European Technical Assessment

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Materials

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European Technical Assessment ETA 17/0868 of 18/12/2017

General Part

Technical Assessment Body issuing the ETA:	**Institute of Ceramics and Building Materials ICiMB**
Trade name of the construction product	TECHNITherm SC / PERFECT SC / DELUX SC
Product family to which the construction product belongs	External Thermal Insulation Composite Systems (ETICS) with rendering
Manufacturer	TECHNITYNK Sp. z o.o. Rzeczków-Kolonia 60 26-680 Wierzbica, POLAND www.technitynk.pl
Manufacturing plant	TECHNITYNK Sp. z o.o. Rzeczków-Kolonia 60 26-680 Wierzbica, POLAND www.technitynk.pl
This European Technical Assessment contains	13 pages including 2 Annexes which form an integral part of this assessment. Annex No 3 Control Plan contains confidential information and is not included in the European Technical Assessment when that assessment is publicly disseminated.
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	ETAG 004 used as EAD, 2013

Specific parts

1. Technical description of the product:

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

The ETICS kit comprises a prefabricated insulation product of expanded polystyrene (EPS) to be bonded onto a wall. The method of fixing and the relevant components are specified in Table 1. The insulation product is faced with a rendering system consisting of one or more layers (site applied), one of which contains reinforcement. The rendering is applied directly to the insulating boards, 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.

Table 1.

	Components	**Coverage (kg/m²)**	**Thickness (mm)**
	Bonded ETICS; fully or partially bonded with supplementary mechanical fixings. National application documents shall be taken into account.		
Primer	• **TECHNIGrunt SC / Grunt PERFECT SC / Grunt DELUX SC** Ready to use liquid to be used on the substrate	0,1 to 0,3	-
Insulation materials with associated methods of fixing	• **Insulation product** Boards of expanded polystyrene (EPS) according to EN 13163 *Product characteristics - see Annex 1*	-	20 to 250
	• **Adhesive** **Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC** Cement based powder requiring addition of 0,20-0,22 l/kg of water	4,0 to 5,5 (powder)	-
	• **Supplementary mechanical fixings** Plastic anchors covered by relevant ETA	-	-

Table 1. cont.

	Components	Coverage (kg/m²)	Thickness (mm)
Base coat	• **Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC** Cement based powder requiring addition of 0,20-0,22 l/kg of water	2,5 to 4,0 (powder)	2,0 to 5,0
Reinforce-ment	• **Standard glass fibre mesh** **- HALICO A165** according to ETA 16/0809 *Product characteristics - see Annex 2*	-	-
Key coat	• **TECHNIFlex SC / Flex PERFECT SC / Flex DELUX SC** Ready to use liquid to be used with finishing coat	0,20 to 0,35	-
Finishing coat	Ready to use pastes – acrylic-silicone binder: **- TECHNITynk SC Baranek / PERFECT SC Baranek / DELUX SC Baranek** floated structure max. particles size: 1,0; 1,5; 2,0; 2,5 mm **- TECHNITynk SC Kornik / PERFECT SC Kornik / DELUX SC Kornik** ribbed structure max. particles size: 1,5; 2,0; 2,5 mm	2,0 to 3,5 2,5 to 3,5	Regulated by particles size
Decorative coat	• **TECHNIFarb SC Paint / PERFECT SC Paint / DELUX SC Paint** Ready to use liquid to be used optionally with finishing coat	0,2 to 0,5	-
Ancillary materials	Remain under the manufacturer's responsibilities		

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

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

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

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

The provisions made in this European Technical Assessment are based on an assumed working life of the ETICS of at least 25 years, provided that the requirements for the packaging, transport, storage, installation as well as appropriate use, maintenance and repair are met. The indication given on 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, installation, maintenance and repair of ETICS shall be done in accordance with principles introduced in chapter 7 of ETAG 004, used as EAD, and shall be in conformity with Member States' legislation requirements.

The instructions regarding packaging, transport, storage and installation of ETICS are specified in the manufacturer's technical documentation.

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

The performances of the kit as described in this chapter are valid provided that the components of the kit comply with Annexes 1÷2.

3.1. Safety in case of fire (BWR 2)

3.1.1. Reaction to fire (ETAG 004: clause 5.1.2.1, EN 13501-1)

Table 2.

