

European Technical Assessment



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and Building
Materials**



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European Technical Assessment

ETA 16/0161
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General Part

**Technical Assessment Body
issuing the ETA:**

**Institute of Ceramics and Building
Materials ICiMB**

Trade name of the construction product

TYTAN ETICS EPS

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

External Thermal Insulation Composite
Systems (ETICS) with rendering

Manufacturer

SELENA FM SA
Strzegomska 2-4
53-611 Wrocław, POLAND

Manufacturing plants

- 1) Przemysłowa 1A,
59-300 Lubin, POLAND
- 2) Krakowska 31B
32-065 Krzeszowice, POLAND
- 3) Pieszycza 4,
58-200 Dzierżonów, POLAND
- 4) Drumul Mare 26-28
Sat Olteni, Comuna Clinceni,
Ilfoy 077060, ROMANIA

**This European Technical Assessment
contains**

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

Annex No 4 Control Plan contains
confidential information and is 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**

ETAG 004, version February 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.

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Specific part

1. Technical description of the product

This product TYTAN ETICS EPS 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 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.

Table 1.

	Components	Coverage (kg/m ²)	Thickness (mm)
Bonded ETICS with supplementary mechanical fixings. National application documents shall be taken into account.			
Insulation materials with associated methods of fixing	<ul style="list-style-type: none"> • Insulation product: panels of expanded polystyrene (EPS) according to EN 13163 <i>Product characteristics - see Annex 1</i> 	-	20 to 200
	<ul style="list-style-type: none"> • Adhesives: <ul style="list-style-type: none"> - Tytan Zaprawa klejowa E 118 / Klej do styropianu IS 11 cement based powder requiring addition of 0,20-0,22 l/kg of water - Tytan Zaprawa klejowa EO 418 / Klej do wełny IS 12 cement based powder requiring addition of 0,20-0,22 l/kg of water - Klej Tytan Styro 753 ready to use polyurethane foam - Tytan EOS Klej do styropianu / Szybki klej do styropianu IS 13 ready to use polyurethane foam 	3,5 to 4,5 (powder)	-
		3,5 to 4,5 (powder)	-
		about 300 ml/m ²	-
		about 300 ml/m ²	-

Table 1. cont.

	Components	Coverage (kg/m ²)	Thickness (mm)
Insulation materials with associated methods of fixing	<ul style="list-style-type: none"> • Adhesives cont.: - Styro Fast Grab - Klej do styropianu ready to use polyurethane foam 	about 300 ml/m ²	-
	<ul style="list-style-type: none"> • Supplementary mechanical fixings: Plastic anchors covered by relevant ETA according to ETAG 014 	-	-
Base coats	<ul style="list-style-type: none"> • Tytan zaprawa klejowo-szpachlowa E / Klej do siatki i styropianu IS 21 cement based powder requiring addition of 0,21-0,22 l/kg of water 	4,5 to 5,5 (powder)	3,0 to 5,0
	<ul style="list-style-type: none"> • Tytan zaprawa klejowo-szpachlowa EO / Klej z włóknami do siatki IS 22 cement based powder requiring addition of 0,21-0,22 l/kg of water 	4,5 to 5,5 (powder)	3,0 to 5,0
	<ul style="list-style-type: none"> • Tytan zaprawa klejowo-szpachlowa EOS / Specjalistyczny klej do siatki IS 23 cement based powder requiring addition of 0,21-0,22 l/kg of water 	4,5 to 5,5 (powder)	3,0 to 5,0
Reinforcement	<ul style="list-style-type: none"> • Standard glass fibre meshes - IS 165 - VERTEX 145 / R117 A101 / AKE 145 - SSA-1363-150 SM0.5 - SSA-1363-160 SM0.5 - 122 Omfa <i>Products characteristics - see Annex 2</i> 	- - - - -	- - - - -
Key coat	<ul style="list-style-type: none"> • Grunt do systemów E / Uniwersalny grunt pod tynki IS 41 ready to use liquid to be used with all finishing coats 	0,20 to 0,30	-

Table 1. cont.

	Components	Coverage (kg/m ²)	Thickness (mm)
Finishing coats	<ul style="list-style-type: none"> Mineral finishing coats. Dry cement based powders requiring addition of 0,21-0,22 l/kg of water Tynk cienk warstwowy OS mineralny / Tynk mineralny IS 54 structure - max. particles size: floated - 1,5; 2,0; 2,5 mm ribbed - 2,0; 2,5 mm 	(powder) 2,2 to 4,2 2,2 to 4,2	Regulated by particles size
	<ul style="list-style-type: none"> Acrylic finishing coats. Ready to use pastes – acrylic binder: Tytan Tynk cienk warstwowy E akrylowy / Tynk akrylowy IS 51 structure - max. particles size: floated - 1,5; 2,0; 2,5 mm ribbed - 1,5; 2,0; 2,5 mm 	2,2 to 4,0 2,1 to 4,0	
	<ul style="list-style-type: none"> Tytan Tynk cienk warstwowy E akrylowy natryskowy / Tynk akrylowy IS 51N NATRYSKOWY (mechanical application) structure - max. particles size: floated - 1,5; 2,0; 2,5 mm 	1,8 to 2,25	
	<ul style="list-style-type: none"> Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56 structure - max. particles size: mosaic - 1,0; 1,5 mm 	2,2 to 4,0	
	<ul style="list-style-type: none"> Hybrid finishing coats. Ready to use pastes – silicone-silicate-acrylic binder: Tynk hybrydowy SISI IS 55 structure - max. particles size: floated - 1,5; 2,0; 2,5 mm ribbed - 1,5; 2,0; 2,5 mm 	2,2 to 4,0 2,1 to 4,0	
	<ul style="list-style-type: none"> Tynk hybrydowy SISI IS 55N NATRYSKOWY (mechanical application) structure - max. particles size: floated - 1,5; 2,0; 2,5 mm 	1,8 to 2,25	

Table 1. cont.

