



## European Technical Assessment

**ETA-15/0024**  
**of 26/01/2015**

### GENERAL PART

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

Centre Scientifique et Technique du Bâtiment (CSTB)

**Trade name of the construction product:**

**GRANOL'THERM MINERAL**

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

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

**Manufacturer:**

**Cantillana NV SA**  
Pontstraat 84  
BE – 9831 Deurle  
BELGIQUE

**Manufacturing plant(s):**

**Cantillana NV SA**  
Pontstraat 84  
BE – 9831 Deurle  
BELGIQUE

**This European Technical Assessment contains:**

14 pages including 3 Annexes which form an integral part of this assessment

Annex 4 contains confidential information and is/are not included in the European Technical Assessment when that assessment is publicly available

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

European Technical Approval Guideline No 004 (ETAG 004), edition 2013, used as European Assessment Document (EAD)

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es) referred to above). However, partial reproduction may be made, with the written consent of the CSTB. Any partial reproduction has to be identified as such.

## SPECIFIC PART

### 1. Technical description of the product

The External Thermal Insulation Composite System “**GRANOL'THERM MINERAL**”, subject to this European Technical Assessment (hereinafter ETA) and called ETICS in the following text, is a kit designed and installed in accordance with the Manufacturer's instructions, deposited with the CSTB. The ETICS comprises the components listed in the following table, which are factory-produced by the Manufacturer or a supplier. The ETICS is made up on site from these components.

The ETICS also includes ancillary materials which are defined in clause 3.2.2.5 of the ETAG 004<sup>1</sup>. They shall be used in accordance with the Manufacturer's instructions.

The ETICS is described according to its method of fixing, as defined in clause 2.2 of the ETAG 004.

Method of fixing	Component	Coverage (kg/m <sup>2</sup> )	Thickness (mm)
Mechanically fixed ETICS with anchors and supplementary adhesive	<b>Insulation product</b>		
	ECOROCK, by ROCKWOOL, see Annex 1		50 to 260
	<b>Supplementary adhesives</b>		
	<b>Granol'therm KB:</b> powder, grey or white cement-based, to be mixed with 23 to 26% wt. water	3.0 to 5.0 [powder]	—
	<b>Granol'therm G:</b> powder, grey cement-based, to be mixed with 24 to 27% wt. water	3.0 to 5.0 [powder]	—
	<b>Anchors for insulation product</b>		
	Plastic anchors, see Annex 2	—	—
	<b>Base coat</b>		
	<b>Granol'therm G:</b> powder, grey cement-based, to be mixed with 24 to 27% wt. water	About 4.8 [powder]	Mean: 4.0 [dry] Minimal: 3.7 [dry]
	<b>Mesh</b>		
	Glass fibre mesh (standard), see Annex 3		
	<b>Key coats</b>		
	<b>Granol'plus STG:</b> pigmented liquid, acrylic binder, to apply before Granol KR/RP, Decor and Granol'flex	0.20 to 0.30	—
	<b>Granosil'plus STF:</b> pigmented liquid, siloxane copolymer binder, to apply before Granosil KR/RP	0.20 to 0.30	—

