

European Technical Assessment



Łukasiewicz
Institute
of Ceramics
and Building
Materials





Łukasiewicz
Instytut Ceramiki
i Materiałów
Budowlanych

31-983 Kraków,
POLAND
Cementowa Str. 8
Tel.: +48 12 683 79 00
jot@icimb.lukasiewicz.gov.pl
www.icimb.lukasiewicz.gov.pl



European Technical Assessment

ETA-16/0161
of 20/09/2022

General Part

Technical Assessment Body issuing the European Technical Assessment:
Łukasiewicz Research Network – Institute of Ceramics and Building Materials

Trade name of the construction product

TYTAN ETICS EPS

Product family to which the construction product belongs

04: External Thermal Insulation Composite Systems (ETICS) with renderings

Manufacturer

SELENA FM S.A.
Legnicka 48A
54-202 Wrocław, POLAND
www.selena.com

Manufacturing plants

Plant 1, Plant 2, Plant 3, Plant 4, Plant 5,
Plant 6

This European Technical Assessment contains

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

Annex No 4 Control Plan and No 5 Identification of manufacturing plants contain confidential information and are 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

EAD 040083-00-0404 ed. January 2019 – External Thermal Insulation Composite Systems (ETICS) with renderings

This European Technical Assessment replaces

ETA-16/0161, version 2, issued on 25/01/2018

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 referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

Specific part

1. Technical description of the product

This product TYTAN ETICS EPS is an External Thermal Insulation Composite System (ETICS) with renderings - 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. 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: fully or partially bonded, bonded surface area not less than 40%. National application documents shall be taken into account.		
Insulation materials with associated methods of fixing	<ul style="list-style-type: none"> • Insulation product: Boards of expanded polystyrene (EPS) according to EN 13163 <i>Product characteristics - see Annex No 1</i> 	-	50 to 420
	<ul style="list-style-type: none"> • Adhesives: <ul style="list-style-type: none"> - Tytan IS 11 cement based powder requiring addition of 0,20-0,22 l/kg of water - Tytan IS 12 cement based powder requiring addition of 0,20-0,22 l/kg of water - Tytan IS 21 cement based powder requiring addition of 0,21-0,23 l/kg of water - Tytan IS 22 cement based powder requiring addition of 0,21-0,23 l/kg of water - Tytan IS 23 cement based powder requiring addition of 0,21-0,23 l/kg of water - Tytan IS 13 ready to use polyurethane foam - Tytan STYRO PRO IS 13 E ready to use polyurethane foam 	3,5 to 4,5 (powder)	-
		3,5 to 4,5 (powder)	-
		3,5 to 5,5 (powder)	-
		3,5 to 5,5 (powder)	-
	<ul style="list-style-type: none"> • Supplementary mechanical fixings: Plastic anchors covered by relevant ETA 	-	-

Table 1. cont.

	Components	Coverage (kg/m ²)	Thickness (mm)
Base coats	<ul style="list-style-type: none"> • Tytan IS 21 cement based powder requiring addition of 0,21-0,22 l/kg of water • Tytan IS 22 cement based powder requiring addition of 0,21-0,23 l/kg of water • Tytan IS 23 cement based powder requiring addition of 0,21-0,23 l/kg of water 	<p>4,0 to 5,5 (powder)</p> <p>4,0 to 5,5 (powder)</p> <p>4,0 to 5,5 (powder)</p>	<p>3,0 to 5,0</p> <p>3,0 to 5,0</p> <p>3,0 to 5,0</p>
Reinforcement	<ul style="list-style-type: none"> • Standard glass fibre meshes: <ul style="list-style-type: none"> - TYTAN IS 150 A - SSA-1363-145 - R 117 A101 - 122 plant Macedonia - TYTAN IS 165 - SSA-1363-160 - TYTAN IS 165 A - 122 plant Slovakia <p><i>Products characteristics - see Annex No 2</i></p>	<p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>	<p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>
Key coat	<ul style="list-style-type: none"> • Tytan IS 41 ready to use liquid to be used with all finishing coats 	<p>0,2 to 0,3</p>	<p>-</p>
Finishing coats	<ul style="list-style-type: none"> • Mineral finishing coat. Dry cement based powder requiring addition of 0,21-0,22 l/kg of water <p>Tytan IS 54 floated structure max. particles size: 0,5 mm 1,0 mm 1,5 mm 2,0 mm 2,5 mm ribbed structure max. particles size: 2,0 mm 2,5 mm</p>	<p>1,8 to 4,2 (powder)</p> <p>2,2 to 4,2 (powder)</p>	<p>1,5</p> <p>1,5</p> <p>1,5</p> <p>2,0</p> <p>2,5</p> <p>2,0</p> <p>2,5</p>

Table 1. cont.

	Components	Coverage (kg/m ²)	Thickness (mm)
Finishing coats	<ul style="list-style-type: none"> • Acrylic finishing coats. Ready to use pastes – acrylic binder: 		
	Tytan IS 51 floated structure max. particles size: 0,5 mm 1,0 mm 1,5 mm 2,0 mm 2,5 mm	1,8 to 4,2	1,5 1,5 1,5 2,0 2,5
	ribbed structure max. particles size: 1,5 mm 2,0 mm 2,5 mm	2,0 to 4,2	1,5 2,0 2,5
	Tytan IS 51N (spray application) floated structure max. particles size: 1,0 mm 1,5 mm 2,0 mm 2,5 mm	1,8 to 4,2	1,5 1,5 2,0 2,5
	Tytan IS 56 mosaic structure fine-grained max. particles size: 1,0; 1,5 mm	1,8 to 5,0	Regulated by particles size
	Tytan IS 56N (spray application) mosaic structure fine-grained max. particles size: 1,0 mm 1,5 mm	2,2 to 5,0	1,0 1,5

Table 1. cont.