	Components	Coverage (kg/m ²)	Thickness (mm)
Finishing coats	<ul style="list-style-type: none"> • Sol-silica finishing coats. Ready to use pastes – siliceous-acrylic binder: Tynk cienkowarstwowy EO / Tynk zolokrzemowy IS 52 structure - max. particles size: floated - 1,5; 2,0; 2,5 mm ribbed - 1,5; 2,0; 2,5 mm • Tynk cienkowarstwowy EO natryskowy / Tynk zolokrzemowy IS 52N NATRYSKOWY (mechanical application) structure - max. particles size: floated - 1,5; 2,0; 2,5 mm • Silicone finishing coats. Ready to use pastes – silicone-acrylic binder: Tynk cienkowarstwowy EOS / Tynk silikonowy IS 53 structure - max. particles size: floated - 1,5; 2,0; 2,5 mm ribbed - 1,5; 2,0 mm • Tynk cienkowarstwowy EOS natryskowy / Tynk silikonowy IS 53N NATRYSKOWY (mechanical application) structure - max. particles size: floated - 1,5; 2,0; 2,5 mm 	 2,2 to 4,0 2,1 to 4,0 1,8 to 2,25 2,2 to 4,0 2,1 to 4,0 1,8 to 2,25	Regulated by particles size
Decorative coats (paints)	<ul style="list-style-type: none"> • Farba elewacyjna O / Farba elewacyjna silikatowa IS 74 ready to use pigmented liquid to be used optionally with mineral finishing coats • Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73 ready to use pigmented liquid to be used optionally with all finishing coats except Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56 	0,20 to 0,30 0,20 to 0,30	-
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 / Max. heat of combustion	Flame retardant content	Euroclass acc. to EN 13501-1
TYTAN ETICS EPS			
Adhesive	100 % / -	No flame retardant	B-s2, d0
EPS panels* density ≤ 11 kg/m ³	- / -		
Base coat	2,6 % / 1,1 MJ/m ²		
Glass fibre mesh	- / 1,6 MJ/m ²		
Key coat	15,0 % / 1,9 MJ/m ²		
Finishing coat - All except Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56	6,0 % / 8,8 MJ/m ²		
Decorative coat	10,0 % / 1,2 MJ/m ²		
Adhesive	100 % / -	No flame retardant	No performance assessed
EPS panels* density ≤ 11 kg/m ³	- / -		
Base coat	2,6 % / 1,1 MJ/m ²		
Glass fibre mesh	- / 1,6 MJ/m ²		
Key coat	15,0 % / 1,9 MJ/m ²		
Finishing coat - Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56	10,0 % / -		
*flame retardant content in quantity ensuring Euroclass E according to EN 13501-1			

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 Tytan zaprawa klejowo-szpachlowa E / Klej do siatki i styropianu IS 21:
 - Water absorption after 1 hour < 1 kg/m²;
 - Water absorption after 24 hours < 0,5 kg/m².
- Base coat Tytan zaprawa klejowo-szpachlowa EO / Klej z włóknami do siatki IS 22:
 - Water absorption after 1 hour < 1 kg/m²;
 - Water absorption after 24 hours < 0,5 kg/m².
- Base coat Tytan zaprawa klejowo-szpachlowa EOS / Specjalistyczny klej do siatki IS 23:
 - Water absorption after 1 hour < 1 kg/m²;
 - Water absorption after 24 hours < 0,5 kg/m².
- Rendering systems: Table 3.

Table 3.

		Water absorption after 24 hours	
		<0,5 kg/m ²	≥0,5 kg/m ²
Rendering system: Base coat: <u>Tytan zaprawa klejowo-szpachlowa E / Klej do siatki i styropianu IS 21</u> or <u>Tytan zaprawa klejowo-szpachlowa EO / Klej z włóknami do siatki IS 22</u> or <u>Tytan zaprawa klejowo-szpachlowa EOS / Specjalistyczny klej do siatki IS 23</u> + key coat + finishing coat indicated hereafter:	Tynk cienkowarstwowy OS mineralny / Tynk mineralny IS 54	x	-
	Tytan Tynk cienkowarstwowy E akrylowy / Tynk akrylowy IS 51	x	-
	Tytan Tynk cienkowarstwowy E akrylowy natryskowy / Tynk akrylowy IS 51N NATRYSKOWY	x	-
	Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56	x	-
	Tynk hybrydowy SISI IS 55	x	-
	Tynk hybrydowy SISI IS 55N NATRYSKOWY	x	-
	Tynk cienkowarstwowy EO / Tynk żolokrzemowy IS 52	x	-
	Tynk cienkowarstwowy EO natryskowy / Tynk żolokrzemowy IS 52N NATRYSKOWY	x	-
	Tynk cienkowarstwowy EOS / Tynk silikonowy IS 53	x	-
Tynk cienkowarstwowy EOS natryskowy / Tynk silikonowy IS 53N NATRYSKOWY	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: <u>Tytan zaprawa klejowo-szpachlowa E / Klej do siatki i styropianu IS 21</u> or <u>Tytan zaprawa klejowo-szpachlowa EO / Klej z włóknami do siatki IS 22</u> or <u>Tytan zaprawa klejowo-szpachlowa EOS / Specjalistyczny klej do siatki IS 23 + key coat + finishing coat indicated hereafter:</u>	Tynk cienkowarstwowy OS mineralny / Tynk mineralny IS 54	Category III
	Tytan Tynk cienkowarstwowy E akrylowy / Tynk akrylowy IS 51	Category II
	Tytan Tynk cienkowarstwowy E akrylowy natryskowy / Tynk akrylowy IS 51N NATRYSKOWY	Category II
	Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56	Category II
	Tynk hybrydowy SISI IS 55	Category II
	Tynk hybrydowy SISI IS 55N NATRYSKOWY	Category II
	Tynk cienkowarstwowy EO / Tynk żołokrzemowy IS 52	Category II
	Tynk cienkowarstwowy EO natryskowy / Tynk żołokrzemowy IS 52N NATRYSKOWY	Category II
	Tynk cienkowarstwowy EOS / Tynk silikonowy IS 53	Category II
Tynk cienkowarstwowy EOS natryskowy / Tynk silikonowy IS 53N NATRYSKOWY	Category II	

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

Table 5.