Configuration	Max. organic content [%]	Flame retardant content	Euroclass acc. to EN 13501-1
Primer coat	5,5	No flame retardant	B-s1, d0
Adhesive	2,0		
EPS boards* density ≤ 16,0 kg/m³	-		
Base coat	2,0		
Glass fibre mesh	6,59**		
Key coat	9,0		
Finishing coat	9,0		
Decorative coat	12,0		
*flame retardant content in quantity ensuring Euroclass E according to EN 13501-1 **max. heat of combustion, MJ/kg			

Note: 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 might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

3.2. Hygiene, health and environment (BWR 3)

3.2.1. Water absorption (ETAG 004: clause 5.1.3.1)

- Base coat Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC:
  - Water absorption after 1 hour < 1 kg/m²;
  - Water absorption after 24 hours < 0,5 kg/m².
- Rendering system: Table 3.

Table 3.

		Water absorption after 24 hours	
		<0,5 kg/m²	≥0,5 kg/m²
Rendering system: Base coat Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC + key coat TECHNIFlex SC / Flex PERFECT SC / Flex DELUX SC + finishing coat indicated hereafter	TECHNITynk SC Baranek / PERFECT SC Baranek / DELUX SC Baranek TECHNITynk SC Kornik / PERFECT SC Kornik / DELUX SC Kornik	x	-

3.2.2. Watertightness (ETAG 004: clause 5.1.3.2)

3.2.2.1. Hygrothermal behaviour (ETAG 004: clause 5.1.3.2.1)

Pass (without defects).

3.2.2.2. Freeze-thaw behaviour (ETAG 004: clause 5.1.3.2.2)

ETICS is frost resistant according to water absorption test.

3.2.3. Impact resistance (ETAG 004: clause 5.1.3.3)

Table 4.

		Single layer of standard mesh
Rendering system: Base coat Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC + key coat TECHNIFlex SC / Flex PERFECT SC / Flex DELUX SC + finishing coat indicated hereafter	TECHNITynk SC Baranek / PERFECT SC Baranek / DELUX SC Baranek TECHNITynk SC Kornik / PERFECT SC Kornik / DELUX SC Kornik	Category III

3.2.4. Water vapour permeability (ETAG 004: clause 5.1.3.4)

Table 5.

		Average equivalent air thickness s_d
Rendering system: Base coat Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC + key coat TECHNIFlex SC / Flex PERFECT SC / Flex DELUX SC + finishing coat indicated hereafter + decorative coat TECHNIFarb SC / PERFECT SC Farba/ DELUX Farba	TECHNITynk SC Baranek / PERFECT SC Baranek / DELUX SC Baranek TECHNITynk SC Kornik / PERFECT SC Kornik / DELUX SC Kornik	≤ 2 m, result: 0,2 m

3.2.5. Release of dangerous substances (ETAG 004: clause 5.1.3.5, EOTA TR034)

No performance assessed.

Note: There may be 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 to be complied with, when and where they apply.

3.3. Safety and accessibility in use (BWR 4)

3.3.1. Bond strength between base coat and insulation product (ETAG 004: clause 5.1.4.1.1)

Initial state and after hygrothermal cycles:

- Bond strength between base coat Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC and insulation product ≥ 0,08 MPa

3.3.2. Bond strength between adhesive and substrate (ETAG 004: clause 5.1.4.1.2)

Table 6.

	Initial state	48 h immersion in water + 2 hours 23°C/50% RH	48 h immersion in water + 7 days 23°C/50% RH
Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa

3.3.3. Bond strength between adhesive and insulation product (ETAG 004: clause 5.1.4.1.3)

Table 7.

	Initial state	48 h immersion in water + 2 hours 23°C/50% RH	48 h immersion in water + 7 days 23°C/50% RH
Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC minimal bonded surface area S: 30%	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

3.3.4. Bond strength after ageing (ETAG 004: clause 5.1.7.1)

Table 8.

		After hygrothermal cycles
Rendering system: Base coat Universal Adhesive TECHNIKlej SC / Adhesive PERFECT SC / Adhesive DELUX SC + key coat TECHNIFlex SC / Flex PERFECT SC / Flex DELUX SC + finishing coat indicated hereafter	TECHNITynk SC Baranek / PERFECT SC Baranek / DELUX SC Baranek TECHNITynk SC Kornik / PERFECT SC Kornik / DELUX SC Kornik	≥ 0,08 MPa

3.3.5. Render strip tensile test (ETAG 004: clause 5.5.4.1)

No performance assessed.