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

Method of fixing	Component	Coverage (kg/m <sup>2</sup> )	Thickness (mm)
<b>Mechanically fixed ETICS with anchors and supplementary adhesive</b>	<b>Finishing coats</b>		
	Ready-to-use pastes, acrylic binder: - <b>Granol KR 1.5 mm</b> (particle size 1.5 mm) - <b>Granol KR 2 mm</b> (particle size 2.0 mm) - <b>Granol RP 2.5 mm</b> (particle size 2.5 mm) - <b>Granol RP 3.0 mm</b> (particle size 3.0 mm)	2.7 to 3.0 3.4 to 3.7 3.5 to 3.7 3.7 to 3.9	Regulated by particle size
	Ready-to-use pastes, acrylosiloxane copolymer binder: - <b>Granosil KR 1.5 mm</b> (particle size 1.5 mm) - <b>Granosil KR 2 mm</b> (particle size 2.0 mm) - <b>Granosil RP 2.5 mm</b> (particle size 2.5 mm) - <b>Granosil RP 3.0 mm</b> (particle size 3.0 mm)	2.7 to 3.0 3.4 to 3.7 3.5 to 3.7 3.7 to 3.9	Regulated by particle size
	Ready-to-use paste, acrylic binder: - <b>Decor</b> (particle size 2.5 mm)	4.5 to 4.7	Regulated by particle size
	Ready-to-use pastes, silicate binder: - <b>Granol'flex 1.5 mm</b> (particle size 1.5 mm) - <b>Granol'flex 2 mm</b> (particle size 2.0 mm)	2.7 to 3.2 3.7 to 4.2	Regulated by particle size
	White powder to be mixed with 20 to 23% wt. water: - <b>Granicem ITE</b>	17 to 23	About 16.0 mm
	White powder to be mixed with 24 to 28% wt. water: - <b>Granomin KR 2 mm:</b> (particle size 2.0 mm)	3.0 to 4.0	About 2.5 mm

The ETICS is designed to give the walls to which it is applied satisfactory thermal insulation. The minimum thermal resistance of the ETICS shall be higher than 1.0 m<sup>2</sup>.K/W.

The components are protected from moisture during transport and storage by means of appropriate packaging, unless other measures are foreseen by the Manufacturer for this purpose.

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

This ETICS is intended to be used as thermal insulation of buildings' external walls made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels).

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

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

The ETICS is not intended to ensure the airtightness of the walls.

The provisions made in this ETA are based on an assumed working life of at least 25 years, provided that the construction works are subject to appropriate design, execution, maintenance and repair. The indications given as to the working life cannot be interpreted as a guarantee given by the Manufacturer or the Technical Assessment Body, but should only be regarded as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

Design, execution, maintenance and repair of the construction works shall take into account principles given in chapter 7 of the ETAG 004 and shall be done in accordance with national instructions.

### 3. Performances of the product and references to the methods used for their assessment

Performances of the ETICS, related to the basic requirements for construction works (hereinafter BWR), were determined according to chapters 4, 5 and 6 of the ETAG 004.

These performances, given in the following paragraphs, are valid as long as the components are the ones described in § 1 and Annexes 1 to 3 of this ETA.

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

Not relevant.

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

Reaction to fire:

Configuration	Declared organic content <sup>(1)</sup>	Declared flame retardant content <sup>(1)</sup>	Class according to EN 13501-1
<ul style="list-style-type: none"> <li>Adhesives / supplementary adhesives: <ul style="list-style-type: none"> <li>- <b>Granol'therm G</b></li> <li>- <b>Granol'therm KB</b></li> </ul> </li> <li>Insulation product: <ul style="list-style-type: none"> <li>Mineral wool panels, reaction to fire Class A1, thickness <math>\leq 260</math> mm, density <math>\leq 150</math> kg/m<sup>3</sup></li> </ul> </li> <li>Base coat: <ul style="list-style-type: none"> <li><b>Granol'therm G</b></li> </ul> </li> <li>Mesh: <ul style="list-style-type: none"> <li><b>03-1 C+ (Granol'therm AGF)</b></li> </ul> </li> <li>Finishing coats: <ul style="list-style-type: none"> <li>- <b>Decor</b></li> <li>- <b>Granosil KR 1.5 mm</b></li> <li>- <b>Granosil KR 2 mm</b></li> <li>- <b>Granosil RP 2.5 mm</b></li> <li>- <b>Granosil RP 3 mm</b></li> <li>- <b>Granomin KR 2 mm</b></li> <li>- <b>Granicem ITE</b></li> </ul> </li> </ul>	<p>Base coat: 2.6%</p> <p>Finishing coats: &lt; 7.5%</p>	<p>Base coat: 0.0%</p> <p>Finishing coats: 0.0%</p>	A2 – s1, d0