	Components	Coverage (kg/m ²)	Thickness (mm)
Finishing coats	<ul style="list-style-type: none"> • Silicone finishing coats. Ready to use pastes – silicone-acrylic binder: <ul style="list-style-type: none"> Tytan IS 53 floated structure max. particles size: <ul style="list-style-type: none"> 0,5 mm 1,0 mm 1,5 mm 2,0 mm 2,5 mm ribbed structure max. particles size: <ul style="list-style-type: none"> 1,5 mm 2,0 mm 2,5 mm Tytan IS 53N (spray application) floated structure max. particles size: <ul style="list-style-type: none"> 0,5 mm 1,0 mm 1,5 mm 2,0 mm 2,5 mm 	2,1 to 4,0	1,5 1,5 1,5 2,0 2,5
		2,1 to 4,0	1,5 2,0 2,5
		2,1 to 4,0	1,5 1,5 2,0 2,5
Decorative coats (paints)	<ul style="list-style-type: none"> • Farba elewacyjna silikonowa Tytan IS 73 ready to use pigmented liquid to be used optionally with all finishing coats except Tytan IS 56 and Tytan IS 56N 	0,2 to 0,3	-
	<ul style="list-style-type: none"> • Farba elewacyjna silikatowa Tytan IS 74 ready to use pigmented liquid to be used optionally with mineral finishing coats 	0,2 to 0,3	-
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 to be used on new or existing (retrofit) vertical building walls. The ETICS may also be used on horizontal or inclined surfaces which are not exposed to precipitation.

The ETICS gives the building wall to which it is applied additional thermal insulation and protection from effects of weathering. ETICS are non-load-bearing construction elements. They do not contribute directly to the stability of the building wall on which they are installed.

ETICS are not intended to ensure the air tightness of the building structure.

Concerning product packaging, transport and storage it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport and storage, as he considers necessary in order to reach the declared performances.

The information about installation is provided with the technical documentation from the Manufacturer and it is assumed that the product will be installed according to it or (in absence of such instructions) according to the usual practice of the building professionals.

The performances assessed in this European Technical Assessment, according to the applicable EAD, are based on an assumed intended working life 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, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

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

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

The tests for performance assessment of TYTAN ETICS EPS were carried out in compliance with EAD 040083-00-0404 according to the test methods reported herein, as well for what concerns sampling, conditioning and testing provisions. The performances of the kit as described in this chapter are valid provided that the components of the kit comply with Section 1 of the ETA and the relative Annexes 1 + 3. The numbering in the following tables corresponds to the numbering of Table 1 of EAD 040083-00-0404.

3.1. Safety in case of fire (BWR 2)

3.1.1. Reaction to fire (EAD 040083-00-0404: clause 2.2.1, EN 13501-1)

3.1.1.1. Reaction to fire of ETICS (EAD 040083-00-0404: clause 2.2.1.1)

Table 2.

Configuration	Max. heat of combustion [MJ/kg] / Max. organic content [%]	Flame retardant content	Class acc. to EN 13501-1
Adhesive	- / 100	No flame retardant	B-s2, d0
EPS boards <i>density ≤ 20,0 kg/m³</i>	-		
Base coat	0,41 / -		
Glass fibre mesh	8,19 / -		
Key coat	6,29 / -		
Finishing coat	2,34 / -		
Decorative coat	3,95 / -		

3.1.1.2. Reaction to fire of the thermal insulation material (EAD 040083-00-0404: clause 2.2.1.2)

See Annex No 1

3.1.1.3. Reaction to fire of PU foam adhesive (EAD 040083-00-0404: clause 2.2.1.3)

Table 3.

PU foam adhesive	Reaction to fire class acc. to EN 13501-1
Tytan IS 13	E
Tytan STYRO PRO IS 13 E	E

3.1.2. Façade fire performance (EAD 040083-00-0404: clause 2.2.2)

No performance assessed

3.1.3. Propensity to undergo continuous smouldering of ETICS (EAD 040083-00-0404: clause 2.2.3)

No performance assessed

3.2. Hygiene, health and environment (BWR 3)

3.2.1. Content, emission and/or release of dangerous substances – leachable substances (EAD 040083-00-0404: clause 2.2.4, 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.

3.2.2. Water absorption (EAD 040083-00-0404: clause 2.2.5)

3.2.2.1. Water absorption of the base coat and the rendering system (EAD 040083-00-0404: clause 2.2.5.1)

- Base coat Tytan IS 21:
 - Water absorption after 1 hour = 0,06 kg/m²;
 - Water absorption after 24 hours = 0,35 kg/m².
- Base coat Tytan IS 22:
 - Water absorption after 1 hour = 0,06 kg/m²;
 - Water absorption after 24 hours = 0,35 kg/m².
- Base coat Tytan IS 23:
 - Water absorption after 1 hour = 0,06 kg/m²;
 - Water absorption after 24 hours = 0,35 kg/m².

- Rendering systems: Table 4.

Table 4.

		Water absorption after 1 hour	Water absorption after 24 hours
		mean value (kg/m ²)	
Rendering system: Base coat: Tytan IS 21 or Tytan IS 22 or Tytan IS 23 + key coat + finishing coat indicated hereafter:	Tytan IS 54	0,05	0,32
	Tytan IS 51	0,04	0,31
	Tytan IS 51N	0,04	0,31
	Tytan IS 56	0,07	0,33
	Tytan IS 56N	0,07	0,33
	Tytan IS 55	0,23	0,48
	Tytan IS 55N	0,23	0,48
	Tytan IS 52	0,02	0,28
	Tytan IS 52N	0,02	0,28
	Tytan IS 53	0,02	0,23
	Tytan IS 53N	0,02	0,23

3.2.2.2. Water absorption of the thermal insulation product (EAD 040083-00-0404: clause 2.2.5.2)

See Annex No 1

3.2.3. Water-tightness of the ETICS: Hygrothermal behaviour (EAD 040083-00-0404: clause 2.2.6)

Hygrothermal cycles have been performed on a rig in hygrothermal chamber. None of the following defects occurred during the testing:

- blistering or peeling of any finishing coat,
- failure or cracking associated with joints between insulation product boards,
- detachment of render,
- cracking allowing water penetration to the insulation layer.