3.4. Protection against noise (BWR 5)

3.4.1. Airborne sound insulation (ETAG 004: clause 5.1.5.1)

No performance assessed.

3.5. Energy economy and heat retention (BWR 6)

3.5.1. Thermal resistance (ETAG 004: clause 5.1.6.1)

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

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

where:

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

U_c: global (corrected) thermal transmittance of the covered wall (W/ (m²·K))

n: number of anchors (through insulation product) per 1 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 ($\chi_p \cdot n$ negligible for n < 20)

= 0,004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material ($\chi_p \cdot n$ negligible for n < 10)

= negligible for anchors with plastic nails (reinforced or not with glass fibres)

U: thermal transmittance of the current part of the covered wall (excluding thermal bridges) (W/ (m²·K)) determined as follows:

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

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 (m²·K)/W

R_{si}: internal superficial thermal resistance in (m²·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.

3.6. Sustainable use of natural resources (BWR 7)

No performance assessed.

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

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

Table 9.

Product(s)	Intended use(s)	Level(s) or class(es) (Reaction to fire)	System(s)
External thermal insulation composite systems/kits (ETICS) with rendering	in external wall subject to fire regulations	A1 [1], A2 [1], B [1], C [1]	1
		A1 [2], A2 [2], B [2], C [2], D, E, (A1 to E) [3], F	2+
	in external wall not subject to fire regulations	any	2+

[1] 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)

[2] Products/materials not covered by footnote [1]

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

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

The manufacturer shall exercise permanent control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures. The production control system shall ensure performance constancy of the product covered by this European Technical Assessment.

The manufacturer may only use materials stated in the technical documentation of this European Technical Assessment. The factory production control shall be performed in accordance with the Control Plan which is a confidential part of the European Technical Assessment. The Control Plan was developed as a part of factory production control system.

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.

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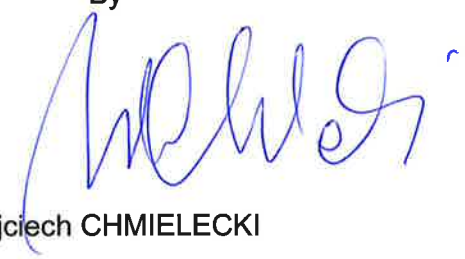
By



Wojciech CHMIELECKI

Acting Director of Institute of Ceramics and Building Materials

Annexes:

Annex No 1 – Insulation product characteristics

Annex No 2 – Glass fibre mesh characteristics

Annex No 1 – Insulation product characteristics

		Boards of expanded polystyrene EPS
Reaction to fire / EN 13501-1		Euroclass – E max. density: 16 kg/m^3
Thermal resistance		Defined in the CE marking in reference to EN 13163 (m^2·K)/W
Thickness / EN 823		± 1 mm [EN 13163 - T(1)]
Length / EN 822		± 2 mm [EN 13163 - L(2)]
Width / EN 822		± 2 mm [EN 13163 - W(2)]
Squareness / EN 824		± 5 mm/m [EN 13163 - S(5)]
Flatness / EN 825		5 mm [EN 13163 - P(5)]
Dimensional stability under specified conditions	EN 1603	± 0,2 % [EN 13163 - DS(N)2]
	EN 1604	2 % [EN 13163 - DS(70,-)2]
Bending strength / EN 12089		≥ 75 kPa [EN 13163 - BS75]
Water vapour permeability, diffusion factor (μ) / EN 12086 - EN 13163		20 to 40
Tensile strength perpendicular to the faces in dry conditions / EN 1607		≥ 80 kPa [EN 13163 - TR80]
Shear strength / EN 12090 - EN 13163		≥ 35 kPa

Annex No 2 – Glass fibre mesh characteristics

Mesh trade name	Description	Alkalis resistance	
		Residual resistance after ageing (N/mm)	Relative residual resistance: % (after ageing) of the strength in the as delivered state
HALICO A165	Mass per unit area: 165 g/m^2 Mesh size: 3,8 x 4,5 mm	≥ 20	≥ 50