		Equivalent air thickness s_d
Rendering system: Base coat: <u>Tytan zaprawa klejowo-szpachlowa E / Klej do siatki i styropianu IS 21</u> or <u>Tytan zaprawa klejowo-szpachlowa EO / Klej z włóknami do siatki IS 22</u> or <u>Tytan zaprawa klejowo-szpachlowa EOS / Specjalistyczny klej do siatki IS 23</u> + key coat + finishing coat indicated hereafter + relevant decorative coat:	<u>Tynk cienkowarstwowy OS mineralny / Tynk mineralny IS 54</u> + Farba elewacyjna O / Farba elewacyjna silikonowa IS 74 + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, results: 0,12 m 0,15 m
	<u>Tytan Tynk cienkowarstwowy E akrylowy / Tynk akrylowy IS 51</u> + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, result: 0,18 m
	<u>Tytan Tynk cienkowarstwowy E akrylowy natryskowy / Tynk akrylowy IS 51N NATRYSKOWY</u> + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, result: 0,18 m
	<u>Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56*</u>	≤ 2 m, result: 0,22 m
	<u>Tynk hybrydowy SISI IS 55</u> + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, result: 0,22 m
	<u>Tynk hybrydowy SISI IS 55N NATRYSKOWY</u> + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, result: 0,22 m
	<u>Tynk cienkowarstwowy EO / Tynk żolokrzemowy IS 52</u> + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, result: 0,21 m
	<u>Tynk cienkowarstwowy EO natryskowy / Tynk żolokrzemowy IS 52N NATRYSKOWY</u> + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, result: 0,21 m
	<u>Tynk cienkowarstwowy EOS / Tynk silikonowy IS 53</u> + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, result: 0,18 m
	<u>Tynk cienkowarstwowy EOS natryskowy / Tynk silikonowy IS 53N NATRYSKOWY</u> + Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73	≤ 2 m, result: 0,18 m

*decorative coat not used

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 Tytan zaprawa klejowo-szpachlowa E / Klej do siatki i styropianu IS 21 and insulation product $\geq 0,08$ MPa
- Bond strength between base coat Tytan zaprawa klejowo-szpachlowa EO / Klej z włóknami do siatki IS 22 and insulation product $\geq 0,08$ MPa
- Bond strength between base coat Tytan zaprawa klejowo-szpachlowa EOS / Specjalistyczny klej do siatki IS 23 and insulation product $\geq 0,08$ 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
Tytan Zaprawa klejowa E 118 / Klej do styropianu IS 11	$\geq 0,25$ MPa	$\geq 0,08$ MPa	$\geq 0,25$ MPa
Tytan Zaprawa klejowa EO 418 / Klej do wełny IS 12			

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
Tytan Zaprawa klejowa E 118 / Klej do styropianu IS 11*	$\geq 0,08$ MPa	$\geq 0,03$ MPa	$\geq 0,08$ MPa
Tytan Zaprawa klejowa EO 418 / Klej do wełny IS 12*			

*minimal bonded surface area S: 38 %

3.3.4. Bond strength of foam adhesive (ETAG 004: paragraf 5.1.4.1.4)

- Bond strength between Klej Tytan Styro 753 and insulation product $\geq 0,08$ MPa
Minimal bonded surface area S: 27 %
- Bond strength between Tytan EOS Klej do styropianu / Szybki klej do styropianu IS 13 and insulation product $\geq 0,08$ MPa
Minimal bonded surface area S: 27 %
- Bond strength between Styro Fast Grab - Klej do styropianu and insulation product $\geq 0,08$ MPa
Minimal bonded surface area S: 27 %

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

Table 8.

		After hygrothermal cycles
Rendering system: Base coat: <u>Tytan zaprawa klejowo-szpachlowa E / Klej do siatki i styropianu IS 21</u> or <u>Tytan zaprawa klejowo-szpachlowa EO / Klej z włóknami do siatki IS 22</u> or <u>Tytan zaprawa klejowo-szpachlowa EOS / Specjalistyczny klej do siatki IS 23 +</u> key coat + finishing coat indicated hereafter:	Tynk cienkowarstwowy OS mineralny / Tynk mineralny IS 54	$\geq 0,08$ MPa
	Tytan Tynk cienkowarstwowy E akrylowy / Tynk akrylowy IS 51	$\geq 0,08$ MPa
	Tytan Tynk cienkowarstwowy E akrylowy natryskowy / Tynk akrylowy IS 51N NATRYSKOWY	$\geq 0,08$ MPa
	Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56	$\geq 0,08$ MPa
	Tynk hybrydowy SISI IS 55	$\geq 0,08$ MPa
	Tynk hybrydowy SISI IS 55N NATRYSKOWY	$\geq 0,08$ MPa
	Tynk cienkowarstwowy EO / Tynk żołokrzemowy IS 52	$\geq 0,08$ MPa
	Tynk cienkowarstwowy EO natryskowy / Tynk żołokrzemowy IS 52N NATRYSKOWY	$\geq 0,08$ MPa
	Tynk cienkowarstwowy EOS / Tynk silikonowy IS 53	$\geq 0,08$ MPa
	Tynk cienkowarstwowy EOS natryskowy / Tynk silikonowy IS 53N NATRYSKOWY	$\geq 0,08$ MPa

3.3.6. 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 this 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.

