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European Technical Assessment

ETA-13/0928 of 19/03/2015

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	SOLTHERM P
Product family to which the construction product belongs	External Thermal Insulation Composite System with rendering (ETICS)
Manufacturer	BOLIX S.A. ul. Stolarska 8 PL 34-300 Żywiec, Poland
Manufacturing plant	BOLIX S.A. ul. Stolarska 8 PL 34-300 Żywiec, Poland
This European Technical Assessment contains	16 pages including 2 Annexes which form an integral part of this Assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	Guideline for European Technical Approval ETAG 004, Edition 2013 "External Thermal Insulation Composite Systems with rendering", used as European Assessment Document (EAD)
This version replaces	ETA-13/0928 issued on 27/06/2013

This European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Specific Part

1 Technical description of the product

External Thermal Insulation Composite System SOLTHERM P called ETICS in the following text is a kit designed and installed in accordance with the manufacturer design and installation instructions deposited with the Instytut Techniki Budowlanej.

The ETICS comprises the following components, which are factory-produced by the manufacturer or component suppliers. ETICS is made up on site from these components. The ETICS manufacturer is ultimately responsible for ETICS.

The ETICS comprises a prefabricated insulation product made of expanded polystyrene (EPS) to be bonded onto a wall. The methods of fixing and the relevant components are specified in the table below. The insulation product is faced with a rendering system consisting of one or more layers (site applied), one of which contains reinforcing mesh. The rendering is applied directly to the insulation panels, without any air gap or disconnecting layer.

The ETICS also includes ancillary materials which are defined in clause 3.2.2.5 of ETAG 004. They shall be used in accordance with the manufacturer's instruction.

Table 1

	Components	**Coverage (kg/m²)**	**Thickness (mm)**
Insulation material with associated methods of fixing	**Bonded ETICS:** fully bonded or partially bonded (bonded surface shall be at least 40%). National application documents shall be taken into account.		
	• **Insulation product:** factory prefabricated expanded polystyrene (EPS) according to EN 13163 – see Annex 1 for product characteristics	-	≤ 250
	• **Adhesives:** **SOLTHERM UB** cement based powder requiring addition of 0,18 to 0,20 l/kg of water	about 4,0[1] (powder)	-
	SOLTHERM SA cement based powder requiring addition of 0,19 to 0,21 l/kg of water	about 4,0[1] (powder)	-
	SOLTHERM WB / SOLTHERM BC-P[2] cement based powder requiring addition of 0,21 to 0,23 l/kg of water	about 4,0[1] (powder)	-
Base coats	• **SOLTHERM UB** cement based powder requiring addition of 0,18 to 0,20 l/kg of water composition: sand, cement, mineral fillers, additives	about 4,0 (powder)	3,0 to 5,0
	• **SOLTHERM WB / SOLTHERM BC-P**[2] cement based powder requiring addition of 0,21 to 0,23 l/kg of water composition: sand, cement, mineral fillers, additives	about 4,0 (powder)	3,0 to 5,0
Glass fibre mesh	• **Standard glass fibre meshes** see Annex 2 for product characteristics	-	-

[1] refers to fully bonded system

[2] SOLTHERM WB and SOLTHERM BC-P differ from each other in the colour of mineral filler