Configuration	Declared organic content <sup>(1)</sup>	Declared flame retardant content <sup>(1)</sup>	Class according to EN 13501-1
<ul style="list-style-type: none"> <li>Adhesives / supplementary adhesives:               <ul style="list-style-type: none"> <li>- <b>Granol'therm G</b></li> <li>- <b>Granol'therm KB</b></li> </ul> </li> <li>Insulation product: Mineral wool panels, reaction to fire Class A1, thickness <math>\leq 260</math> mm, density <math>\leq 150</math> kg/m<sup>3</sup></li> <li>Base coat: <b>Granol'therm G</b></li> <li>Meshes: <b>03-1 C+ (Granol'therm AGF)</b></li> <li>Finishing coats:               <ul style="list-style-type: none"> <li>- <b>Granol'flex 1.5 mm</b></li> <li>- <b>Granol'flex 2 mm</b></li> <li>- <b>Granol KR 1.5 mm</b></li> <li>- <b>Granol KR 2 mm</b></li> <li>- <b>Granol RP 2.5 mm</b></li> <li>- <b>Granol RP 3 mm</b></li> </ul> </li> </ul>	Base coat: 2.6%  Finishing coats: < 14.4%	Base coat: 0.0%  Finishing coats: 0.0%	C – s2, d0

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

Note: a European reference fire scenario has not been laid down for façades. In some Member States, the classification of ETICS according to EN 13501-1 might not be sufficient for the use in façades. An additional assessment of ETICS according to national provisions (e.g., on the basis of a large scale test) might be necessary to comply with Member States regulations, until the existing European classification system has been completed.

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

#### 3.3.1 Water absorption – capillarity test

##### 3.3.1.1 Water absorption of the base coat

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

### 3.3.1.2 Water absorption of the rendering system

Rendering system: Base coat + key coat + finishing coat indicated below	Water absorption after 24 hours	
	< 0.5 kg/m <sup>2</sup>	≥ 0.5 kg/m <sup>2</sup>
With <b>Granol'plus</b> STG: <ul style="list-style-type: none"> <li>- Granol KR 1.5 mm</li> <li>- Granol KR 2 mm</li> <li>- Granol RP 2.5 mm</li> <li>- Granol RP 3 mm</li> <li>- Granol'flex 1.5 mm</li> <li>- Granol'flex 2 mm</li> <li>- Decor</li> </ul>	X	
With <b>Granosil'plus</b> STF: <ul style="list-style-type: none"> <li>- Granosil KR 1.5 mm</li> <li>- Granosil KR 2 mm</li> <li>- Granosil RP 2.5 mm</li> <li>- Granosil RP 3 mm</li> </ul>	X	
<ul style="list-style-type: none"> <li>- Granomin KR 2 mm</li> <li>- Granicem ITE</li> </ul>	X	

## 3.3.2 Watertightness

### 3.3.2.1 Hygrothermal behaviour

Heat-rain and heat-cold cycles have been performed on a rig. The ETICS is assessed as resistant to hygrothermal cycles.

### 3.3.2.2 Freeze-thaw behaviour

Water absorptions of both the base coat and the rendering systems are less than 0.5 kg/m<sup>2</sup> after 24 hours. The ETICS is therefore assessed as resistant to freeze-thaw.

### 3.3.3 Impact resistance

Rendering system: Base coat + key coat + finishing coat indicated below	Use category	
	single standard mesh	double standard mesh
With <b>Granol'plus STG</b> : - Granol KR 1.5 mm - Granol KR 2 mm - Granol RP 2.5 mm - Granol RP 3 mm	Category II	Category I
With <b>Granol'plus STG</b> : - Granol'Flex 1.5 mm - Granol'Flex 2 mm - Decor	Category I	
With <b>Granosil'plus STF</b> : - Granosil KR 1.5 mm - Granosil KR 2 mm - Granosil RP 2.5 mm - Granosil RP 3 mm	Category II	Category I
- Granomin KR 2 mm	Category I	
- Granicem ITE	Category II	