Issued in Krakow on 08.06.2016

Signed by



Adam WITEK

Director of Institute of Ceramics and Building Materials

Annexes:

Annex No 1 – Insulation product characteristics

Annex No 2 – Glass fibre meshes characteristics

Annex No 3 – Language variants of TYTAN ETICS EPS components trade names

Annex No 1 – Insulation product characteristics

		Panels of expanded polystyrene EPS
Reaction to fire / EN 13501-1		Euroclass – E max. density: 11 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		≥ 100 kPa [EN 13163 - BS100]
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		≥ 50 kPa

Annex No 2 – Glass fibre meshes 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
AKE 145 / VERTEX 145 / R117 A101	Mass per unit area: 145 g/m ² Mesh size: 4,0 x 4,5 mm	≥ 20	≥ 50
SSA-1363-150 SM0.5	Mass per unit area: 150 g/m ² Mesh size: 3,6 x 4,3 mm	≥ 20	≥ 50
122 Omfa	Mass per unit area: 160 g/m ² Mesh size: 3,5 x 3,5 mm	≥ 20	≥ 50
SSA-1363-160 SM0.5	Mass per unit area: 160 g/m ² Mesh size: 3,6 x 3,8 mm	≥ 20	≥ 50
IS 165	Mass per unit area: 165 g/m ² Mesh size: 4,0 x 4,5 mm	≥ 20	≥ 50

Annex No 3 – Language variants of TYTAN ETICS EPS components trade names

Component	Language		
	Polish	Czech	Slovak
Adhesive	Klej do styropianu IS 11	LEPIDLO NA POLYSTYREN IS 11	LEPIDLO NA PENOVÝ POLYSTYRÉN IS 11
	Klej do wełny IS 12	LEPÍCÍ TMEL NA MINERÁLNÍ VLNU A POLYSTYREN IS 12	LEPIDLO NA MINERALNU VLNU IS 12
	Szybki klej do styropianu IS 13	-	-
Base coat	Klej do siatki i styropianu IS 21	LEPÍCÍ A STĚRKOVÁ MALTA PRO POLYSTYREN IS 21	LEPIDLO NA SIETKY PRE PENOVÝ POLYSTYRÉN IS 21
	Klej z włóknami do siatki IS 22	LEPÍCÍ A STĚRKOVÁ MALTA PRO MW IS 22	LEPIDLO S VLÁKNAMI NA MINERALNU SIETKY IS 22
	Specjalistyczny klej do siatki IS 23	SPECIÁLNÍ LEPÍCÍ A STĚRKOVÝ TMEL IS 23	ŠPECIÁLNE LEPIDLO NA SIETKU IS 23
Key coat	Uniwersalny grunt pod tynki IS 41	ZÁKLADNÍ BARVA UNIVERZÁLNÍ IS 41	ZÁKLADNÝ NÁTER POD OMIETKU IS 41
Finishing coat	Tynk akrylowy IS 51 baranek	AKRYLÁTOVÁ OMÍTKA IS 51 beránek	AKRYLÁTOVÁ OMIETKA IS 51 jahňacie
	Tynk akrylowy IS 51 kornik	AKRYLÁTOVÁ OMÍTKA IS 51 kůrovec	AKRYLÁTOVÁ OMIETKA IS 51 ryhovanie
	Tynk zolokrzemowy IS 52 baranek	OMÍTKA NA BÁZI KOLOIDNÍHO KŘEMÍKU IS 52 beránek	OMIETKA NA BÁZE KOLOIDNÉHO KREMÍKA IS 52 jahňacie
	Tynk zolokrzemowy IS 52 kornik	OMÍTKA NA BÁZI KOLOIDNÍHO KŘEMÍKU IS 52 kůrovec	OMIETKA NA BÁZE KOLOIDNÉHO KREMÍKA IS 52 ryhovanie
	Tynk silikonowy IS 53 baranek	SILIKONOVÁ OMÍTKA IS 53 beránek	SILIKONOVÁ OMIETKA IS 53 jahňacie
	Tynk silikonowy IS 53 kornik	SILIKONOVÁ OMÍTKA IS 53 kůrovec	SILIKONOVÁ OMIETKA IS 53 ryhovanie
	Tynk mineralny IS 54 baranek	MINERÁLNÍ OMÍTKA IS 54 beránek	MINERÁLNÁ OMIETKA IS 54 jahňacie
	Tynk mineralny IS 54 kornik	MINERÁLNÍ OMÍTKA IS 54 kůrovec	MINERÁLNÁ OMIETKA IS 54 ryhovanie
	Tynk hybridowy SISI IS 55 baranek	HYBRIDNÍ OMÍTKA IS 55 beránek	SISI OMIETKA IS 55 jahňacie
	Tynk hybridowy SISI IS 55 kornik	HYBRIDNÍ OMÍTKA IS 55 kůrovec	SISI OMIETKA IS 55 ryhovanie
	Tynk mozaikowy IS 56	MOZAIKOVÁ OMÍTKA IS 56	MOZAIKOVÁ OMIETKA IS 56
	Tynk akrylowy IS 51N NATRYSKOWY	AKRYLÁTOVÁ OMÍTKA IS 51N strojně nanášená	AKRYLÁTOVÁ OMIETKA IS 51N strojovo nanášaná
	Tynk zolokrzemowy IS 52N NATRYSKOWY	OMÍTKA NA BÁZI KOLOIDNÍHO KŘEMÍKU IS 52N strojně nanášená	OMIETKA NA BÁZE KOLOIDNÉHO KREMÍKA IS 52N strojovo nanášaná
	Tynk silikonowy IS 53N NATRYSKOWY	SILIKONOVÁ OMÍTKA IS 53 strojně nanášená	SILIKONOVÁ OMIETKA IS 53 strojovo nanášaná
	Tynk hybridowy SISI IS 55N NATRYSKOWY	HYBRIDNÍ OMÍTKA IS 55 strojně nanášená	SISI OMIETKA IS 55 strojovo nanášaná
	Decorative coat (paint)	Farba elewacyjna silikonowa IS 73	SILIKONOVÁ FASÁDNÍ BARVA IS 73
Farba elewacyjna silikatowa IS 74		SILIKÁTOVÁ FASÁDNÍ BARVA IS 74	FASÁDOVÁ SILIKÁTOVÁ FARBA IS 74

Annex No 3 – Language variants of TYTAN ETICS EPS components trade names cont.