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Key coats	• **SOLTHERM AP** composition: water, styroacrylat binder, additives ready to use liquid to be used with mineral and acrylic finishing coats	0,10 to 0,15	-
	• **SOLTHERM AP colour** composition: water, styroacrylat binder, mineral fillers, additives ready to use liquid to be used with mineral and acrylic finishing coats	0,25 to 0,40	-
	• **SOLTHERM STP** composition: water, styroacrylat binder, silicate binder, additives ready to use liquid to be used with silicate finishing coats	0,10 to 0,20	-
	• **SOLTHERM STP colour** composition: water, styroacrylat binder, silicate binder, mineral fillers, additives ready to use liquid to be used with silicate finishing coats	0,25 to 0,40	-
	• **SOLTHERM SNP** composition: water, styroacrylat binder, silicone resin, additives ready to use liquid to be used with silicone and silicone-acrylic finishing coats	0,10 to 0,20	-
	• **SOLTHERM STP colour** composition: water, styroacrylat binder, silicone resin, mineral fillers, additives ready to use liquid to be used with silicone and silicone-acrylic finishing coats	0,25 to 0,40	-
Finishing coats	• **Acrylic finishing coats** composition: water, styroacrylat binder, sand, mineral fillers, additives ready to use paste		
	SOLTHERM AFC 20 particle size 2,0 mm; grained structure	3,0 to 3,5	regulated by particle size
	SOLTHERM AFC 10 particle size 1,0 mm; grained structure	1,8 to 2,2	
	SOLTHERM AFC 15 particle size 1,5 mm; grained structure	2,5 to 3,0	
	SOLTHERM AFC i particle size 2,5 mm; ribbed structure	3,0 to 3,5	
	SOLTHERM AFC 25 wt particle size 2,5 mm; ribbed structure	3,0 to 3,5	
	SOLTHERM AFC 15 wt particle size 1,5 mm; ribbed structure	2,0 to 2,5	
	SOLTHERM AFC s particle size 1,0 mm; grained structure	3,0 to 3,5	
	SOLTHERM RMG particle size 2,0 mm; ribbed structure	1,8 to 4,0	
	SOLTHERM AMC particle size 1,0 to 2,0 mm; grained structure	2,0 to 5,0	
	SOLTHERM AFC 20 eco-shield particle size 2,0 mm; grained structure	3,0 to 3,5	
	SOLTHERM AFC 10 c eco-shield particle size 1,0 mm; grained structure	1,8 to 2,2	
	SOLTHERM AFC 15 eco-shield particle size 1,5 mm; grained structure	2,5 to 3,0	
	SOLTHERM AFC i eco-shield particle size 2,5 mm; ribbed structure	3,0 to 3,5	
	SOLTHERM AFC 25 eco-shield particle size 2,5 mm; ribbed structure	3,0 to 3,5	
	SOLTHERM AFC 15 wt eco-shield particle size 1,5 mm; ribbed structure	2,0 to 2,5	
	SOLTHERM AFC s eco-shield particle size 1,0 mm; grained structure	3,0 to 3,5	
	• **Silicone finishing coats** composition: water, silicone resin, styroacrylat binder, sand, mineral fillers, additives ready to use paste		
	SOLTHERM SFC-P 15 particle size 1,5 mm; grained structure	2,0 to 2,5	regulated by particle size
	SOLTHERM SFC-P 20 particle size 2,0 mm; grained structure	2,5 to 3,0	
	SOLTHERM SFC-P 25 wt particle size 2,5 mm; ribbed structure	3,0 to 3,5	