### 3.3.4 Water vapour permeability – resistance to water vapour diffusion

Rendering system: Base coat + key coat + finishing coat indicated below	Equivalent air thickness $s_d$ (m)
With <b>Granol'plus STG</b> : - Granol KR 1.5 mm - Granol KR 2 mm - Granol RP 2.5 mm - Granol RP 3 mm - Granol'flex 1.5 mm - Granol'flex 2 mm - Decor	$\leq 1.0$
With <b>Granosil'plus STF</b> : - Granosil KR 1.5 mm - Granosil KR 2 mm - Granosil RP 2.5 mm - Granosil RP 3 mm	$\leq 1.0$
- Granomin KR 2 mm	$\leq 1.0$
- Granicem ITE	$\leq 1.0$

### 3.3.5 Release of dangerous substances

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

A written declaration was submitted by the Manufacturer.

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the ETICS falling within its scope (e.g., transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

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

### 3.4.1 Bond strength

#### 3.4.1.1 Bond strength of the base coat and insulation product

- Initial state: bond strength <0.08 MPa but cohesive failure in insulation product
- After hygrothermal cycles: bond strength <0.08 MPa but cohesive failure in insulation product
- After freeze-thaw cycles: test not required (see § 3.3.2.2 of this ETA)

#### 3.4.2 Fixing strength (transverse displacement)

Test not required because the ETICS fulfils the following criteria:

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

$E$  modulus of elasticity of the base coat without mesh (MPa)

$d$  mean dried thickness of the base coat (mm)

### 3.4.3 Resistance to wind load

#### 3.4.3.1 Resistance to wind load of mechanically-fixed ETICS using anchors

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



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

Anchors which can be used are described in Annex 2 of this ETA.

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

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

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

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

$\gamma$  national safety factor

### 3.4.4 Width of crack – Render Strip Tensile Test

No performance was determined for the ETICS.

### 3.5 Protection against noise (BWR 5)

No performance was determined for the ETICS.

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

Thermal resistance and thermal transmittance are defined in clause 5.1.6 of the ETAG 004.

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

No performance was determined for the ETICS.

### 3.8 Aspects of durability and serviceability

Bond strength after ageing:

Rendering system: Base coat + key coat + finishing coat indicated below	Bond strength (MPa)
With <b>Granol'plus STG</b> : <ul style="list-style-type: none"> <li>- Granol KR 1.5 mm</li> <li>- Granol KR 2 mm</li> <li>- Granol RP 2.5 mm</li> <li>- Granol RP 3 mm</li> <li>- Granol'flex 1.5 mm</li> <li>- Granol'flex 2 mm</li> <li>- Decor</li> </ul>	<p style="text-align: center;">&lt; 0.08 But cohesive failure in insulation product</p>
With <b>Granosil'plus STF</b> : <ul style="list-style-type: none"> <li>- Granosil KR 1.5 mm</li> <li>- Granosil KR 2 mm</li> <li>- Granosil RP 2.5 mm</li> <li>- Granosil RP 3 mm</li> </ul>	
<ul style="list-style-type: none"> <li>- Granomin KR 2 mm</li> <li>- Granicem ITE</li> </ul>	

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

According to Decision 97/556/EC (Decision of the Commission of 14 July 1997, L 229 of 20.8.1997, p. 15), as amended by Decision 2001/596/EC (Decision of the Commission of 8 January 2001, L 209 of 2.8.2001, p. 33)<sup>2</sup>, the systems of AVCP given in the following table apply:

Product	Intended use	Levels or classes (Reaction to fire)	System
External Thermal Insulation Composite Systems with rendering	in external walls subject to fire regulation	A1 <sup>(1)</sup> , A2 <sup>(1)</sup> , B <sup>(1)</sup> or C <sup>(1)</sup>	1
		<ul style="list-style-type: none"> <li>- A1<sup>(2)</sup>, A2<sup>(2)</sup>, B<sup>(2)</sup>, C<sup>(2)</sup></li> <li>- D, E, F</li> <li>- (A1 to E)<sup>(3)</sup></li> </ul>	2+
	in external walls not subject to fire regulation	any	2+

<sup>(1)</sup> Products/materials for which as clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material).

