Depends on the number of layers	Regulated by the particle size
	Ready to use paste – acrylosiloxane binder: – Granosil KR/RP (1 – 4 mm) – Granosil RS KR/RP (1,5 – 4 mm) – Granosilan KR (particle size 0,5 – 2,0 mm)	 2,3 – 5.3 2,7 – 5.3 2,0 – 3.4	
	Acrylic based brick-slip: – Granol'blend FV/EV + AM (adhesive and joint mortar)	 2,5 – 3,4	 4
	Cement based powder requiring the addition of water: – Granomin VS/ Granicem ITE (1 – 6 mm)	 17 - 29	 10
Ancillary materials	Description in accordance with § 3.2.2.5 of the ETAG 004 Remains under the Anchor ETA-holder responsibilities		

(*) Granol'therm KB is supplied in two versions: G based on grey cement and W: based on white cement
(**) Granol'therm G: based on grey cement – Granol'therm W: based on white cement
(***) Granol'plus STG to be used with Granol Freestyle
Granol'plus STF to be used with Granosil and Granosilan
(****) Granicem ITE is another trade name for Granomin VS

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, 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.

The assumed working life of a system cannot be taken as a guarantee given by the producer, but is to be used as a means for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

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 Provisions related to manufacturing, packaging, transportation and storage

2.2.1 Manufacture

The product is applied on site according to the procedure laid down in the technical file deposited with the UBAtc.

2.2.2 Packaging, transportation 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 people concerned.

2.3 Provisions related to the design and use of the product

2.3.1 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.

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 7.1 and 7.2 of ETAG 004 used as EAD, 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.

2.3.2 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 that 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 available to the people concerned.

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

3.1 General

The performances of the kit as described in this chapter are valid provided that the components of the kit comply with Annexes 1 to 5.

3.2 Mechanical resistance and stability

Not relevant

3.3 Safety in case of fire - Reaction to fire (ETAG 004 – clause 5.1.2.1, EN 13501-1)

Configuration	Organic content / heat of combustion	Flame retardant content	Euroclass according to EN 13501-1
EPS (weight ≤ 35 kg/m³) with Granol'therm KB (base coat) and – Granol'plus STG + Granol KR/RP, Granol RS KR/RP or Granol Freestyle – Granosil'plus STF + Granosil KR/RP, Granosil RS KR/RP or Granosilan KR – Granol'blend FV/EV + AM – Granomin VS / Granicem ITE	Base coat ≤ 2,85 % Key coat ≤ 10,30 % Finishing coat ≤ 8,50 %	No flame retardant	B-s2, d0

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.

3.4 Hygiene, health and environment

3.4.1 Water absorption (ETAG 004 - clause 5.1.3.1)

3.4.1.1 Base coat

– Water absorption after 1 hour < 1 kg/m²
– Water absorption after 24 hours ≥ 0, 5 kg/m²

3.4.1.2 Rendering system

Rendering system: Granol'therm KB with	Water absorption after 24 hours	
	< 0,5 kg/m²	≥0,5 kg/m²
Granol KR/RP	x	
Granol RS KR/RP		
Granol Freestyle		
Granosil KR/RP		
Granosil RS KR/RP		
Granosilan KR		
Granol'blend FV/EV + AM		
Granomin VS / Granicem ITE		

3.4.2 Water tightness (ETAG 004 - clause 5.1.3.2)

3.4.2.1 Hygrothermal behaviour

Hygrothermal cycles have been performed on a rig. None of the following defects occurred during the testing:
– blistering or peeling of any finishing;
– failure or cracking associated with joints between insulation product boards or profiles fitted with the ETICS;
– detachment of render;
– cracking allowing water penetration to the insulation layer.

The ETICS is therefore assessed resistant to hygrothermal cycles.

3.4.2.2 Freeze-thaw behaviour

The water absorptions of both base coat and the rendering systems with Granol KR/RP, Granol RS KR/RP, Granol Freestyle, Granosil KR/RP, Granosil RS KR/RP, Granosilan KR, Granol'blend FV/EV and Granomin VS/Granicem ITE are less than 0,5 kg/m² after 24 hours and so the corresponding configurations of the ETICS are assessed as freeze/thaw resistant.