Component	Language		
	Polish	German	Romanian
Adhesive	Klej do styropianu IS 11	STYROPOKLEBER IS 11	ADEZIV PENTRU POLISTIREN IS 11
	Klej do wełny IS 12	WOLLEKLEBER IS 12	ADEZIV PENTRU VATĂ MINERALĂ IS 12
	Szybki klej do styropianu IS 13	-	ADEZIV RAPID PENTRU ETICS IS 13
Base coat	Klej do siatki i styropianu IS 21	ARMIERMÖRTEL IS 21	ADEZIV ȘI MASĂ DE ȘPACLU IS 21
	Klej z włóknami do siatki IS 22	KLEBE- UND ARMIERMÖRTEL IS 22	ADEZIV ȘI MASĂ DE ȘPACLU CU FIBRE IS 22
	Specjalistyczny klej do siatki IS 23	ARMIERUNGSKLEBER SPEZIAL PG IS 23	ADEZIV SPECIAL PENTRU PLASĂ IS 23
Key coat	Uniwersalny grunt pod tynki IS 41	UNIVERSAL-PUTZGRUNDIERUNG IS 41	GRUND UNIVERSAL PENTRU TENCUIELI DECORATIVE IS 41
Finishing coat	Tynk akrylowy IS 51 baranek	ACRYLPUTZ IS 51 Lamm	TENCUIALĂ ACRILICĂ IS 51 bob de orez
	Tynk akrylowy IS 51 kornik	ACRYLPUTZ IS 51 Holzwurm	TENCUIALĂ ACRILICĂ IS 51 scoarță
	Tynk zolokrzemowy IS 52 baranek	SOL-SILIZIUM-PUTZ IS 52 Lamm	TENCUIALĂ BAZĂ DE SOL DE SILICE IS 52 bob de orez
	Tynk zolokrzemowy IS 52 kornik	SOL-SILIZIUM-PUTZ IS 52 Holzwurm	TENCUIALĂ BAZĂ DE SOL DE SILICE IS 52 scoarță
	Tynk silikonowy IS 53 baranek	SILIKONPUTZ IS 53 Lamm	TENCUIALĂ SILICONICĂ IS 53 bob de orez
	Tynk silikonowy IS 53 kornik	SILIKONPUTZ IS 53 Holzwurm	TENCUIALĂ SILICONICĂ IS 53 scoarță
	Tynk mineralny IS 54 baranek	MINERALPUTZ IS 54 Lamm	TENCUIALĂ MINERALĂ IS 54 bob de orez
	Tynk mineralny IS 54 kornik	MINERALPUTZ IS 54 Holzwurm	TENCUIALĂ MINERALĂ IS 54 scoarță
	Tynk hybrydowy SISI IS 55 baranek	HYBRIDPUTZ SISI IS 55 Lamm	TENCUIALĂ HIBRIDĂ IS 55 bob de orez
	Tynk hybrydowy SISI IS 55 kornik	HYBRIDPUTZ SISI IS 55 Holzwurm	TENCUIALĂ HIBRIDĂ IS 55 scoarță
	Tynk mozaikowy IS 56	MOSAIKPUTZ IS 56	TENCUIALĂ MOZAICATĂ IS 56
	Tynk akrylowy IS 51N NATRYSKOWY	ACRYLPUTZ IS 51 besprühen	TENCUIALĂ ACRILICĂ IS 51 aplicabilă mecanizat
	Tynk zolokrzemowy IS 52N NATRYSKOWY	SOL-SILIZIUM-PUTZ IS 52N besprühen	TENCUIALĂ BAZĂ DE SOL DE SILICE IS 52N aplicabilă mecanizat
	Tynk silikonowy IS 53N NATRYSKOWY	SILIKONPUTZ IS 53N besprühen	TENCUIALĂ SILICONICĂ IS 53N aplicabilă mecanizat
	Tynk hybrydowy SISI IS 55N NATRYSKOWY	HYBRIDPUTZ SISI IS 55 besprühen	TENCUIALĂ HIBRIDĂ IS 55N aplicabilă mecanizat
	Decorative coat (paint)	Farba elewacyjna silikonowa IS 73	SILIKON-FASSADENFARBE IS 73
Farba elewacyjna silikatowa IS 74		SILIKAT-FASSADENFARBE IS 74	VOPSEA SILICATICĂ PENTRU FAȚADE IS 74

Annex No 3 – Language variants of TYTAN ETICS EPS components trade names
cont.