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Finishing coats	• **Silicone-acrylic finishing coats** composition: water, silicone resin, styroacrylat binder, sand, mineral fillers, additives ready to use paste		
	SOLTHERM AF-P 15 particle size 1,5 mm; grained structure	2,5 to 3,0	regulated by particle size
	SOLTHERM AF-P 20 particle size 2,0 mm; grained structure	3,0 to 3,5	
	SOLTHERM AF-P 25 wt particle size 2,5 mm; ribbed structure	3,0 to 3,5	
	• **Mineral finishing coats** composition: sand, cement, limestone filler, synthetic resin, additives powder requiring addition of 0,17 to 0,24 l/kg of water		
	SOLTHERM MTC 15 particle size 1,5 mm; grained structure	2,2 to 3,0	regulated by particle size
	SOLTHERM MTC 20 particle size 2,0 mm; grained structure	3,0 to 3,5	
	SOLTHERM MTC 30 particle size 3,0 mm; grained structure	3,0 to 4,0	
	SOLTHERM MTC 25 wt particle size 2,5 mm; ribbed structure	3,0 to 3,5	
	SOLTHERM MTC 15 g particle size 1,5 mm; grained structure	2,2 to 3,0	
	SOLTHERM MTC 25 wt g particle size 2,5 mm; ribbed structure	3,0 to 3,5	
	• **Silicate finishing coats** composition: water, silicate resin, styroacrylat binder, sand, mineral fillers, additives ready to use paste		
	SOLTHERM STF 10 particle size 1,0 mm; grained structure	1,8 to 2,2	regulated by particle size
	SOLTHERM STF 15 particle size 1,5 mm; grained structure	2,5 to 3,0	
	SOLTHERM STF 20 particle size 2,0 mm; grained structure	3,0 to 3,5	
	SOLTHERM STF 25 wt particle size 2,5 mm; ribbed structure	3,0 to 3,5	
Primers	• **SOLTHERM AP** composition: water, styroacrylat binder, additives ready to use liquid to be used with SOLTHERM ACP	0,10 to 0,15	-
	• **SOLTHERM STP** composition: water, styroacrylat binder, silicate binder, additives ready to use liquid to be used with SOLTHERM STPT	0,10 to 0,20	-
	• **SOLTHERM SNP** composition: water, styroacrylat binder, silicone resin, additives ready to use liquid to be used with SOLTHERM STC-P	0,10 to 0,20	-
	• **SOLTHERM SP** composition: water, styroacrylat binder, additives ready to use liquid to be used with SOLTHERM ACP	0,10 to 0,20	-
Decorative coats (paints)	to be used obligatory with "for painting" finishing coats and optionally with the other finishing coats ready to use liquids		
	• **SOLTHERM ACP** composition: styroacrylat binder, mineral fillers, additives	0,18 to 0,28	-
	• **SOLTHERM ACP eco-shield** composition: styroacrylat binder, mineral fillers, additives	0,18 to 0,28	-
	• **SOLTHERM STPT** composition: styroacrylat binder, silicate binder, additives, mineral fillers	0,18 to 0,28	-
	• **SOLTHERM STC-P** composition: styroacrylat binder, silicone resin, additives, mineral fillers	0,18 to 0,28	-

Table 1

	Components	Coverage (kg/m^2)	Thickness (mm)
Ancillary materials	Remain under ETICS manufacturer responsibility. Anchors as supplementary mechanical fixings covered by ETA issued according to ETAG 014.		

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

This ETICS is intended to be used as external thermal insulation of buildings' walls made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels) with or without rendering.

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 effects 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 conditions for the packaging, transport, storage, installation as well as appropriate use, maintenance and repair are met. The indications 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 shall take into account principles given in clause 7 of ETAG 004 and shall be done in accordance with national provisions.

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

Performances of the ETICS related to the Basic Requirements were determined in compliance with the ETAG 004.

Performances of the ETICS as described in this clause are valid provided that the components of the kit comply with Annexes 1 ÷ 2.

3.1 Safety in the case of fire (BWR 2)

3.1.1 Reaction to fire (ETAG 004, clause 5.1.2.1)

Table 2

Configuration	Maximum declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS SOLTHERM P: • Base coats: SOLTHERM UB, SOLTHERM WB / SOLTHERM BC-P • Finishing coats (with relevant key coats): SOLTHERM AFC 20, AFC 15, AFC 10, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield, SFC-P 20, SFC-P 15, SFC-P 25 wt, AF-P 20, AF-P 15, AF-P 25 wt • Decorative coats (with relevant primers): SOLTHERM ACP, ACP eco-shield, STPT, STC-P	≤ 4,3% ≤ 11,7% ≤ 17,0%	0% (no flame retardant)	**B – s1, d0**
ETICS SOLTHERM P: • Base coats: SOLTHERM UB, SOLTHERM WB / SOLTHERM BC-P • Finishing coats (with relevant key coats): SOLTHERM MTC 15, MTC 20, MTC 30, MTC 25 WT, MTC 15 g, MTC 25 wt g, STF 10, STF 15, STF 20, STF 25 wt • Decorative coats (with relevant primers): SOLTHERM ACP, ACP eco-shield, STPT, STC-P	≤ 4,3% ≤ 3,5% ≤ 17,0%	0% (no flame retardant)	**B – s1, d0**

Note: European reference fire scenario has not been laid down for facades. In some Member States the classification according to EN 13501-1 might not be sufficient for the use in facades. An additional tests might be required to comply with national provisions (e.g. large scale tests).