The ETICS is so assessed resistant to hygrothermal cycles.

3.2.4. Water-tightness: Freeze-thaw performance (EAD 040083-00-0404: clause 2.2.7)

Water absorption of both, base coat and the rendering systems after 24 hours was lower than 0,5 kg/m² (Tab. 4).

The ETICS is so assessed as freeze-thaw resistant.

3.2.5. Impact resistance tested on the rig (EAD 040083-00-0404: clause 2.2.8)

Table 5.

		Hard body impact		
		Impact energy 3 J	Impact energy 10 J	Impact resistance category
Single layer of standard mesh R 117 A101		Impact diameter (mm) / damages		
Rendering system: Base coat: Tytan IS 21 or Tytan IS 22 or Tytan IS 23 + key coat + finishing coat indicated hereafter:	Tytan IS 54, floated 1,5 mm	20 / cracks reaching the thermal insulation product	30 / cracks reaching the thermal insulation product	III
	Tytan IS 51, ribbed 1,5 mm	30 / superficial damages without cracks formation	40 / cracks without reaching the thermal insulation product	II
	Tytan IS 51N, ribbed 1,5 mm	30 / superficial damages without cracks formation	40 / cracks without reaching the thermal insulation product	II
	Tytan IS 52, ribbed 1,5 mm	0 / no damages	50 / cracks without reaching the thermal insulation product	II
	Tytan IS 52N, ribbed 1,5 mm	0 / no damages	50 / cracks without reaching the thermal insulation product	II
	Tytan IS 53, ribbed 1,5 mm	0 / no damages	45 / cracks without reaching the thermal insulation product	II
	Tytan IS 53N, ribbed 1,5 mm	0 / no damages	45 / cracks without reaching the thermal insulation product	II

3.2.6. Impact resistance not tested on the rig (EAD 040083-00-0404: clause 2.2.8)

Table 6.

		Hard body impact		
		Impact energy 3 J	Impact energy 10 J	Impact resistance category
Single layer of standard mesh R 117 A101		Impact diameter (mm) / damages		
Rendering system: Base coat: Tytan IS 21 or Tytan IS 22 or Tytan IS 23 + key coat + finishing coat indicated hereafter:	Tytan IS 56, 1,0 mm	0 / no damages	25 / cracks without reaching the thermal insulation product	II
	Tytan IS 56N, 1,0 mm	0 / no damages	25 / cracks without reaching the thermal insulation product	II

Table 7.

		Hard body impact		
		Impact energy 3 J	Impact energy 10 J	Impact resistance category
Single layer of standard mesh TYTAN IS 165 (EUROWEK LUX)		Impact diameter (mm) / damages		
Rendering system: Base coat: Tytan IS 21 or Tytan IS 22 or Tytan IS 23 + key coat + finishing coat indicated hereafter:	Tytan IS 55, ribbed 1,5 mm	3 / no damages	21 / cracks without reaching the thermal insulation product	II
	Tytan IS 55N, ribbed 1,5 mm	3 / no damages	21 / cracks without reaching the thermal insulation product	II

3.2.7. Water vapour permeability (EAD 040083-00-0404: clause 2.2.9)

3.2.7.1. Water vapour permeability of the rendering system (equivalent air thickness s_d) (EAD 040083-00-0404: clause 2.2.9.1)

Table 8.

		Equivalent air thickness s_d (m)
Rendering system: Base coat: Tytan IS 21 or Tytan IS 22 or Tytan IS 23 + key coat + finishing coat indicated hereafter + relevant decorative coat:	Tytan IS 54, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 + Farba elewacyjna silikatowa Tytan IS 74 <i>thickness of rendering: 7,7 mm</i>	0,15 0,12
	Tytan IS 51, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 <i>thickness of rendering: 7,7 mm</i>	0,18
	Tytan IS 51N, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 <i>thickness of rendering: 7,7 mm</i>	0,18
	Tytan IS 56*, 1,5 mm <i>thickness of rendering: 6,5 mm</i>	0,22
	Tytan IS 56N*, 1,5 mm <i>thickness of rendering: 6,5 mm</i>	0,22
	Tytan IS 55, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 <i>thickness of rendering: 7,7 mm</i>	0,22
	Tytan IS 55N, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 <i>thickness of rendering: 7,7 mm</i>	0,22
	Tytan IS 52, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 <i>thickness of rendering: 7,7 mm</i>	0,21
	Tytan IS 52N, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 <i>thickness of rendering: 7,7 mm</i>	0,21
	Tytan IS 53, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 <i>thickness of rendering: 7,7 mm</i>	0,18
	Tytan IS 53N, floated 2,5 mm + Farba elewacyjna silikonowa Tytan IS 73 <i>thickness of rendering: 7,7 mm</i>	0,18

*decorative coat not used

3.2.7.2. Water vapour permeability of the thermal insulation product (water-vapour resistance factor) (EAD 040083-00-0404: clause 2.2.9.2)

See Annex No 1

3.3. Safety in use (BWR 4)

3.3.1. Bond strength (EAD 040083-00-0404: clause 2.2.11)

3.3.1.1. Bond strength between the base coat and the thermal insulation product (EAD 040083-00-0404: clause 2.2.11.1)

Table 9.