Component	Language		
	Polish	Bulgarian	Greek
Adhesive	Klej do styropianu IS 11	ЛЕПИЛО ЗА ТОПЛОИЗОЛАЦИЯ IS 11	ΚΟΝΙΑΜΑ ΣΥΓΚΟΛΛΗΣΗΣ ΠΟΛΥΣΤΕΡΙΝΗΣ IS 11
	Klej do wełny IS 12	ЛЕПИЛО ЗА МИНЕРАЛНА ΒΑΤΑ IS 12	ΚΟΝΙΑΜΑ ΣΥΓΚΟΛΛΗΣΗΣ ΠΕΤΡΟΒΑΜΒΑΚΑ IS 12
	Szybki klej do styropianu IS 13	БЪРЗО ЛЕПИЛО ЗА ТОПЛОИЗОЛАЦИЯ IS 13	-
Base coat	Klej do siatki i styropianu IS 21	ЛЕПИЛО-ШПАКЛОВКА ЗА ТОПЛОИЗОЛАЦИЯ IS 21	ΚΟΝΙΑΜΑ ΣΥΓΚΟΛΛΗΣΗΣ ΥΑΛΟΠΛΕΓΜΑΤΟΣ ΣΕ ΠΟΛΥΣΤΕΡΙΝΗ IS 21
	Klej z włóknami do siatki IS 22	ЛЕПИЛО ШПАКЛОВКА ЗА ТОПЛОИЗОЛАЦИЯ IS 22	ΚΟΛΛΑ ΜΕ ΙΝΕΣ ΓΙΑ ΠΛΕΓΜΑΤΑ IS 22
	Specjalistyczny klej do siatki IS 23	СПЕЦИАЛНО ЛЕПИЛО З ЗА МРЕЖА IS 23	ΕΙΔΙΚΗ ΚΟΛΛΑ ΓΙΑ ΠΛΕΓΜΑΤΑ IS 23
Key coat	Uniwersalny grunt pod tynki IS 41	УНИВЕРСАЛЕН ГРУНД ЗА ΜΑΖΙΛΚИ IS 41	ΑΣΤΑΡΙ ΓΕΝΙΚΗΣ ΧΡΗΣΗΣ ΓΙΑ ΣΟΒΑΔΕΣ IS 41
Finishing coat	Tynk akrylowy IS 51 baranek	ΑΚΡΙΛΗΝΑ ΜΑΖΙΛΚΑ IS 51 драскана	ΑΚΡΥΛΙΚΟΣ ΣΟΒΑΣ IS 51 αρνί
	Tynk akrylowy IS 51 kornik	ΑΚΡΙΛΗΝΑ ΜΑΖΙΛΚΑ IS 51 влачена	ΑΚΡΥΛΙΚΟΣ ΣΟΒΑΣ IS 51 τρυπητής
	Tynk żolokrzemowy IS 52 baranek	СИЛИКАТНА ΜΑΖΙΛΚΑ IS 52 драскана	ZOL-ΠΥΡΙΤΙΚΟΣ ΣΟΒΑΣ IS 52 αρνί
	Tynk żolokrzemowy IS 52 kornik	СИЛИКАТНА ΜΑΖΙΛΚΑ IS 52 влачена	ZOL-ΠΥΡΙΤΙΚΟΣ ΣΟΒΑΣ IS 52 τρυπητής
	Tynk silikonowy IS 53 baranek	СИЛИΚΟΝОВА ΜΑΖΙΛΚΑ IS 53 драскана	ΣΙΛΙΚΟΝΟΥΧΟΣ ΣΟΒΑΣ IS 53 αρνί
	Tynk silikonowy IS 53 kornik	СИЛИΚΟΝОВА ΜΑΖΙΛΚΑ IS 53 влачена	ΣΙΛΙΚΟΝΟΥΧΟΣ ΣΟΒΑΣ IS 53 τρυπητής
	Tynk mineralny IS 54 baranek	МИНЕРАЛНА ΜΑΖΙΛΚΑ IS 54 драскана	ΑΝΟΡΓΑΝΟΣ ΣΟΒΑΣ IS 54 αρνί
	Tynk mineralny IS 54 kornik	МИНЕРАЛНА ΜΑΖΙΛΚΑ IS 54 влачена	ΑΝΟΡΓΑΝΟΣ ΣΟΒΑΣ IS 54 τρυπητής
	Tynk hybrydowy SISI IS 55 baranek	Хибридна мазилка СИСИ / SISI IS 55 драскана	ΥΒΡΙΔΙΚΟΣ ΣΤΟΚΟΣ IS 55 αρνί
	Tynk hybrydowy SISI IS 55 kornik	Хибридна мазилка СИСИ / SISI IS 55 влачена	ΥΒΡΙΔΙΚΟΣ ΣΤΟΚΟΣ IS 55 τρυπητής
	Tynk mozaikowy IS 56	ΜΟΖΑΕЧНА ΜΑΖΙΛΚΑ IS 56	ΜΩΣΑΪΚΟΣ ΣΟΒΑΣ IS 56
	Tynk akrylowy IS 51N NATRYSKOWY	ΑΚΡΙΛΗΝΑ ΜΑΖΙΛΚΑ IS 51 пръска	ΑΚΡΥΛΙΚΟΣ ΣΟΒΑΣ IS 51
	Tynk żolokrzemowy IS 52N NATRYSKOWY	СИЛИКАТНА ΜΑΖΙΛΚΑ IS 52N пръска	ZOL-ΠΥΡΙΤΙΚΟΣ ΣΟΒΑΣ IS 52N μηχανής
	Tynk silikonowy IS 53N NATRYSKOWY	СИЛИΚΟΝОВА ΜΑΖΙΛΚΑ IS 53N пръска	ΣΙΛΙΚΟΝΟΥΧΟΣ ΣΟΒΑΣ IS 53 μηχανής
	Tynk hybrydowy SISI IS 55N NATRYSKOWY	Хибридна мазилка СИСИ / SISI IS 55 пръска	ΥΒΡΙΔΙΚΟΣ ΣΤΟΚΟΣ IS 55 μηχανής
Decorative coat (paint)	Farba elewacyjna silikonowa IS 73	СИЛИΚΟΝОВА ФАСАДНА БОЯ IS 73	ΣΙΛΙΚΟΝΟΥΧΟ ΧΡΩΜΑ ΠΡΟΣΟΨΕΩΝ IS 73
	Farba elewacyjna silikatowa IS 74	-	ΧΡΩΜΑ ΥΔΡΥΑΛΟΥ ΓΙΑ ΠΡΟΣΟΨΕΙΣ IS 74

Annex 4 to

**ETA 16/0161
of 08/06/2016**

Control Plan of TYTAN ETICS EPS

Control plan has been prepared by Technical Assessment Body - Institute of Ceramics and Building Materials (ICiMB TAB) in agreement with manufacturer SELENA FM SA. This document is a confidential part of the ETA 16/0161 and can be shared only with Notified Body participating in the procedure of conformity assessment.

The manufacturer is obliged to notify ICiMB TAB of every changes of the product, production process or the way of use of TYTAN ETICS EPS which may lead to errors in the control plan. ICiMB TAB will decide if such changes affect the validity of the ETA 16/0161, thus validity of product CE marking and necessity of again technical assessment or changes in the ETA 16/0161. On request of ICiMB TAB the manufacturer is obliged to present the results confirming that requirements of control plan are met.