Mounting and fixing

The assessment of reaction to fire is based on tests with an insulation layer (EPS) thickness of 180 mm – SBI test according to EN 13823, 60 mm – test according to EN ISO 11925-2 and insulation material (EPS) density of 17,9 kg/m^3 as well as finishing coats with maximum organic content.

For the SBI test according to EN 13823, the ETICS is mounted directly to a substrate (Class A2-s1, d0) with a thickness of 12 mm.

For the test according to EN ISO 11925-2 no substrate is used.

The installation of the ETICS was carried out by the manufacturer following the manufacturer's specifications (instruction of installation) using a single layer of the glass fibre mesh all over the test specimen (no overlapping glass fibre mesh). The test specimens were prefabricated and did not include any joints.

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

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Water absorption (ETAG 004, clause 5.1.3.1)

- Base coat SOLTHERM UB:
  - water absorption after 1 hour < 1,0 kg/m^2,

- water absorption after 24 hours < 0,5 kg/m^2,

- Base coat SOLTHERM WB / SOLTHERM BC-P:
  - water absorption after 1 hour < 1,0 kg/m^2,
  - water absorption after 24 hours < 0,5 kg/m^2,
- Rendering systems – according to Table 3.

Table 3

		Water absorption after 24 h	
		< 0,5 kg/m²	**≥ 0,5 kg/m²**
Rendering system: base coat SOLTHERM UB (with the relevant key-coat) + finishing coat indicated hereafter:	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	X	-
	SFC-P 20, SFC-P 15, SFC-P 25 wt	X	-
	AF-P 20, AF-P 15, AF-P 25 wt	X	-
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	X	-
	STF 10, STF 15, STF 20, STF 25 wt	X	-
Rendering system: base coat SOLTHERM WB / SOLTHERM BC-P (with the relevant key-coat) + finishing coat indicated hereafter:	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	X	-
	SFC-P 20, SFC-P 15, SFC-P 25 wt	X	-
	AF-P 20, AF-P 15, AF-P 25 wt	X	-
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	X	-
	STF 10, STF 15, STF 20, STF 25 wt	X	-

3.2.2 Watertightness (ETAG 004, clause 5.1.3.2)

Passed without defects. None of the following defects occurred during testing:
- blistering or peeling of any finishing,
- failure or cracking associated with joints between insulation product boards or profiles fitted with ETICS,
- detachment of the render,
- cracking allowing water penetration to the insulation layer.

The ETICS is so assessed as resistant to hygrothermal cycles.

The water absorption of base coat and the rendering system is less than 0,5 kg/m² after 24 hours for all configurations of the ETICS, so the ETICS is assessed as freeze/thaw resistant.

3.2.3 Impact resistance (ETAG 004, clause 5.1.3.3)

Table 4

		Single standard mesh
Rendering system: base coat SOLTHERM UB (with relevant key coat) + finishing coat indicated hereafter:	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	**Category III**
	SFC-P 20, SFC-P 15, SFC-P 25 wt	**Category III**
	AF-P 20, AF-P 15, AF-P 25 wt	**Category III**
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	**Category III**
	STF 10, STF 15, STF 20, STF 25 wt	**Category II**
Rendering system: base coat SOLTHERM WB / SOLTHERM BC-P (with relevant key coat) + finishing coat indicated hereafter:	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	**Category III**
	SFC-P 20, SFC-P 15, SFC-P 25 wt	**Category III**
	AF-P 20, AF-P 15, AF-P 25 wt	**Category III**
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	**Category III**
	STF 10, STF 15, STF 20, STF 25 wt	**Category II**