		Bond strength (kPa)	
		mean	min.
Tytan IS 21	initial state	80*	79
	hygrothermal cycles (from the rig)	127*	110
	freeze-thaw cycles	test not required	
Tytan IS 22	initial state	80*	79
	hygrothermal cycles (from the rig)	127*	110
	freeze-thaw cycles	test not required	
Tytan IS 23	initial state	80*	79
	hygrothermal cycles (from the rig)	127*	110
	freeze-thaw cycles	test not required	

*cohesive rupture in insulation

3.3.1.2. Bond strength between the adhesive and the substrate (EAD 040083-00-0404: clause 2.2.11.2)

Table 10.

		Bond strength (kPa)	
		mean	min.
Tytan IS 11**	initial state	406*	375
	48 h immersion in water + 2 hours 23°C/50% RH	425*	331
	48 h immersion in water + 7 days 23°C/50% RH	529*	420
Tytan IS 12 **	initial state	406*	375
	48 h immersion in water + 2 hours 23°C/50% RH	425*	331
	48 h immersion in water + 7 days 23°C/50% RH	529*	420
Tytan IS 21**	initial state	493*	429
	48 h immersion in water + 2 hours 23°C/50% RH	374*	320
	48 h immersion in water + 7 days 23°C/50% RH	823*	652
Tytan IS 22**	initial state	493*	429
	48 h immersion in water + 2 hours 23°C/50% RH	374*	320
	48 h immersion in water + 7 days 23°C/50% RH	823*	652
Tytan IS 23**	initial state	493*	429
	48 h immersion in water + 2 hours 23°C/50% RH	374*	320
	48 h immersion in water + 7 days 23°C/50% RH	823*	652

*adhesive rupture; **thickness of adhesive – about 3 mm

Minimal bonded surface area: S = 40 %.

3.3.1.3. Bond strength between the adhesive and the thermal insulation product (EAD 040083-00-0404: clause 2.2.11.3)

Table 11.

		Bond strength (kPa)	
		mean	min.
Tytan IS 11***	initial state	81*	80
	48 h immersion in water + 2 hours 23°C/50% RH	61**	44
	48 h immersion in water + 7 days 23°C/50% RH	82*	80
Tytan IS 12***	initial state	81*	80
	48 h immersion in water + 2 hours 23°C/50% RH	61**	44
	48 h immersion in water + 7 days 23°C/50% RH	82*	80
Tytan IS 21***	initial state	110**	78
	48 h immersion in water + 2 hours 23°C/50% RH	85**	73
	48 h immersion in water + 7 days 23°C/50% RH	126*	98
Tytan IS 22***	initial state	110**	78
	48 h immersion in water + 2 hours 23°C/50% RH	85**	73
	48 h immersion in water + 7 days 23°C/50% RH	126*	98
Tytan IS 23***	initial state	110**	78
	48 h immersion in water + 2 hours 23°C/50% RH	85**	73
	48 h immersion in water + 7 days 23°C/50% RH	126*	98

*cohesive rupture in insulation; **adhesive rupture; *** thickness of adhesive – about 3 mm

Minimal bonded surface area: S = 40 %.

3.3.1.4. Bond strength of foam adhesive (EAD 040083-00-0404: clause 2.2.11.4)

Table 12.

		Bond strength (kPa)		
		mean	min.	number of test results in range 60-80
Tytan IS 13	standard application conditions	113*	106	0
	modification of foam thickness (15 mm)	130*	119	0
	modification of open time (5 minutes)	107*	98	0
	modification of temperature (0 °C)	121*	112	0
	modification of temperature (35 °C)	111*	104	0
Tytan STYRO PRO IS 13 E	standard application conditions	133*	125	0
	modification of foam thickness (15 mm)	76*	70	1
	modification of open time (6 minutes)	152*	141	0
	modification of temperature (0 °C)	139*	114	0
	modification of temperature (30 °C)	101*	81	0

*cohesive rupture in foam adhesive

3.3.2. Fixing strength (transverse displacement test) (EAD 040083-00-0404: clause 2.2.12)

Test not required because the ETICS fulfils the following criteria: $E \cdot d < 50\,000\text{ N/mm}$.

3.3.3. Wind load resistance of ETICS (EAD 040083-00-0404: clause 2.2.13)

The TYTAN ETICS EPS is not foreseen to be mechanically fixed in any way (neither using anchors, nor using profiles). Supplementary mechanical fixings are foreseen to be used only where necessary to provide stability until adhesive has dried and as an ancillary component without any contribution to wind-load resistance.

3.3.3.1. Pull-through test of fixings (EAD 040083-00-0404: clause 2.2.13.1)

Not relevant

3.3.3.2. Static foam block test (EAD 040083-00-0404: clause 2.2.13.2)

Not relevant

3.3.3.3. Dynamic wind uplift test (EAD 040083-00-0404: clause 2.2.13.3)

Not relevant

3.3.4. Tensile test perpendicular to the faces of thermal insulation product (EAD 040083-00-0404: clause 2.2.14)

See Annex No 1

3.3.5. Shear strength and shear modulus of elasticity test of ETICS (EAD 040083-00-0404: clause 2.2.15)

See Annex No 1

3.3.6. Render strip tensile test (EAD 040083-00-0404: clause 2.2.17)

No performance assessed

3.3.7. Shear strength and shear modulus of foam adhesive (EAD 040083-00-0404: clause 2.2.18)

Table 13.

	Shear strength (kPa)		Shear modulus (MPa)	
	mean	min.	mean	min.
Tytan IS 13	106	97	0,276	0,247
Tytan STYRO PRO IS 13 E	78	74	0,593	0,559

3.3.8. Post expansion behaviour of foam adhesive (EAD 040083-00-0404: clause 2.2.19)

Table 14.

		Expansion (mm) after -initial thickness 8 mm-		
		time	mean	max.
Tytan IS 13	5 min.	15	15	
	10 min.	16	16	
	20 min.	16	16	
	40 min.	16	16	
	60 min.	16	16	
	24 hours	16	16	
Tytan STYRO PRO IS 13 E	5 min.	10	10	
	10 min.	10	10	
	20 min.	11	11	
	40 min.	11	11	
	60 min.	11	12	
	24 hours	11	11	

3.3.9. Bond strength after ageing (EAD 040083-00-0404: clause 2.2.20)

3.3.9.1. Bond strength after ageing of finishing coat tested on the rig (EAD 040083-00-0404: clause 2.2.20.1)

Table 15.