3.4.3 Impact resistance (ETAG 004 - clause 5.1.3.3)

Rendering system: Granol'therm KB +	Granol'therm AGF	Granol'therm AGF + Granol'therm PZG
Granol KR/RP	II	I
Granol RS KR/RP	II	II
Granol Freestyle	II	II
Granosil KR/RP	II	I
Granosil RS KR/RP	II	I
Granosilan KR	III	II
Granol'blend FV/EV + AM	I	NPA
Granomin VS/ Granicem ITE	III	NPA

(*) NPA: No Performance Assessed

3.4.4 Water vapour permeability (ETAG 004 - clause 5.1.3.4)

Rendering system: Granol'therm KB +	Equivalent air thickness s_d [m]
Granol KR/RP	≤ 2,0 (test result obtained with particle size 4 mm: 0,3 m)
Granol RS KR/RP	≤ 2,0 (test result obtained with particle size 4 mm: 0,4 m)
Granol Freestyle	≤ 2,0 (test result obtained with particle size 0,2 mm: 0,4 m)
Granol'plus STG + Granol KR/RP	≤ 2,0 (test result obtained with particle size 4 mm: 0,4 m)
Granosil KR/RP	≤ 2,0 (test result obtained with particle size 4 mm: 0,1 m)
Granosil RS KR/RP	≤ 2,0 (test result obtained with particle size 4 mm: 0,1 m)
Granosil'plus STF + Granosil KR/RP	≤ 2,0 (test result obtained with particle size 4 mm: 0,2 m)
Granosilan KR	≤ 2,0 (test result obtained with particle size 5,3 mm: 0,5 m)
Granol'blend FV/EV + AM	≤ 2,0 (test result obtained with 6,5 mm: 0,6 m)
Granomin VS/ Granicem ITE	≤ 2,0 (test result obtained with 13,2 mm: 0,1 m)

3.4.5 Release of dangerous substances (ETAG 004 - clause 5.1.3.5, EOTA TR034)

According to the written declaration on dangerous substances submitted by the ETA-holder to the Technical Assessment Body the kit does not contain any dangerous substances. In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the kit 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.

Note: For dangerous substances falling under the scope of the CPR for which

- No assessment and verification methods are given (or cannot be found in TR 034); or
- "No performance determined" is declared; or
- The chosen verification and assessment method does not comply with the regulatory requirement of a particular Member State

There might be the necessity for an additional assessment.

3.5 Safety and accessibility in use

3.5.1 Bond strength between base coat and insulation product (ETAG 004 - clause 5.1.4.1.1)

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

3.5.2 Bond strength between adhesive and substrate / insulation product (ETAG 004 - clauses 5.1.4.1.2, 5.1.4.1.3, 5.1.4.1.4)

		Initial state [MPa]	48 h immersion in water + 2 h 23°C/50% RH [MPa]	48 h immersion in water+ 7 days 23°C/50% RH [MPa]
Granol'therm KB	Concrete	≥ 0,25	≥ 0,08	≥ 0,25
	Insulation	≥ 0,08	≥ 0,03	≥ 0,08
Granol'therm G/W	Concrete	≥ 0,25	≥ 0,08	≥ 0,25
	Insulation	≥ 0,08	≥ 0,03	≥ 0,08

		Conditioning			
		Initial state [MPa]	Modified thickness (15 mm) [MPa]	Maximum open time (10 min) [MPa]	Modified temperature (0°C, 80°C) [MPa]
Granol'therm PU-Fix	Concrete and insulation product	≥ 0,08	≥ 0,08	≥ 0,08	≥ 0,08

The minimal bonded surface S, which shall exceed 20 % (40 % for foam Granol'therm PU-Fix), is calculated as follows:

$$S\,[\%] = (0{,}03\,[MPa] * 100)/B$$

where

- B: minimum mean failure resistance of the adhesive to the insulation product in dry conditions;
- 0,03 MPa corresponds to the minimum requirements.

The ETICS may be installed on the substrate with application of the adhesive on the minimal surface in accordance with the following table.

	Tensile strength perpendicular to the face of the insulation product	
	≥ 80 kPa	≥ 100 kPa
Granol'therm KB	40 %	30 %
Granol'therm G/W	40 %	30 %

3.5.3 Fixing strength (ETAG 004 - clause 5.1.4.2)

Test not required, because the ETICS fulfils the following criterion:

E x d < 50.000 N/mm (E = modulus of elasticity of the base coat – d = mean dried thickness of the base coat).

3.5.4 Wind load resistance (ETAG 004 - clause 5.1.4.3)

3.5.4.1 Using profiles

		Value
Insulation product	Thickness [mm]	≥ 60
	Tensile strength perp. to face [kPa]	≥ 150
	Shear strength [MPa]	≥ 0,02
	Shear modulus [MPa]	≥ 1,5
Failure [N] (Static foam block test)	Horizontal profiles fixed every 30 cm + vertical connection profiles 500 x 500 mm² panels	Min = 826 Mean = 860

3.5.4.2 Using anchors

		Value
Anchors	Plate diameter [mm]	≥ 60
Insulation product	Thickness [mm]	≥ 80
	Tensile strength perp. to face [kPa]	≥ 80
Failure [N]	Anchors not placed at the panel joints R_{panel}	Min = 350 Mean = 360
	Anchors placed at the panel joints R_{jointl}	Min = 300 Mean = 310

