	<b>DECLARATION OF PERFORMANCE</b>	No
		2203/EC/SQE

1. Unique identification code of the product type:

**Soltherm PDQ EPS**

2. Intended use or uses

**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.**

3. Producer:

**BOLIX S.A., 34-300 Żywiec, Stolarska Str. 8, Poland**

4. Authorised representative:

**N/A**

5. System or systems of assessment and verification of constancy of performance (AVCP):

**System 2+**

6a. Harmonised standard: **N/A**

Notified body or notified bodies: **N/A**

6b. European Assessment Document:

European Technical Assessment: **ETA-21/0861 of 26/10/2021 „External Thermal Insulation Composite Systems (ETICS) with renderings”**

Technical Assessment Body: **Łukasiewicz - ICI MB, Institute of Ceramics and Building Materials, 02-676 Warsaw, Postępu Str. 9, Poland**


Notified body or notified bodies:

**Building Research Institute. no. 1488.**

**Institute of Ceramics and Building Materials, no 1487.**

**Certification of the factory production control 1488-CPR-0479/Z**

7. Declared performance/s:

	<b>DECLARATION OF PERFORMANCE</b>	No
		2203/EC/SQE

Reaction to fire	B – s2, d0	EAD-040083-00-0404
Weathering resistance	Conforms to the requirements	EAD-040083-00-0404
Water absorption	<0.1 kg/m <sup>2</sup> after 1 h < 0.4 kg/m <sup>2</sup> after 24 h	EAD-040083-00-0404
Impact resistance	Soltherm BQB+BQS - Category I Other configurations – Category II See table 1	EAD-040083-00-0404
Water vapour permeability	<0.4 m See table 2	EAD-040083-00-0404
Release of dangerous substances	NPD	-
Fixing strength (transverse displacement)	NPD	EAD-040083-00-0404
Bond strength between base coat and insulation material	≥ 100 kPa Failure at EPS	EAD-040083-00-0404
Bond strength between adhesive and substrate (concrete) and between adhesive and insulation product	Conforms to the requirements (See table 3)	EAD-040083-00-0404
Wind load resistance	See table 4	EAD-040083-00-0404
Sound insulation	NPD	EAD-040083-00-0404
Thermal resistance	1.21 (m <sup>2</sup> ·K)/W with minimum thickness of EPS 11.94 (m <sup>2</sup> ·K)/W with maximum thickness of EPS See table 5	EAD-040083-00-0404

Table 1: Impact resistance

		Hard body impact*		
		Impact energy 3 J	Impact energy 10 J	Impact resistance category
Single layer of standard mesh SOLTHERM HD 145/S (AKE 145)		Impact diameter (mm) / damages		
<b>Rendering system:</b> Base coat: <u>SOLTHERM BC-P</u> Quick + relevant key coat + <u>finishing coat</u> indicated	<u>SOLTHERM SFC-P /</u> <u>SOLTHERM SFC-P eco-</u> shield, floated 1,0 mm	18 / superficial damages without cracks formation	38 / cracks without reaching the thermal insulation product	II

hereafter + key coat  
(if used) + decorative  
coat (if used):

<u>SOLTHERM SFC-P /</u> <u>SOLTHERM SFC-P eco-</u> <u>shield,</u> floated 1,0 mm + SOLTHERM 4 SEASONS	17 / superficial damages without cracks formation	37 / cracks without reaching the thermal insulation product	II
<u>SOLTHERM AF-P+,</u> floated 1,5 mm	10 / superficial damages without cracks formation	33 / cracks without reaching the thermal insulation product	II
<u>SOLTHERM AF-P+,</u> floated 1,5 mm + SOLTHERM 4 SEASONS	14 / superficial damages without cracks formation	32 / cracks without reaching the thermal insulation product	II
<u>SOLTHERM WS</u> 3,0 mm + SOLTHERM T + SOLTHERM DECO LAZUR	8 / superficial damages without cracks formation	31 / cracks without reaching the thermal insulation product	II
<u>SOLTHERM TBR</u> 3,0 mm + SOLTHERM T + SOLTHERM DECO LAZUR	19 / superficial damages without cracks formation	25 / cracks without reaching the thermal insulation product	II
SOLTHERM AP Colour + <u>SOLTHERM DECO AMC</u> 2,0 mm	18 / superficial damages without cracks formation	31 / cracks without reaching the thermal insulation product	II
SOLTHERM AP Colour + <u>SOLTHERM BQB</u> 1,5 mm + <u>SOLTHERM BQS</u> 3,0 mm	0 / no damages	0 / no damages	I
<u>SOLTHERM AFC,</u> floated 1,0 mm	9 / superficial damages without cracks formation	21 / cracks without reaching the thermal insulation product	II