3.2.4 Water vapour permeability (ETAG 004, clause 5.1.3.4)

Table 5

		Equivalent air thickness s_d, m
Base coat SOLTHERM UB + finishing coat indicated hereafter:	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	**≤ 2,0 m** SOLTHERM AP colour + SOLTHERM AFC 15 + SOLTHERM SNP + SOLTHERM STC-P: 1,39 SOLTHERM AP colour + SOLTHERM AFC 15 + SOLTHERM SP + SOLTHERM ACP: 1,60 SOLTHERM AP colour + SOLTHERM AMC: 0,39
	SFC-P 20, SFC-P 15, SFC-P 25 wt	**≤ 2,0 m** SOLTHERM SNP + SOLTHERM SFC-P 20 + SOLTHERM SNP + SOLTHERM STC-P: 1,36 SOLTHERM SNP colour + SOLTHERM SFC-P 20 + SOLTHERM SNP + SOLTHERM STC-P: 1,20 SOLTHERM SNP + SOLTHERM SFC-P 20: 0,74
	AF-P 20, AF-P 15, AF-P 25 wt	**≤ 2,0 m** SOLTHERM SNP + SOLTHERM AF-P 15 + SOLTHERM SP + SOLTHERM ACP: 1,64 SOLTHERM SNP + SOLTHERM AF-P 15 + SOLTHERM SNP + SOLTHERM STC-P: 1,40 SOLTHERM SNP + SOLTHERM AF-P 15: 0,89
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	**≤ 2,0 m** SOLTHERM AP colour + SOLTHERM MTC 25 wt g + SOLTHERM ACP: 0,51 SOLTHERM AP colour + SOLTHERM MTC 25 wt g: 0,26
	STF 10, STF 15, STF 20, STF 25 wt	**≤ 2,0 m** SOLTHERM STP+SOLTHERM STF 20+SOLTHERM STP+SOLTHERM STPT: 0,24

Table 5

		Equivalent air thickness s_d, m
Base coat SOLTHERM BC-P + finishing coat indicated hereafter:	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	**≤ 2,0 m** SOLTHERM AP colour + SOLTHERM AFC 15 + SOLTHERM SNP + SOLTHERM STC-P: 1,34 SOLTHERM AP colour + SOLTHERM AFC 15 + SOLTHERM SP + SOLTHERM ACP: 1,40 SOLTHERM AP colour + SOLTHERM AFC 15: 0,70 SOLTHERM AP colour + SOLTHERM AMC: 0,50
	SFC-P 20, SFC-P 15, SFC-P 25 wt	**≤ 2,0 m** SOLTHERM SNP + SOLTHERM SFC-P 20 + SOLTHERM SNP + SOLTHERM STC-P: 0,91 SOLTHERM STP colour + SOLTHERM SFC-P 20 + SOLTHERM SNP + SOLTHERM STC-P: 0,84
	AF-P 20, AF-P 15, AF-P 25 wt	**≤ 2,0 m** SOLTHERM SNP + SOLTHERM AF-P 15 + SOLTHERM SP + SOLTHERM ACP: 1,32 SOLTHERM SNP + SOLTHERM AF-P 15 + SOLTHERM SNP + SOLTHERM STC-P: 1,17 SOLTHERM SNP + SOLTHERM AF-P 15: 0,74
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	**≤ 2,0 m** SOLTHERM AP colour + SOLTHERM MTC 25 wt g + SOLTHERM ACP: 0,67
	STF 10, STF 15, STF 20, STF 25 wt	**≤ 2,0 m** SOLTHERM STP + SOLTHERM STF 20 + SOLTHERM STP + SOLTHERM STPT: 0,25
Base coat SOLTHERM WB + finishing coat indicated hereafter:	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	**≤ 2,0 m** SOLTHERM AP colour + SOLTHERM AFC i: 0,43 SOLTHERM AP colour + SOLTHERM AFC i + SOLTHERM SP + SOLTHERM ACP: 0,72
	SFC-P 20, SFC-P 15, SFC-P 25 wt	**≤ 2,0 m** SOLTHERM SNP + SOLTHERM SFC-P 25 wt: 0,32 SOLTHERM SNP + SOLTHERM SFC-P 25 wt + SOLTHERM SP + SOLTHERM ACP: 0,64
	AF-P 20, AF-P 15, AF-P 25 wt	**≤ 2,0 m** SOLTHERM SNP + SOLTHERM AF-P 25 wt: 0,48 SOLTHERM SNP + SOLTHERM AF-P 25 wt + SOLTHERM SP + SOLTHERM ACP: 0,94
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	**≤ 2,0 m** SOLTHERM AP colour + SOLTHERM MTC 30: 0,18 SOLTHERM AP colour + SOLTHERM MTC 30 + SOLTHERM SP + SOLTHERM ACP: 0,42
	STF 10, STF 15, STF 20, STF 25 wt	**≤ 2,0 m** SOLTHERM STP + SOLTHERM STF 25 wt: 0,15 SOLTHERM STP + SOLTHERM STF 25 wt + SOLTHERM SP + SOLTHERM ACP: 0,28