		Value
Anchors	Plate diameter	≥ 60
Insulation product	Thickness [mm]	≥ 60
	Tensile strength perp. to face [kPa]	≥ 100
Failure [N]	Anchors not placed at the panel joints R_{panel}	Min = 510 Mean = 520
	Anchors placed at the panel joints R_{jointl}	Min = 400 Mean = 430

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

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

with

n_{panel}: the number (per m²) of anchors not placed at the panel joints

n_{joint}: the number (per m²) of anchors placed at the panel joints

γ: a national safety factor

3.5.5 Render strip tensile test

No performance assessed.

3.6 Protection against noise - Airborne sound insulation

No performance assessed.

3.7 Energy economy and heat retention - Thermal resistance

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:

$\chi_p \times n$ has only to be taken into account if it is greater than 0, 04 W/(m².K)

U_C: global (corrected) thermal transmittance of the covered wall [W/ (m².K)]

n: number of anchors (through insulation product) per m²

χ_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 ($\chi_p \times n$ negligible for n < 20)

= 0.004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material ($\chi_p \times n$ 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/ (m².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 (m².K)/W

R_{render}: thermal resistance of the render (about 0.02 in (m².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 (m².K)/W

R_{se}: external superficial thermal resistance in (m^2.K)/W

R_{si}: internal superficial thermal resistance in (m^2.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.

3.8 Aspects of durability and serviceability - Bond strength after ageing

Rendering system: Granol'therm KB +	Bond strength [MPa]	After freeze/thaw cycles
Granol KR/RP	≥ 0,08	Test not required
Granol RS KR/RP		
Granol Frestyle		
Granosil KR/RP		
Granosil RS KR/RP		
Granosilan KR		
Granol'blend FV/EV + AM		
Granomin VS/ITE		

3.9 Sustainable use of natural resources

No performance assessed.

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

NOTE 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.

According to the Commission Decision 97/556/EC, amended by the Commission Decision 2001/596/EC and Commission Decision 2011/14/EU, the following system(s) of assessment and verification of constancy of performance apply.

Table 1 : Systems of assessment and verification of constancy of performance

Product(s)	Intended uses	Level(s) or class(es) (reaction to fire)	Assessment and verification of constancy of performance system(s)[a]
External thermal insulation composite systems/kits (ETICS) with rendering	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 (A1toE)***, NPD****	2+

[a] Systems1 and 2+ :See Regulation (EU) N° 305/2011, Annex V

* Products/materials forwhichaclearlyidentifiablestageintheproductionprocessresult sinanimprovementofthereactiontofireclassification(e.g.anaddi tionoffireretardantsoralimitingoforganicmaterial)

** 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, as amended)

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

5 Technical details necessary for the implementation of the AVCP system

5.1 General

In order to help the Notified Body making 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.

5.2 The ETA

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

5.3 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.

5.4 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.

5.5 Control Plan (as a part of FPC)

The manufacturer and the Technical Assessment Body have agreed a Control Plan, which is deposited with the UBAtc 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 shall 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 the UBAtc without delay.

6 References

EOTA TR 046 Test methods for foam adhesives for ETICS

EN 822 Thermal insulating products for building applications - Determination of length and width

EN 823 Thermal insulating products for building applications - Determination of thickness

EN 824 Thermal insulating products for building applications - Determination of squareness

EN 825 Thermal insulating products for building applications - Determination of flatness

EN 1604 Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions

EN 1609 Thermal insulating products for building applications - Determination of short term water absorption

EN 12086 Thermal insulating products for building applications - Determination of water vapour transmission properties

EN 12090 Thermal insulating products for building applications - Determination of shear behaviour

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

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

EN 13501-1 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

EN 13163 Thermal insulation products for buildings - Factory made expanded polystyrene (EPS) products – Specification

EN ISO 1163-1 Plastics - Unplasticized poly(vinyl chloride) (PVC-U) moulding and extrusion materials - Part 1: Designation system and basis for specifications

EN ISO 6946 Building components and building elements - Thermal resistance and thermal transmittance - Calculation method