		Bond strength after hygrothermal cycles (kN/m ²)	
		mean	individual values
Rendering system: Base coat: Tytan IS 21 or Tytan IS 22 or Tytan IS 23 + key coat + finishing coat indicated hereafter:	Tytan IS 54	117*	118; 122; 100; 142; 101
	Tytan IS 51	152*	144; 126; 111; 105; 274
	Tytan IS 51N	152*	144; 126; 111; 105; 274
	Tytan IS 52	129*	128; 130; 121; 142; 122
	Tytan IS 52N	129*	128; 130; 121; 142; 122
	Tytan IS 53	125*	117; 151; 106; 145; 107
	Tytan IS 53N	125*	117; 151; 106; 145; 107

*cohesive rupture in insulation

3.3.9.2. Bond strength after ageing of finishing coat not tested on the rig (EAD 040083-00-0404: clause 2.2.20.2)

Table 16.

		Bond strength after hygrothermal cycles (kN/m ²)	
		mean	individual values
Rendering system: Base coat: Tytan IS 21 or Tytan IS 22 or Tytan IS 23 + key coat + finishing coat indicated hereafter:	Tytan IS 56	142*	160; 150; 140; 130; 130
	Tytan IS 56N	142*	160; 150; 140; 130; 130
	Tytan IS 55	81*	80; 78; 85; 80; 82
	Tytan IS 55N	81*	80; 78; 85; 80; 82

*cohesive rupture in insulation

3.3.10. Mechanical and physical characteristics of the mesh (EAD 040083-00-0404: clause 2.2.21)

3.3.10.1. Tensile strength and elongation of the glass fibre mesh in the as-delivered (EAD 040083-00-0404: clause 2.2.21.1)

Table 17.

	Average tensile strength in the as-delivered state (N/mm)		Average elongation in the as-delivered state (%)	
	warp	weft	warp	weft
TYTAN IS 150 A (HALICO A150)	44,6	44,2	4,78	4,50
SSA-1363-145	49,0	50,0	3,80	3,70
R 117 A101	45,0	47,0	3,70	4,20
122**	47,0	49,0	3,90	3,40
TYTAN IS 165 (EUROWEK LUX)	39,0	55,0	3,70	3,70
SSA-1363-160	43,0	45,0	3,60	3,90
TYTAN IS 165 A (HALICO A165)	43,2	45,1	4,83	4,81
122*	44,0	46,0	3,90	3,50

*plant Slovakia; **plan Macedonia

3.3.10.2. Tensile strength and elongation of the glass fibre mesh after ageing state (EAD 040083-00-0404: clause 2.2.21.2)

Table 18.

	Average tensile strength after ageing (N/mm)		Residual strength after ageing (%)		Average elongation after ageing (%)	
	warp	weft	warp	weft	warp	weft
TYTAN IS 150 A (HALICO A150)	25,9	27,5	58,1	62,2	2,66	2,77
SSA-1363-145	25,0	29,0	51,0	58,0	2,10	2,30
R 117 A101	23,0	28,0	51,1	59,6	2,10	2,40
122**	27,0	36,0	57,4	73,5	2,30	2,50
TYTAN IS 165 (EUROWEK LUX)	28,0	49,0	71,8	89,1	2,6	3,40
SSA-1363-160	26,0	29,0	60,5	64,4	2,30	2,30
TYTAN IS 165 A (HALICO A165)	37,8	37,0	87,5	82,0	3,86	3,56
122*	23,0	29,0	52,3	63,0	2,10	2,10

*plant Slovakia; **plan Macedonia

3.4. Protection against noise (BWR 5)

3.4.1. Airborne sound insulation of ETICS (EAD 040083-00-0404: clause 2.2.22)

3.4.1.1. Airborne sound insulation of ETICS (EAD 040083-00-0404: clause 2.2.22.1)

No performance assessed

3.4.1.2. Dynamic stiffness of the thermal insulation product (EAD 040083-00-0404: clause 2.2.22.2)

No performance assessed

3.4.1.3. Air flow resistance of the thermal insulation product (EAD 040083-00-0404: clause 2.2.22.3)

No performance assessed

3.5. Energy economy and heat retention (BWR 6)

3.5.1. Thermal resistance and thermal transmittance of ETICS (EAD 040083-00-0404: clause 2.2.23)

The additional thermal resistance provided by the ETICS (R_{ETICS}) to the substrate has been assessed by calculations on the basis of the thermal resistance of the thermal insulation product ($R_{insulation}$) and from either the tabulated (R_{render}) value of the render system [about 0,02 in $(m^2 \cdot K)/W$].

$$R_{ETICS} = R_{insulation} + R_{render}$$

as described in EN ISO 10456.

Table 19.

Thermal resistance R_{ETICS} with minimum thickness of EPS* [[$m^2 \cdot K$]/W]	Thermal resistance R_{ETICS} with maximum thickness of EPS* [[$m^2 \cdot K$]/W]
1,131	9,353

*at maximum value of thermal conductivity 0,045 W/(m · K)

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 : corrected thermal transmittance of the entire wall (W/ (m²·K))

n : number of anchors (through insulation product) per 1 m²

χ_p : point thermal transmittance value of the anchor (W/K). 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/nail, stainless steel screw/nail with the head covered by at least 15 mm plastic material, or with a minimum 15 mm air gap at the head of the screw/nail;

= 0,004 W/K for anchors with a galvanized carbon steel screw/nail with the head covered by at least 15 mm plastic material, or with a minimum 15 mm air gap at the head of the screw/nail;

= 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/ (m²·K)) determined as follows:

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

where:

$R_{insulation}$: 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 wall in (m²·K)/W

R_{se} : external surface thermal resistance in (m²·K)/W

R_{si} : internal surface 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.