<b>BOLIX®</b>	<b>DECLARATION OF PERFORMANCE</b>	No
		2203/EC/SQE

\*single layer: SOLTHERM HD 145/S; R117A101; SSA-1363-145; SOLTHERM HD158/S; ST 2924-100/7KM; R 131 A101; SOLTHERM HD 160/S; 03-1; SSA-1363-160; SOLTHERM HD 160/S; SSA-1363-160; SOLTHERM HD 174/S; ST 112-100/7 KM

**Table 2: Water vapour permeability**

		Equivalent air thickness $s_d$ (m)
<b>Rendering system:</b> Base coat: <u>SOLTHERM BC-P Quick</u> + relevant key coat + <u>finishing coat</u> indicated hereafter + key coat (if used) + decorative coat (if used):	SOLTHERM T + <u>SOLTHERM WS</u> + SOLTHERM T + SOLTHERM DECO LAZUR + SOLTHERM OM <i>thickness of rendering: 15,0 mm</i>	0,3
	SOLTHERM T + <u>SOLTHERM TBR</u> + SOLTHERM T + SOLTHERM DECO LAZUR + SOLTHERM OM <i>thickness of rendering: 15,0 mm</i>	0,7
	SOLTHERM AP Colour + <u>SOLTHERM AFC</u> <i>thickness of rendering: 7,0 mm</i>	0,3
	SOLTHERM AP Colour + <u>SOLTHERM DECO AMC</u> <i>thickness of rendering: 8,0 mm</i>	0,5
	SOLTHERM SNP Colour + <u>SOLTHERM SFC-P</u> / <u>SOLTHERM SFC-P eco-shield</u> + SOLTHERM SMP + SOLTHERM STC-P / SOLTHERM STC-P eco-shield <i>thickness of rendering: 7,0 mm</i>	0,3
	SOLTHERM SNP Colour + <u>SOLTHERM SFC-P</u> / <u>SOLTHERM SFC-P eco-shield</u> + SOLTHERM SMP + SOLTHERM STC-P+ <i>thickness of rendering: 7,0 mm</i>	0,2
	SOLTHERM SNP Colour + <u>SOLTHERM SFC-P</u> / <u>SOLTHERM SFC-P eco-shield</u> + SOLTHERM 4 SEASONS <i>thickness of rendering: 7,0 mm</i>	0,2
	SOLTHERM SNP Colour + <u>SOLTHERM AF-P+</u> + SOLTHERM SMP + SOLTHERM STC-P / SOLTHERM STC-P eco-shield <i>thickness of rendering: 7,0 mm</i>	0,3
	SOLTHERM SNP Colour + <u>SOLTHERM AF-P+</u> + SOLTHERM SMP + SOLTHERM STC-P+ <i>thickness of rendering: 8,0 mm</i>	0,3
	SOLTHERM SNP Colour + <u>SOLTHERM AF-P+</u> + SOLTHERM 4 SEASONS <i>thickness of rendering: 7,0 mm</i>	0,3
	SOLTHERM AP Colour + <u>SOLTHERM BQB</u> + <u>SOLTHERM BQS</u> <i>thickness of rendering: 13,5 mm</i>	0,4