CONTROL PLAN OF TYTAN ETICS EPS

Adhesive: Tytan Zaprawa klejowa E 118 / Klej do styropianu IS 11 (<i>Tytan Zaprawa klejowa EO 418 / Klej do wełny IS 12</i>)			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB 1S*	powder of uniform color without lumps and mechanical impurities	Every production lot
Density	PN-EN 1097-3 (<i>Instruction MB 4S*</i>)	1350 ÷ 1650 kg/m ³	
Consistency	Instruction MB 6S*	5,5 ÷ 7,5 cm	
Bond strength to EPS after curing in dry condition	ETAG 004** cl. 5.1.4.1.3 (<i>Instruction MB 19S*</i>)	≥ 0,08 MPa	At least once per 2 months
Ash content at 450 °C	ETAG 004** cl. C.1.1.3 (<i>Instruction MB 19M*</i>)	≤ 99,5 %	At least once per 12 months
Water retention capability	ETAG 004** cl. C.1.2.1	≥ 95,0 %	
Bond strength to substrate after curing in dry condition	ETAG 004** cl. 5.1.4.1.2 (<i>Instruction MB 21S*</i>)	≥ 0,25 MPa	At least once per 24 months

Foam adhesive: Klej Tytan Styro 753 (<i>Tytan EOS Klej do styropianu / Szybki klej do styropianu IS 13; Styro Fast Grab - Klej do styropianu</i>)			
Examination	Method	Requirement	Frequency of testing
Density	EOTA TR046*** cl. 3.1	26 ÷ 32 kg/m ³	Every production lot
Cutting time	EOTA TR046*** cl. 3.3	≤ 48 minutes	
Bond strength to EPS after curing in standard conditions	EOTA TR046*** cl. 4.1	≥ 0,08 MPa	At least once per 2 months
Post expansion behaviour: - after 20 minutes - after 60 minutes	EOTA TR046*** cl. 4.2	≤ 17,6 mm ≤ 17,6 mm	At least once per 24 months

Base coat: Tytan zaprawa klejowo-szpachlowa E / Klej do siatki i styropianu IS 21 (Tytan zaprawa klejowo-szpachlowa EO / Klej z włóknami do siatki IS 22; Tytan zaprawa klejowo-szpachlowa EOS / Specjalistyczny klej do siatki IS 23)			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB 1S*	powder of uniform color without lumps and mechanical impurities	Every production lot
Density	PN-EN 1097-3 (Instruction MB 4S*)	1300 ÷ 1590 kg/m ³	
Consistency	Instruction MB 6S*	5,5 ÷ 7,5 cm	
Bond strength between base coat and EPS after curing in dry condition	ETAG 004** cl. 5.1.4.1.3 (Instruction MB 19S*)	≥ 0,08 MPa	At least once per 2 months
Ash content at 450 °C	ETAG 004** cl. C.1.1.3 (Instruction MB 19M*)	≤ 99,0 %	At least once per 12 months
Water retention capability	ETAG 004** cl. C.1.2.1	≥ 95,0 %	
Bond strength to substrate after curing in dry condition	ETAG 004** cl. 5.1.4.1.2 (Instruction MB 21S*)	≥ 0,25 MPa	At least once per 24 months
Water absorption of base coat	ETAG 004** cl. 5.1.3.1	< 1 kg/m ² after 1 h < 0,5 kg/m ² after 24 h	

Key coat: Grunt do systemów E / Uniwersalny grunt pod tynki IS 41			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB-01M*	homogeneous liquid, can contain a filler	Every batch
Density	ETAG 004** cl. C.1.1.1 pastes and liquids (Instruction MB-05M*)	1278 ÷ 1562 kg/m ³	
Dry extract	ETAG 004** cl. C.1.1.2 (Instruction MB-21M*)	51,1 ÷ 59,2 %	At least once per 6 months
Ash content - at 450 °C - at 900 °C	ETAG 004** cl. C.1.1.3 (Instruction MB-19M*)	83,4 ÷ 88,5 % 48,0 ÷ 51,0 %	At least once per 24 months

Mineral finishing coats: Tynk cienkowarstwowy OS mineralny / Tynk mineralny IS 54			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB 1S*	powder of uniform color without lumps and mechanical impurities	Every production lot
Density	PN-EN 1097-3 (Instruction MB 4S*)	1450 ÷ 1570 kg/m ³	
Consistency	PN-85/B-04500	9,0 ÷ 11,0 cm	
Ash content at 450 °C	ETAG 004** cl. C.1.1.3 (Instruction MB-19M*)	≤ 99,1 %	At least once per 24 months
Water absorption	ETAG 004** cl. 5.1.3.1	< 0,5 kg/m ² after 24 h	
Bond strength after ageing	ETAG 004** cl. 5.1.7.1.2	≥ 0,08 MPa	

Acrylic finishing coats: Tytan Tynk cienkownikowy E akrylowy / Tynk akrylowy IS 51 (<i>Tytan Tynk cienkownikowy E akrylowy natryskowy / Tynk akrylowy IS 51N NATRYSKOWY</i>)			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB-01M*	homogeneous paste of uniform color, not foamy, without lumps and mechanical impurities	Every batch
Consistency	Instruction MB-06M*	9,0 ÷ 11,0 cm	
Density	ETAG 004** cl. C.1.1.1 pastes and liquids (<i>Instruction MB-05M*</i>)	1649 ÷ 2015 kg/m ³	
Dry extract	ETAG 004** cl. C.1.1.2 (<i>Instruction MB-21M*</i>)	79,0 ÷ 91,5 %	At least once per 6 months
Ash content - at 450 °C - at 900 °C	ETAG 004** cl. C.1.1.3 (<i>Instruction MB-19M*</i>)	88,4 ÷ 98,4 % 50,5 ÷ 62,0 %	At least once per 24 months
Water absorption	ETAG 004** cl. 5.1.3.1	< 0,5 kg/m ² after 24 h	
Bond strength after ageing	ETAG 004** cl. 5.1.7.1.2	≥ 0,08 MPa	

Hybrid finishing coats: Tynk hybrydowy SISI IS 55 (<i>Tynk hybrydowy SISI IS 55N NATRYSKOWY</i>)			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB-01M*	homogeneous paste of uniform color, not foamy, without lumps and mechanical impurities	Every batch
Consistency	Instruction MB-06M*	9,0 ÷ 11,0 cm	
Density	ETAG 004** cl. C.1.1.1 pastes and liquids (<i>Instruction MB-05M*</i>)	1683 ÷ 2057 kg/m ³	
Dry extract	ETAG 004** cl. C.1.1.2 (<i>Instruction MB-21M*</i>)	78,6 ÷ 91,0 %	At least once per 6 months
Ash content - at 450 °C - at 900 °C	ETAG 004** cl. C.1.1.3 (<i>Instruction MB-19M*</i>)	89,0 ÷ 94,5 % 51,0 ÷ 54,1 %	At least once per 24 months
Water absorption	ETAG 004** cl. 5.1.3.1	< 0,5 kg/m ² after 24 h	
Bond strength after ageing	ETAG 004** cl. 5.1.7.1.2	≥ 0,08 MPa	

