



**The Catalonia  
Institute of Construction  
Technology**

Wellington 19  
ES-08018 Barcelona  
Tel. +34 93 309 34 04  
qualprod@itec.cat  
www.itec.cat



# European Technical Assessment

**ETA 23/0643  
of 24.10.2023**



## General part

### Technical Assessment Body issuing the ETA: ITeC

ITeC has been designed according to Article 29 of Regulation (UE) No 305/2011 and is a member of EOTA (European Organisation for Technical Assessment).

**Trade name of the construction product**

**Sistema Renovatherm base EPS**

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

Product Area Code: 04  
External Thermal Insulation Composite Systems (ETICS) with rendering on EPS for the use as external insulation of building walls.

**Manufacturer**

**AKZO NOBEL COATINGS, S.L.U.**

C. Feixa Llarga, 14-20 Pol. Industrial Zona Franca  
ES08110 Barcelona  
Spain  
www.akzonobel.com

**Manufacturing plant(s)**

According to Annex N kept by ITeC.

**This European Technical Assessment contains**

16 pages including 3 annexes which form an integral part of this assessment  
and  
Annex N, which 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) 305/2011, on the basis of**

EAD 040083-00-0404 *External Thermal Insulation Composite Systems (ETICS) with renderings*, edition 2019.

### **General comments**

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 parts of the European Technical Assessment

### 1 Technical description of the product

**Sistema Renovatherm base 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 with supplementary mechanical fixings. The methods of fixing and the relevant components are specified in the table below. The insulation product is faced with a rendering system consisting of several 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 includes special fittings (e.g. base profiles, corner profiles...) to treat details of ETICS (connections, apertures, corners, parapets, sills...). The assessment and performance of these components are 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.

Composition of the ETICS:

	Components	Coverage (kg/m <sup>2</sup> )	Thickness (mm)
<b>Bonded ETICS with supplementary mechanical fixings</b> (pursuant to ETA holder's instructions, the minimal bonded surface shall be 40%; National application documents shall be taken into account.)			
<b>Adhesive</b>	<b>webertherm baseGel</b> (cement base powder requiring addition of 21% – 25 % water, 5,25 l - 6,25 l of water per 25 kg).	6 to 15	4 to 10
<b>Insulation product</b>	<b>webertherm placa EPS</b> . Panels of expanded polystyrene (EPS). See Annex 1 for product characteristics.	--	40 to 200
<b>Base coat</b>	<b>webertherm baseGel</b> (cement base powder requiring addition of 21% - 25% water, 5,25 - 6,25 l of water per 25 kg). Identical to the equally named adhesive above.	1,5 (powder)	4 to 5
<b>Glass fibre mesh</b>	<b>webertherm malla 160</b> : standard glass fibre mesh. See Annex 3 for product characteristics.	--	--
<b>Key coat</b>	<b>Procolor renovatherm imprimación</b> : water based acrylic resin to be diluted 20% by mass with water. This product has to be applied before Procolor renovatherm mortero acrilico.	0,2 to 0,3	--
<b>Finishing coats</b>	<b>Procolor renovatherm mortero acrilico 1.0</b> : ready to use water based acrylic binder paste. Particle size max.: 1,2 mm.	1,71 to 2,10	According to the grainsize
	<b>Procolor renovatherm mortero acrilico 1.5</b> : ready to use water based acrylic binder paste. Particle size max.: 1,5 mm.	2,33 to 2,79	

	Components	Coverage (kg/m <sup>2</sup> )	Thickness (mm)
	Supplementary fixings:		
	- See Annex 2.		
	Other components:		
<b>Ancillary components</b>	- <b>webertherm perfil arranque</b> : aluminium profile and its fixing device for its use in the base of the façade.	Remain under the ETA holder responsibility.	
	- <b>webertherm perfil goterón</b> : PVC profile with an alkali resistant mesh for its use in corner, tops and sills of windows.		
	- <b>weberflex P100</b> : polyurethane sealant, type F, class 25 HM (ISO 11600).		

**Table 0:** Components of the ETICS **Sistema Renovatherm base EPS**.

## 2 Specification of the intended use(s) in accordance with the applicable 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 characteristics of the walls shall be verified prior to use of the ETICS, especially regarding conditions for reaction to fire classification and for fixing of the ETICS either by bonding or mechanically. The ETICS is designed to give the wall to which it is applied satisfactory thermal insulation.

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

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 not intended to ensure the airtightness of the building structure.

The product will be installed according to the manufacturer's instructions.

The provisions made in this ETA are based on an assumed working life of at least 25 years for **Sistema Renovatherm base EPS**. These provisions are based upon the current state of the art and the available knowledge and experience.

The indications given on the working life cannot be interpreted as a guarantee given by the producer but are to be regarded only as a mean for choosing the right products in relation to the expected economically reasonable working life of the works.

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

Performance of the system **Sistema Renovatherm base EPS** related to the basic requirements for construction works (hereinafter BWR) were determined according to EAD 040083-00-0404 for *External Thermal Insulation Composite Systems (ETICS) with Rendering*.

Essential characteristics of **Sistema Renovatherm base EPS** are indicated in the following sections.