3.2.5 Release of dangerous substances (ETAG 004 - clause 5.1.3.5, EOTA TR 034)

The written declaration on dangerous substances was submitted by the manufacturer to the Technical Assessment Body.

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.

3.3 Safety in use (BWR 4)

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

Table 6

Bond strength between base coat and insulation product (EPS panels)			
Base coat	**Initial state**	**After hygrothermal cycles (on the rig)**	**After freeze/thaw cycles**
SOLTHERM UB	**≥ 0,08 MPa**	**≥ 0,08 MPa**	test not required because freeze/thaw cycles not necessary
Bond strength between base coat and insulation product (EPS)			
Base coat	**Initial state**	**After hygrothermal cycles (on the rig)**	**After freeze/thaw cycles**
SOLTHERM WB / SOLTHERM BC-P	**≥ 0,08 MPa**	**≥ 0,08 MPa**	test not required because freeze/thaw cycles not necessary

3.3.2 Bond strength between adhesive / substrate and adhesive / insulation product (ETAG 004, clause 5.1.4.1.2 and 5.1.4.1.3)

Table 7

Bond strength between: adhesive – substrate (concrete) and adhesive – insulation product (EPS)				
Adhesives		**Under dry conditions**	**48 h immersion in water + 2 h drying at (23±2)°C and (50±5)% RH**	**48 h immersion in water + 7 days drying at (23±2)°C and (50±5)% RH**
SOLTHERM UB	Concrete	**≥ 0,25 MPa**	**≥ 0,08 MPa**	**≥ 0,25 MPa**
	EPS	**≥ 0,08 MPa**	**≥ 0,03 MPa**	**≥ 0,08 MPa**
SOLTHERM SA	Concrete	**≥ 0,25 MPa**	**≥ 0,08 MPa**	**≥ 0,25 MPa**
	EPS	**≥ 0,08 MPa**	**≥ 0,03 MPa**	**≥ 0,08 MPa**
SOLTHERM WB / SOLTHERM BC-P	Concrete	**≥ 0,25 MPa**	**≥ 0,08 MPa**	**≥ 0,25 MPa**
	EPS	**≥ 0,08 MPa**	**≥ 0,03 MPa**	**≥ 0,08 MPa**
Bonded surface area: at least 40%.				

3.3.3 Fixing strength (ETAG 004, clause 5.1.4.2)

Test not required because the ETICS fulfils the criteria $E \cdot d \leq 50.000$ N/mm.

3.3.4 Render strip tensile test (ETAG 004, clause 5.1.4.3)

No performance determined.

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation (ETAG 004, clause 5.1.5)

No performance determined.

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal resistance and thermal transmittance (ETAG 004, clause 5.1.6)

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

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

where: $\chi_p \cdot n$ has only to be taken into account if it is greater than 0,04 W/(m^2·K)

U_c: corrected thermal transmittance of the covered wall (W/(m^2·K)

n: number of anchors (through insulation product) per m^2

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 plastic screw, stainless steel screw with a head covered by plastic material 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)

= 0,008 W/K for all other anchors (worst case)

U: thermal transmittance of the current part of the covered wall (excluding thermal bridges) (W/(m^2·K) determined as follows:

$$U = 1 : [R_{ETICS} + R_{substrate} + R_{se} + R_{si}]$$

where: R_i: thermal resistance of the insulation product (according to declaration in reference to EN 13163) in (m^2·K)/W

R_{render}: thermal resistance of the render (about 0,02 in (m^2·K)/W or determined by test according to EN 12667 or EN 12664)

$R_{substrate}$: thermal resistance of the substrate (e.g. concrete, brick) in (m^2·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 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 determined.