Sol - Silica finishing coats: Tynk cienkowlarstwowy EO / Tynk zolokrzemowy IS 52 (<i>Tynk cienkowlarstwowy EO natryskowy / Tynk zolokrzemowy IS 52N NATRYSKOWY</i>)			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB-01M*	homogeneous paste of uniform color, not foamy, without lumps and mechanical impurities	Every batch
Consistency	Instruction MB-06M*	9,0 ÷ 11,0 cm	
Density	ETAG 004** cl. C.1.1.1 pastes and liquids (<i>Instruction MB-05M*</i>)	1665 ÷ 2035 kg/m ³	
Dry extract	ETAG 004** cl. C.1.1.2 (<i>Instruction MB-21M*</i>)	78,8 + 91,2 %	At least once per 6 months
Ash content - at 450 °C - at 900 °C	ETAG 004** cl. C.1.1.3 (<i>Instruction MB-19M*</i>)	89,1 + 99,1 % 54,6 + 66,8 %	At least once per 24 months
Water absorption	ETAG 004** cl. 5.1.3.1	< 0,5 kg/m ² after 24 h	
Bond strength after ageing	ETAG 004** cl. 5.1.7.1.2	≥ 0,08 MPa	

Silicone finishing coats: Tynk cienkowlarstwowy EOS / Tynk silikonowy IS 53 (<i>Tynk cienkowlarstwowy EOS natryskowy / Tynk silikonowy IS 53N NATRYSKOWY</i>)			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB-01M*	homogeneous paste of uniform color, not foamy, without lumps and mechanical impurities	Every batch
Consistency	Instruction MB-06M*	9,0 ÷ 11,0 cm	
Density	ETAG 004** cl. C.1.1.1 pastes and liquids (<i>Instruction MB-05M*</i>)	1665 ÷ 2035 kg/m ³	
Dry extract	ETAG 004** cl. C.1.1.2 (<i>Instruction MB-21M*</i>)	78,9 + 91,3 %	At least once per 6 months
Ash content - at 450 °C - at 900 °C	ETAG 004** cl. C.1.1.3 (<i>Instruction MB-19M*</i>)	88,5 + 98,5 % 51,1 + 62,5 %	At least once per 24 months
Water absorption	ETAG 004** cl. 5.1.3.1	< 0,5 kg/m ² after 24 h	
Bond strength after ageing	ETAG 004** cl. 5.1.7.1.2	≥ 0,08 MPa	

Mosaic finishing coat: Mozaikowy tynk dekoracyjny / Tynk mozaikowy IS 56			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB-01M*	homogeneous paste of uniform color, not foamy, without lumps and mechanical impurities	Every batch of premix
Consistency	Instruction MB-06M*	9,0 ÷ 11,0 cm	
Density	ETAG 004** cl. C.1.1.1 pastes and liquids (Instruction MB-05M*)	1446 ÷ 1768 kg/m ³	
Dry extract	ETAG 004** cl. C.1.1.2 (Instruction MB-21M*)	74,7 ÷ 86,5 %	At least once per 6 months
Ash content - at 450 °C - at 900 °C	ETAG 004** cl. C.1.1.3 (Instruction MB-19M*)	90,0 ÷ 95,6 % 89,9 ÷ 95,5 %	At least once per 24 months
Water absorption	ETAG 004** cl. 5.1.3.1	< 0,5 kg/m ² after 24 h	
Bond strength after ageing	ETAG 004** cl. 5.1.7.1.2	≥ 0,08 MPa	

Decorative coat: Farba elewacyjna O / Farba elewacyjna silikonowa IS 74			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB-01M*	homogeneous liquid, can contain a filler	Every batch
Density	ETAG 004** cl. C.1.1.1 pastes and liquids (Instruction MB-05M*)	1363 ÷ 1665 kg/m ³	
Dry extract	ETAG 004** cl. C.1.1.2 (Instruction MB-21M*)	54,8 ÷ 63,0 %	At least once per 6 months
Ash content - at 450 °C - at 900 °C	ETAG 004** cl. C.1.1.3	86,6 ÷ 92,0 % 63,7 ÷ 67,7 %	At least once per 24 months

Decorative coat: Farba elewacyjna EOS / Farba elewacyjna silikonowa IS 73			
Examination	Method	Requirement	Frequency of testing
Appearance	Instruction MB-01M*	homogeneous liquid, can contain a filler	Every batch
Density	ETAG 004** cl. C.1.1.1 pastes and liquids (Instruction MB-05M*)	1368 ÷ 1672 kg/m ³	
Dry extract	ETAG 004** cl. C.1.1.2 (Instruction MB-21M*)	56,2 ÷ 65,1 %	At least once per 6 months
Ash content - at 450 °C - at 900 °C	ETAG 004** cl. C.1.1.3	78,4 ÷ 83,2 % 44,7 ÷ 47,5 %	At least once per 24 months

Glass fibre meshes: AKE 145 / Vertex 145 / R117 A101; SSA-1363-150 SM0.5; 122 Omfa; SSA-1363-160 SM0.5; IS 165			
Examination	Method	Requirement	Frequency of testing
Residual resistance after ageing	ETAG 004** cl. 5.6.7.1	≥ 20 N/mm	At least once per 24 months
Relative residual resistance after ageing		≥ 50 %	

TYTAN ETICS EPS			
Examination	Method	Requirement	Frequency of testing
Reaction to fire classification PN-EN 13501-1	ETAG 004** Annex D	B-s2, d0	At least once per 36 months

*Instruction included in SELENA FM SA factory production control system.

**ETAG 004 – Guideline for European Technical Approval used as European Assessment Document, actual version.

***EOTA TR046 – EOTA Technical Report “Test methods for foam adhesives for ETICS”, actual version.



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