3.5.2. Thermal resistance of the thermal insulation product (EAD 040083-00-0404: clause 2.2.23.1)

See Annex No 1

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

In accordance with the European Assessment Document EAD No. 040083-00-0404, the applicable European legal act is: Decision 97/556/EC. The system(s) of assessment and verification of constancy of performance (AVCP) is 2+.

In addition, with regard to reaction to fire for products, the applicable European legal act is Decision 97/556/EC, as amended by Decision 2001/596/EC. The system of assessment and verification of constancy of performance (AVCP) is 2+.

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

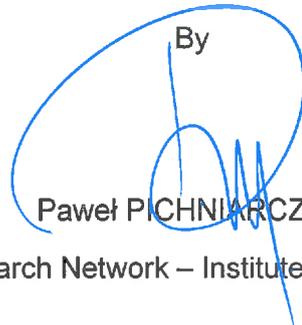
The manufacturer shall perform a permanent internal factory production control based on the Control Plan.

The Control Plan for the manufacturer is specified in clause 3.2 of EAD 040083-00-0404 *External Thermal Insulation Composite Systems (ETICS) with renderings*.

The manufacturer and Łukasiewicz Research Network – Institute of Ceramics and Building Materials TAB have agreed a Control Plan which is deposited at Łukasiewicz Research Network – Institute of Ceramics and Building Materials TAB in documentation which accompanies ETA.

Issued in Krakow on 20.09.2022

By



Paweł PICHNIAJCZYK

Director of Łukasiewicz Research Network – Institute of Ceramics and Building Materials

Annexes:

Annex No 1 – Insulation products characteristics

Annex No 2 – Glass fibre meshes characteristics

Annex No 3 – Alternative trade names of TYTAN ETICS EPS system components

Annex No 1 – Insulation products characteristics

		Boards of expanded polystyrene EPS
Reaction to fire / EN 13501-1		Euroclass – E max. density: 20,0 kg/m ³
Thermal resistance		Defined in the CE marking in reference to EN 13163 (m ² ·K)/W
Thermal conductivity (λ_D) / EN 12667 / EN 12939		$\leq 0,045$ W/(m · K)
Thickness / EN 823		± 2 mm [EN 13163 – T(2)]
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	$\pm 0,2$ % [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
Water absorption / EN 1609/Method A		$\leq 1,0$ kg/m ²
Tensile strength perpendicular to the EN 1607		≥ 80 kPa; EPS-EN 13163 - TR 80
Shear strength / EN 12090 – EN 13163		≥ 20 kPa
Shear modulus / EN 12090 – EN 13163		≥ 1000 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
TYTAN IS 150 A (HALICO A150)	Mass per unit area: 150 g/m ² Mesh size: 3,8 x 4,5 mm	≥ 20	≥ 50
SSA-1363-145	Mass per unit area: 151 g/m ² Mesh size: 4,5 x 3,8 mm	≥ 20	≥ 50
R 117 A101	Mass per unit area: 152 g/m ² Mesh size: 4,0 x 4,5 mm	≥ 20	≥ 50
122**	Mass per unit area: 160 g/m ² Mesh size: 3,5 x 3,9 mm	≥ 20	≥ 50
TYTAN IS 165 / (EUROWEK LUX)	Mass per unit area: 163 g/m ² Mesh size: 4,2 x 4,9 mm	≥ 20	≥ 50
SSA-1363-160	Mass per unit area: 165 g/m ² Mesh size: 4,0 x 3,9 mm	≥ 20	≥ 50
TYTAN IS 165 A (HALICO A165)	Mass per unit area: 165 g/m ² Mesh size: 3,7 x 4,4 mm	≥ 20	≥ 50
122*	Mass per unit area: 165 g/m ² Mesh size: 3,5 x 3,9 mm	≥ 20	≥ 50

*plant Slovakia; **plan Macedonia

Annex No 3 – Alternative trade names of TYTAN ETICS EPS system components

	Trade name	Alternative trade name	
ETICS name			
	TYTAN ETICS EPS	Quilosa ETICS EPS	
Component			
Adhesives	Tytan IS 11	Quilosa Termo pro IS 11	
	Tytan IS 12	Quilosa Termo pro IS 12	
	Tytan IS 21	Quilosa Termo pro IS 21	
	Tytan IS 22	Quilosa Termo pro IS 22	
	Tytan IS 23	Quilosa Termo pro IS 23	
	Tytan IS 13	Tytan Styro 753	
		Quilosa Termo pro IS 13	
	Tytan STYRO PRO IS 13 E	Tytan Styro 753 E/B	
		STYRO PRO B2	
Quilosa Orbafoam Sate			
Base coats	Tytan IS 21	Quilosa Termo pro IS 21	
	Tytan IS 22	Quilosa Termo pro IS 22	
	Tytan IS 23	Quilosa Termo pro IS 23	
Key coat	Tytan IS 41	Quilosa Termo pro IS 41	
Finishing coats	Tytan IS 54	Quilosa Termo pro IS 54	
		Tynk do deski	
		Beton architektoniczny	
	Tytan IS 51	Quilosa Termo pro IS 51	
		Tynk do deski	
		Beton architektoniczny	
	Tytan IS 51N	Quilosa Termo pro IS 51N	
	Tytan IS 56	Quilosa Termo pro IS 56	
	Tytan IS 56N	Quilosa Termo pro IS 56N	

Annex No 3 – Alternative trade names of TYTAN ETICS EPS system components
cont.