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

<sup>(3)</sup> Products/materials that do not require to be tested for reaction to fire (e.g. Products/materials of Classes A1 according to Commission Decision 96/603/EC).

<sup>2</sup> Decisions are published in the *Official Journal of the European Union (OJEU)*, see [www.new.eu-lex.europa.eu/oj/direct-access.html](http://www.new.eu-lex.europa.eu/oj/direct-access.html).

The systems of AVCP are described in Annex V of Regulation (EU) No 305/2011, as amended by Delegated Regulation (EU) No 568/2014.

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at the CSTB.

The control plan is given in Annex 4. As the control plan contains confidential information, Annex 4 is not included in the published parts of this ETA.

Issued in Marne-la-Vallée on 26/01/2015

by

Charles BALOCHE, Technical Manager of the CSTB

Factory-prefabricated, uncoated boards made of mineral wool Ecorock (MW) according to EN 13163 and having characteristics described in the following table. Mass per unit area ( $\text{kg/m}^2$ ) depends on both thickness of the board and density of mineral wool.

<b>Reaction to fire / EN 13501-1</b>		Class A1
<b>Thermal resistance / EN 13163</b>		Defined in the CE marking
<b>Dimensional tolerances</b>	<b>Thickness / EN 823</b>	T5
<b>Dimensional stability</b>	<b>Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH</b>	DS(TH)
<b>Water absorption (partial immersion) / EN 1609 – method A</b>		WS
<b>Longterm water absorption (partial immersion) / EN 1609</b>		WL(P)
<b>Water vapour diffusion resistance factor (<math>\mu</math>) / EN 12086</b>		MU1
<b>Tensile strength perpendicular to the faces in dry conditions / EN 1607</b>		TR 7.5
<b>Dynamic stiffness / EN 29052-1</b>		No performance determined
<b>Air flow resistance / EN 29053</b>		No performance determined
<b>Compressive strength / EN 826</b>		CS(10/Y)20

<b>ETICS GRANOL'THERM MINERAL</b>	<b>ANNEX 1</b> of ETA-15/0024
<b>Insulation product for mechanically-fixed ETICS with anchors</b>	

Anchors with ETA according to European Technical Approval Guideline No 014 (hereinafter ETAG 014). The anchors are composed of a plastic expansion sleeve with a plate having diameter of 60 mm and a plastic or metallic nail or screw. Use categories and characteristic resistances in the substrate are given in each anchor's ETA. Validity of the anchor's ETA shall be checked before using the anchor.

Trade name	ETA reference	Mounting <sup>(1)</sup>	Plate stiffness (kN/mm)
Fischer TERMOZ 8 U, 8 UZ	ETA-02/0019	a	≥ 0.4
Hilti SDK-FV 8	ETA-07/0302	a	
Koelner TFIX-8M	ETA-07/0336	a	
Ejotherm STR U, STR U 2G	ETA-04/0023	a	
Ejot H1 eco	ETA-11/0192	a	
Hilti SX-FV	ETA-03/0005	a	
Ejotherm NTK U	ETA-07/0026	a	

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

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

<b>ETICS GRANOL'THERM MINERAL</b>	<b>ANNEX 2</b> of ETA-15/0024
<b>Anchors for insulation product</b>	

Glass fibre meshes:

- standard mesh: with mesh size between 3 and 6 mm;

Trade name	Mass per unit area (g/m <sup>2</sup> )	Residual strength after ageing (N/mm)		Relative residual strength after ageing (%) <sup>(1)</sup>	
		Warp	Weft	Warp	Weft
Standard mesh					
03-1 C+ (Granol'therm AGF)	160	≥ 20	≥ 20	≥ 50	≥ 50

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

**ETICS GRANOL'THERM MINERAL**

**Glass fibre meshes**

**ANNEX 3**  
of ETA-15/0024