<b>BOLIX®</b>	<b>DECLARATION OF PERFORMANCE</b>	No
		2203/EC/SQE

**Table 3: Bond strength between adhesive and substrate (concrete) and between adhesive and insulation product**

		<b>Bond strength to the substrate (kPa)</b>	
		<b>mean</b>	<b>mean</b>
SOLTHERM SA** minimal bonded surface area S: 26%	initial state	880*	840
	48 h immersion in water + 2 hours 23°C/50% RH	748*	700
	48 h immersion in water + 7 days 23°C/50% RH	926*	900
SOLTHERM AL** minimal bonded surface area S: 26%	initial state	954*	930
	48 h immersion in water + 2 hours 23°C/50% RH	834*	800
	48 h immersion in water + 7 days 23°C/50% RH	1160*	1100
SOLTHERM UB** minimal bonded surface area S: 25%	initial state	912*	870
	48 h immersion in water + 2 hours 23°C/50% RH	792*	770
	48 h immersion in water + 7 days 23°C/50% RH	1126*	1100
SOLTHERM WB** minimal bonded surface area S: 25%	initial state	800*	740
	48 h immersion in water + 2 hours 23°C/50% RH	762*	720
	48 h immersion in water + 7 days 23°C/50% RH	1178*	1120
*adhesive rupture; **thickness of adhesive – about 3 mm			
		<b>Bond strength to the EPS (kPa)</b>	
		<b>mean</b>	<b>mean</b>
SOLTHERM SA** minimal bonded surface area S: 26%	initial state	120*	116
	48 h immersion in water + 2 hours 23°C/50% RH	115*	110
	48 h immersion in water + 7 days 23°C/50% RH	121*	117
SOLTHERM AL** minimal bonded surface area S: 26%	initial state	121*	117
	48 h immersion in water + 2 hours 23°C/50% RH	114*	112
	48 h immersion in water + 7 days 23°C/50% RH	124*	121
SOLTHERM UB** minimal bonded surface area S: 25%	initial state	124*	121
	48 h immersion in water + 2 hours 23°C/50% RH	118*	115
	48 h immersion in water + 7 days 23°C/50% RH	126*	124
SOLTHERM WB** minimal bonded surface area S: 25%	initial state	123*	119
	48 h immersion in water + 2 hours 23°C/50% RH	115*	112



<b>BOLIX®</b>	<b>DECLARATION OF PERFORMANCE</b>	No
		<b>2203/EC/SQE</b>

	48 h immersion in water + 7 days 23°C/50% RH	125*	123
*adhesive rupture; **thickness of adhesive – about 3 mm			
		Bond strength – foam adhesive (kPa)	
		mean	mean
SOLTHERM ZP	standard application conditions	124*	109
	modification of foam thickness (15 mm)	80*	74
	modification of open time (3 minutes)	121*	110
	modification of temperature (0 °C)	91*	84
	modification of temperature (35 °C)	80*	77
*cohesive rupture in foam			

**Table 4: Wind load resistance**

Anchors for which the following failure loads apply		Anchors according to Annex No 2	
		Plate diameter (mm)	≥ 60
Characteristics of the <b>EPS boards</b> for which the following failure loads apply		Thickness (mm)	≥ 50
		Tensile strength perpendicular to the faces under dry condition (kPa)	≥ 144
Failure loads (kN)	Anchors not placed at the panel joints ( <i>Pull-through test</i> ) dry conditions	$R_{\text{panel}}$	individual values: 0,446; 0,442; 0,445; 0,509; 0,453
			mean: 0,459
	Anchors placed at the panel joints ( <i>Pull-through test</i> ) dry conditions	$R_{\text{joint}}$	individual values: 0,428; 0,423; 0,450; 0,502; 0,440
			mean: 0,449

**Table 5: Thermal resistance of ETICS**

Thermal resistance of the insulation product $R_D$	Value declared by the producer of the insulation product (see product labelling on the packaging)
Thermal resistance of the render $R_{\text{render}}$	0.02 (m <sup>2</sup> · K)/W
Thermal resistance of ETICS	$R_{\text{ETICS}} = R_D + R_{\text{render}}$
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/(m <sup>2</sup> ·K) $U_c$ : global (corrected) thermal transmittance of the covered wall (W/ (m <sup>2</sup> ·K)) $n$ : number of anchors (through insulation product) per 1 m <sup>2</sup> $\chi_p$ : 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	

<b>BOLIX®</b>	<b>DECLARATION OF PERFORMANCE</b>	No
		<b>2203/EC/SQE</b>

$(\chi_p \cdot n)$  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/ (m<sup>2</sup>·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 13162) in (m<sup>2</sup>·K)/W

$R_{render}$ : thermal resistance of the render (about 0,02 in (m<sup>2</sup>·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 (m<sup>2</sup>·K)/W

$R_{se}$ : external superficial thermal resistance in (m<sup>2</sup>·K)/W

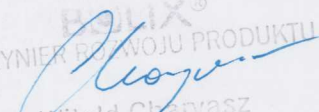
$R_{si}$ : internal superficial thermal resistance in (m<sup>2</sup>·K)/W

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.

8. Appropriate Technical Documentation or Specific Technical Documentation: **N/A**

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued compliant with the Regulation (EU) No. 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

BOLIX®  
 INŻYNIER ROZWOJU PRODUKTU  
  
 Witold Charyasz

Żywiec, 10/01/2022