	Trade name	Alternative trade name
Finishing coats	Tytan IS 55	Quilosa Termo pro IS 55
	Tytan IS 55N	Quilosa Termo pro IS 55N
	Tytan IS 52	Quilosa Termo pro IS 52
	Tytan IS 52N	Quilosa Termo pro IS 52N
	Tytan IS 53	Quilosa Termo pro IS 53
	Tytan IS 53N	Quilosa Termo pro IS 53N
Decorative coats (paints)	Farba elewacyjna silikonowa Tytan IS 73	Quilosa IS 73
	Farba elewacyjna silikatowa Tytan IS 74	Quilosa IS 74



Łukasiewicz
Instytut Ceramiki
i Materiałów
Budowlanych

31-983 Kraków,
POLAND
Cementowa Str. 8
Tel.: +48 12 683 79 00
jot@icimb.lukasiewicz.gov.pl
www.icimb.lukasiewicz.gov.pl



Annex No 4 to

**ETA-16/0161
of 20/09/2022**

Control Plan of TYTAN ETICS EPS

Control plan has been prepared by Technical Assessment Body: Łukasiewicz Research Network – Institute of Ceramics and Building Materials (Łukasiewicz – 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 assessment and verification of constancy of performance.

The manufacturer is obliged to notify Łukasiewicz – 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. Łukasiewicz – 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 Łukasiewicz – ICiMB TAB the manufacturer is obliged to present the results confirming that requirements of control plan are met.

CONTROL PLAN OF TYTAN ETICS EPS

Table 1a. Components produced by the manufacturer himself

Adhesives: Tytan IS 11, Tytan IS 12 Polyurethane foams: Tytan IS 13, STYRO PRO IS 13 E Adhesives / Base coats : Tytan IS 21, Tytan IS 22, Tytan IS 23 Key coat: Tytan IS 41 Finishing coats: Tytan IS 54, Tytan IS 51, Tytan IS 51N, Tytan IS 56, Tytan IS 56N, Tytan IS 55, Tytan IS 55N, Tytan IS 52, Tytan IS 52N, Tytan IS 53, Tytan IS 53N Decorative coats: Farba elewacyjna silikonowa Tytan IS 73, Farba elewacyjna silikatowa Tytan IS 74			
Subject / type of control	Test or control method	Requirement	Frequency of control
Incoming materials			
Receipt materials	Delivery ticket and/or label on the package	Conformity with the order	Each delivery
	Supplier certificates or supplier tests		
Particle size grading of loose raw materials for the production of the adhesives	According to the prescription of the manufacturer*	According to the prescription of the manufacturer*	
Mixing process			
Mixing process	According to the prescription of the manufacturer*		
Packing			

Table 1b. Components produced by the manufacturer himself – tests on components

Adhesive: Tytan IS 11; Tytan IS 12			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (powders)	1350 + 1650 kg/m ³	Every production lot
Bond strength between the adhesive and EPS after curing in dry condition	EAD 040083-00-0404** cl. 2.2.11.3	≥ 80 kPa	At least once per 6 months
Bond strength between the adhesive and the substrate after curing in dry condition	EAD 040083-00-0404** cl. 2.2.11.2	≥ 250 kPa	At least once per 12 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	≤ 99,5 %	At least once per 24 months

Table 1b. Components produced by the manufacturer himself – tests on components cont.

Polyurethane foam: Tytan IS 13			
Examination	Method	Requirement	Frequency of testing
Density	EAD 040083-00-0404** cl. F.3.1	26 ÷ 32 kg/m ³	Every batch
Cutting time	EAD 040083-00-0404** cl. F.3.3	≤ 48 minutes	
Bond strength to EPS after curing in standard conditions	EAD 040083-00-0404** cl. F.4.1	≥ 80 kPa	At least once per 12 months
Post expansion behaviour: - after 20 minutes - after 60 minutes	EAD 040083-00-0404** cl. F.4.2	≤ 16 mm ¹⁾ ≤ 16 mm ¹⁾	At least once per 24 months

¹⁾ including initial measurement 8 mm

Polyurethane foam: STYRO PRO IS 13 E			
Examination	Method	Requirement	Frequency of testing
Density	EAD 040083-00-0404** cl. F.3.1	19 ÷ 24 kg/m ³	Every batch
Cutting time	EAD 040083-00-0404** cl. F.3.3	≤ 28 minutes	
Bond strength to EPS after curing in standard conditions	EAD 040083-00-0404** cl. F.4.1	≥ 80 kPa	At least once per 12 months
Post expansion behaviour: - after 20 minutes - after 60 minutes	EAD 040083-00-0404** cl. F.4.2	≤ 11 mm ¹⁾ ≤ 11 mm ¹⁾	At least once per 24 months

¹⁾ including initial measurement 8 mm

Adhesives / Base coats: Tytan IS 21; Tytan IS 22; Tytan IS 23			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (powders)	1300 ÷ 1600 kg/m ³	Every production lot
Bond strength between base coat and EPS after curing in dry conditions	EAD 040083-00-0404** cl. 2.2.11.1	≥ 80 kPa	At least once per 6 months
Bond strength between the adhesive and the substrate after curing in dry condition	EAD 040083-00-0404** cl. 2.2.11.2	≥ 250 kPa	At least once per 12 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	≤ 99,5 %	At least once per 24 months

Key coat: Tytan IS 41			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (pastes and liquids)	1278 ÷ 1562 kg/m ³	Every batch
Dry extract	EAD 040083-00-0404** cl. A.6.5	51,1 ÷ 59,2 %	At least once per 6 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	83,4 ÷ 88,5 %	At least once per 24 months

Table 1b. Components produced by the manufacturer himself – tests on components cont.