Annex I Insulation product characteristics

Description and characteristics	Reference	Unit	EPS Panel		
			Bonded ETICS	Mechanically fixed ETICS	
				Anchors and additional bonding	Profiles and additional bonding
Reaction to fire	EN 13501-1	-	Manufacturer's declaration		
Thermal resistance	EN 13163	m²K/W	Manufacturer's declaration		
Thickness	EN 823	mm	EPS – EN 13163 – T2		± 1
Length	EN 822	mm	EPS – EN 13163 – L2		± 1
Width	EN 822	mm	EPS – EN 13163 – W2		± 1
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,-)		48h/70°C 500x500 mm panels: < 0,30 % no values > 0,35 %
	Laboratory conditions / EN 1603		EPS-EN 13163 DS(N)2		≤ 0,15 %
Water absorption (partial immersion)	EN 1609	kg/m²	EPS-EN 13163 WL(T)1		
Water vapour diffusion resistance factor (μ)	EN 12086	-	30 to 70		
Tensile strength perpendicular to the faces in dry conditions : - standard EPS - elasticised EPS	EN 1607	kPa	≥ 80 EPS-EN 13163 – TR80, TR100, TR150 ≥ 80 EPS-EN 13163 – TR80, TR100, TR150		≥ 100 EPS-EN 13163 – TR100 Not used
Shear strength	EN 12090	MPa	≥ 0,02		≥ 0,02
Shear modulus of elasticity - standard EPS - elasticised EPS	EN 12090	MPa	≥ 1 ≥ 0,3		≥ 1,5 Not used

Annex II Anchors

	Trade name	Plate diameter (mm)	Characteristic resistance in the substrate
For profiles	Granol'therm NK U		ETA 05/0009
	Granol'therm SDK U		ETA 04/0023
	Ejotherm NK U		ETA 05/0009
	Ejotherm SDK U		ETA 04/0023
	Ejotherm SK U		ETA 02/0018
	Ejotherm SDF-K plus		ETA 04/0064
	Ejotherm SDF-K plus U		ETA 04/0064
	Ejotherm SDF-K plus UB		ETA 04/0064
	IsoFux ND-8Z		ETA 04/0032
	Fischer WS 8L		ETA 02/0019
	Fischer WS 8N		ETA 03/0019
For insulation product	Granol'therm NT U (Fischer TERMOZ 8 U, 8 UZ)		ETA 02/0019
	Granol'therm STR U		ETA 04/0023
	Granol'therm NTK U		ETA 07/0026
	Fischer TERMOZ 8 N, 8 NZ	≥ 60	ETA-03/0019
	Fischer TERMOZ PN 8		ETA-09/0171
	Granol'therm CN 8 (Fischer TERMOZ CN 8)		ETA-09/0394
	Hilti SDK-FV 8		ETA-07/0302
	Koelner TFIX-8M		ETA-07/0336
	Granol'therm STR U, STR U 2G (Ejotherm STR U, STR U 2 G)		ETA-04/0023
	Granol'therm H1 eco (Ejot H1 eco)		ETA-11/0192
	Granol'therm H3 (Ejot H3)		ETA-14/0130
	Granol'therm CS 8 (Fischer TERMOZ CS 8)		ETA-14/0372
	Granol'therm NT U (Ejotherm NT U)		ETA-05/0009
	Isofux NDS8Z, NDS90Z		ETA-07/0129
	Isofux NDM8Z, NDM90Z		ETA-07/0129
	Hilti SX-FV		ETA-03/0005
	Hilti D 8-FV		ETA-07/0288
	Granol'therm SV II (Fischer Termoz SV II ecotwist)		ETA-12/0208

Annex III Description and characteristic of the profiles

Trade name	Characteristics		
	Horizontal fixing	Vertical connection	Pull-through resistance
PVC-U,E P, 082-25-28 (EN ISO 1163-1:1999)	Each 30 cm	49,4 cm	≥ 500 N

Annex IV Description and characteristics of the reinforcement

Mesh trade name	Alkali resistance			
	Residual resistance after ageing (N/mm^2)		Relative residual resistance: % (after ageing) of the strength in the as delivered state	
	Warp	Weft	Warp	Weft
Granol'therm AGF	≥ 30	≥ 30	≥ 60	≥ 60
Granol'therm PZG	≥ 60	≥ 100	≥ 60	≥ 60

Annex V Description and characteristics of the PU foam adhesive

Characteristic	Unit	Reference	Result
Shear strength	kPa	EOTA TR 046 – 4.3	73
Shear modulus			158
Post-expansion behaviour after: - 7.5°C/95% R.H. - 23°C/30% R.H. - 23°C/50% R.H. - 23°C/90% R.H. - 30°C/35% R.H. - 50°C/30% R.H.	mm	EOTA TR 046 – 4.2	1.0 4.1 3.3 3.3 0.7 2.0

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This European Technical Assessment has been issued by UBAtc asbl, in Sint-Stevens-Woluwe, on the basis of the technical work carried out by the Assessment Operator, BCCA.

On behalf of UBAtc asbl,

Peter Wouters,
Director

On behalf of the Assessment Operator, BCCA, responsible for the technical content of the ETA,

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