3.7 Aspects of durability and serviceability. Bond strength after ageing (ETAG 004, clause 6.1.7)

Table 8

		After hygrothermal cycles
Rendering system: base coat SOLTHERM UB (with relevant key coat) + finishing coat indicated hereafter:	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	**≥ 0,08 MPa**
	SFC-P 20, SFC-P 15, SFC-P 25 wt	**≥ 0,08 MPa**
	AF-P 20, AF-P 15, AF-P 25 wt	**≥ 0,08 MPa**
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	**≥ 0,08 MPa**
	STF 10, STF 15, STF 20, STF 25 wt	**≥ 0,08 MPa**
Rendering system: base coat SOLTHERM WB / SOLTHERM BC-P (with relevant key coat) + finishing coat indicated hereafter	AFC 20, AFC 10, AFC 15, AFC i, AFC 25 wt, AFC 15 wt, AFC s, RMG, AMC, AFC 20 eco-shield, AFC 10 eco-shield, AFC 15 eco-shield, AFC i eco-shield, AFC 25 wt eco-shield, AFC 15 wt eco-shield, AFC s eco-shield	**≥ 0,08 MPa**
	SFC-P 20, SFC-P 15, SFC-P 25 wt	**≥ 0,08 MPa**
	AF-P 20, AF-P 15, AF-P 25 wt	**≥ 0,08 MPa**
	MTC 15, MTC 20, MTC 30, MTC 25 wt, MTC 15 g, MTC 25 wt g	**≥ 0,08 MPa**
	STF 10, STF 15, STF 20, STF 25 wt	**≥ 0,08 MPa**

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

According to Decision 97/556/EC of the European Commission amended by the Decision 2001/596/EC, the systems of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table apply.

Table 9

Product	Intended use	Level or class (Reaction to fire)	System
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 Class 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 European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the Control Plan which is deposited at Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

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Marcin M. Kruk, Dr. Eng.
Director of ITB

Description and characteristics		EPS panels according to EN 13163
Reaction to fire EN 13501-1		Class E Thickness: 20 mm to 250 mm density: up to 20,0 kg/m^3
Thermal resistance (m²·K)/W		Defined in the CE marking in reference to EN 13163
Thickness (mm) EN 823		EPS-EN 13163 – T1
Length (mm) EN 822		EPS-EN 13163 – L2
Width (mm) EN 822		EPS-EN 13163 – W2
Squareness (mm/m) EN 824		EPS-EN 13163 – S5
Flatness (mm/m) EN 825		EPS-EN 13163 – P5
Surface condition		Cut surface (homogeneous and without "skin")
Dimensional stability	laboratory conditions EN 1603	EPS-EN 13163 – DS(N)2
	specified temperature and humidity EN 1604	EPS-EN 13163 – DS(70,-)1 EPS-EN 13163 – DS(70,-)2
Short-term water absorption (partial immersion) (kg/m^2) EN 1609		≤ 1,0
Water vapour diffusion resistance factor (μ) EN 12086		20 to 60
Tensile strength perpendicular to the faces in dry conditions EN 1607		EPS-EN 13163 – TR100 EPS-EN 13163 – TR150
Bending strength (kPa) EN 12089		≥ 75
Shear strength (MPa) EN 12090		≥ 0,02
Shear modulus (MPa) EN 12090		≥ 1,0

SOLTHERM P	**Annex 1** of European Technical Assessment ETA-13/0928
Thermal insulation products characteristic	

Glass fibre meshes

Standard 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, %
VERTEX R 117 A 101 / AKE 145	mass per unit area: 145 g/m^2 mesh size: 4,0 x 4,5 mm	≥ 20	≥ 50
ST 112-100/7 KM	mass per unit area: 174 g/m^2 mesh size: 3,8 x 3,2 mm	≥ 20	≥ 50

SOLTHERM P	**Annex 2** of European Technical Assessment ETA-13/0928
Glass fibre meshes characteristic	