Mineral finishing coat: Tytan IS 54			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (powders)	1350 ÷ 1650 kg/m ³	Every production lot
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	94,3 ÷ 99,9 %	At least once per 24 months

Acrylic finishing coat: Tytan IS 51; Tytan IS 51N			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (pastes and liquids)	1649 + 2015 kg/m ³	Every batch
Dry extract	EAD 040083-00-0404** cl. A.6.5	79,0 ÷ 91,5 %	At least once per 6 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	88,4 ÷ 98,4 %	At least once per 24 months

Hybrid finishing coat: Tytan IS 55; Tytan IS 55N			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (pastes and liquids)	1683 ÷ 2057 kg/m ³	Every batch
Dry extract	EAD 040083-00-0404** cl. A.6.5	78,6 + 91,0 %	At least once per 6 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	89,0 ÷ 94,5 %	At least once per 24 months

Sol - Silica finishing coat: Tytan IS 52; Tytan IS 52N			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (pastes and liquids)	1665 ÷ 2035 kg/m ³	Every batch
Dry extract	EAD 040083-00-0404** cl. A.6.5	78,8 ÷ 91,2 %	At least once per 6 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	89,1 ÷ 99,1 %	At least once per 24 months

Silicone finishing coat: Tytan IS 53; Tytan IS 53N			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (pastes and liquids)	1665 ÷ 2035 kg/m ³	Every batch
Dry extract	EAD 040083-00-0404** cl. A.6.5	78,9 ÷ 91,3 %	At least once per 6 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	88,5 ÷ 98,5 %	At least once per 24 months

Table 1b. Components produced by the manufacturer himself – tests on components cont.

Mosaic finishing coat: Tytan IS 56; Tytan IS 56N			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (pastes and liquids)	1446 ÷ 1768 kg/m ³	Every batch
Dry extract	EAD 040083-00-0404** cl. A.6.5	74,7 ÷ 86,5 %	At least once per 6 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	90,0 ÷ 95,6 %	At least once per 24 months

Decorative coat: Farba elewacyjna silikonowa Tytan IS 73			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (pastes and liquids)	1368 ÷ 1672 kg/m ³	Every batch
Dry extract	EAD 040083-00-0404** cl. A.6.5	56,2 ÷ 65,1 %	At least once per 6 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	78,4 ÷ 83,2 %	At least once per 24 months

Decorative coat: Farba elewacyjna silikatowa Tytan IS 74			
Examination	Method	Requirement	Frequency of testing
Finished component			
Density	EAD 040083-00-0404** cl. A.6.1 (pastes and liquids)	1363 ÷ 1665 kg/m ³	Every batch
Dry extract	EAD 040083-00-0404** cl. A.6.5	54,8 ÷ 63,0 %	At least once per 6 months
Ash content at 450 °C	EAD 040083-00-0404** cl. A.6.6	86,6 ÷ 92,0 %	At least once per 24 months

Table 2. Tests on glass fibre meshes

Glass fibre meshes: TYTAN IS 150 A (HALICO A150); SSA-1363-145; R 117 A101; 122 - plant Macedonia; TYTAN IS 165 (EUROWEK LUX); SSA-1363-160; TYTAN IS 165 A (HALICO A165); 122 - plant Slovakia			
Examination	Method	Requirement	Frequency of testing
Residual resistance after ageing	EAD 040016-01-0404*** cl. 2.2.7	≥ 20 N/mm	At least once per 36 months
Relative residual resistance after ageing		≥ 50 %	

Table 3. Tests on system

TYTAN ETICS EPS			
Examination	Method	Requirement	Frequency of testing
Reaction to fire classification PN-EN 13501-1	EAD 040083-00-0404** Annex B	B-s2, d0	At least once per 5 years

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

**EAD 040083-00-0404 – European Assessment Document “External Thermal Insulation Composite Systems (ETICS) with renderings”, actual version.

***EAD 040016-01-0404 – European Assessment Document “Glass fibre mesh for reinforcement of cement based renderings”; ash content and tensile strength testing methods are identical with methods included in EAD 040083-00-0404.



Łukasiewicz
Instytut Ceramiki
i Materiałów
Budowlanych

31-983 Kraków,
POLAND
Cementowa Str. 8
Tel.: +48 12 683 79 00
jot@icimb.lukasiewicz.gov.pl
www.icimb.lukasiewicz.gov.pl



Annex No 5 to

**ETA-16/0161
of 20/09/2022**

Identification of manufacturing plants

According to the declaration of ETA-holder, SELENA FM SA the manufacturing process of the components of TYTAN ETICS EPS is realized in plants specified below. The production is realized, among others, under confidential contracts between manufacturer and the owners of manufacturing plants. This Annex is a confidential part of the ETA-16/0161 and can be shared only with Notified Body participating in the procedure of assessment and verification of constancy of performance.

Plant 1: Selena Industrial Technologies Sp. z o.o.
Department 1 of Dzierżoniów – Plant Dzierżoniów
Pieszycza 4, 58-200 Dzierżoniów, POLAND

Plant 2: Selena Industrial Technologies Sp. z o.o.
Department 1 of Dzierżoniów – Plant Nowa Rud
Spacerowa 26, 57-402 Nowa Ruda, POLAND

Plant 3: Selena Industrial Technologies Sp. z o.o.
Department of Lubinie – Plant Lubin
Przemysłowa 1A, 59-300 Lubin, POLAND

Plant 4: Selena Industrial Technologies Sp. z o.o.
Strefowa 5, 07-100 Węgrów, POLAND

Plant 5: EURO MGA (www.mga.ro)
Drumul Mare 26-28, Sat Olteni, Comuna Clinceni, Ilfoy 077060, ROMANIA

Plant 6: Morteros Tudel Veguin S.A.
Cam. de Villanubla, 1, C.P.: 47610, Zaratán, Valladolid, SPAIN
Phone number: 00 34983360119

The ETA-holder is obliged to notify Technical Assessment Body - Łukasiewicz Research Network – Institute of Ceramics and Building Materials (Łukasiewicz – ICiMB TAB) of every changes of a place of production. Łukasiewicz – 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.

**Łukasiewicz Research Network –
Institute of Ceramics and Building Materials**

www.icimb.lukasiewicz.gov.pl