Essential characteristic	ETA section	Performance
<b>Basic Works Requirement 2: Safety in case of fire</b>		
Reaction to fire	3.1	<u>Reaction to fire of the ETICS:</u> B-s2,d0 See table 2 for details.
		<u>Reaction to fire of the insulation material:</u> Class E <u>Reaction to fire of PU foam adhesive:</u> Not relevant.
Façade fire performance	--	Not assessed
Propensity to undergo continuous smouldering of ETICS	--	Not relevant for EPS.
<b>Basic Works Requirement 3: Hygiene, health and the environment</b>		
Content, emission and/or release of dangerous substances – leachable substances	--	Not assessed.
Water absorption	3.2.1	<u>Water absorption of the base coat and the rendering system:</u> < 1 kg/m <sup>2</sup> after 1 hour < 0,5 kg/m <sup>2</sup> after 24 hours See table 3 for results.
		<u>Water absorption of the insulation product:</u> According to DoP: WL(T)5 (see table A1.1).
Water tightness of the ETICS: hygrothermal behaviour	--	Test passed (without defects). The ETICS is assessed as resistant to hygrothermal cycles.
Water tightness: freeze-thaw behaviour	--	According to the water absorption test results, all combinations are freeze-thaw resistant.
Impact resistance	3.2.2	See table 4 for results.
Water vapour permeability	3.2.3	<u>Water vapour permeability of the rendering system:</u> See table 5 for results.
		<u>Water vapour permeability of the insulation product:</u> According to DoP: MU60 (see table A1.1).
<b>Basic Works Requirement 4: Safety and accessibility in use</b>		

Essential characteristic	ETA section	Performance
Bond strength between base coat and insulation product	3.3.1	<p>≥ 80 kPa. Cohesive failure in the insulation product. See table 6 for results.</p>
Bond strength between adhesive and substrate	3.3.2	<p><u>Dry condition:</u> ≥ 250 kPa. Cohesive rupture in the adhesive. <u>48 h immersion in water + 2 h 23°C and 50% RH:</u> ≥ 80 kPa. Cohesive rupture in the adhesive. <u>48 h immersion in water + 7 days 23°C and 50% RH:</u> ≥ 250 kPa. Cohesive rupture in the adhesive. See table 7 for results.</p>
Bond strength between adhesive and insulation product	3.3.3	<p><u>Dry condition:</u> ≥ 80 kPa. Cohesive rupture in the insulation product. <u>48 h immersion in water + 2 h 23°C and 50% RH:</u> ≥ 30 kPa. Adhesive rupture and/or cohesive rupture in the insulation product. <u>48 h immersion in water + 7 days 23°C and 50% RH:</u> ≥ 80 kPa. Cohesive rupture in the insulation product. See table 8 for results.</p>
Bond strength of the foam adhesives	--	Not relevant.
Fixing strength (transverse displacement)	--	<p>Test not required because the ETICS fulfils the following criteria: <math>E \times d &lt; 50.000 \text{ N/mm}</math>, where: - E: modulus of elasticity of the base coat without mesh = 722 MPa. - d: mean dry thickness of the base coat = 5 mm. <math>E = 3610 \text{ N/mm} &lt; 50000 \text{ N/mm}</math>.</p>
Wind load resistance	--	Not relevant (bonded ETICS with supplementary mechanical fixings)
Tensile strength perpendicular to the faces of insulation product	--	<p><u>In dry conditions:</u> According to DoP: TR150 (see table A1.1). Test results: - Minimum value: 172 kPa. - Mean value: 190 kPa. <u>In wet conditions:</u> Not assessed.</p>

Essential characteristic	ETA section	Performance
Shear strength and shear modulus of elasticity test of ETICS	--	<u>Shear strength:</u> - Minimum value: 66 kPa $\geq$ 20 kPa. - Mean value: 87 kPa. <u>Shear modulus of elasticity:</u> - Minimum value: 1100 kPa $\geq$ 1000 kPa. - Mean value: 1300 kPa.
Pull-through resistance of fixings from profiles	--	Test not necessary (bonded system with supplementary fixings)
Render strip tensile test	--	Not assessed.
Shear strength and shear modulus of foam adhesives	--	Not relevant.
Post expansion behaviour of foam adhesives	--	Not relevant.
Bond strength after ageing	3.3.4	$\geq$ 80 kPa. Cohesive rupture in the insulation product. See table 9 for results.
Mechanical and physical characteristics of the mesh	Annex 3	<u>Tensile strength of the glass fibre mesh:</u> See A3.1 for results. <u>Protection of metal mesh:</u> Not relevant.
<b>Basic Works Requirement 5: Protection against noise.</b>		
Airborne sound insulation of ETICS	--	Not assessed.
Dynamic stiffness of the thermal insulation product	--	Not assessed
Air flow resistance of the thermal insulation product	--	Not relevant for EPS.
<b>Basic Works Requirement 6: Energy economy and heat retention.</b>		
Thermal resistance and thermal transmittance of ETICS	3.4	See section 3.4 and table 10.

**Table 1:** Essential characteristics of the ETICS **Sistema Renovatherm base EPS.**

### 3.1 Safety in case of fire (BWR 2)\_ Reaction to fire of the system

EAD 040083-00-0404, clause 2.2.1.

The reaction to fire of the system **Sistema Renovatherm base EPS** according to EN 13501-1 is defined in table 2.

Note: A 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 (e.g. on the basis of a large scale test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

ETICS Configuration	Reaction to fire classification acc. to EN 13501-1
Adhesive: webertherm baseGel	
Insulation: EPS (reaction to fire class declared: E)	
Base coat: webertherm baseGel	B-s2,d0
Glass fibre mesh: webertherm malla 160	
Key coat: Procolor renovatherm imprimación	
Finishing coat: Procolor renovatherm mortero acrilico	

None of the components of the system contains flame retardants.

**Table 2:** Reaction to fire classification for the different configurations of **Sistema Renovatherm base EPS**.

### 3.2 Hygiene, health and environment (BWR 3)

#### 3.2.1 Water absorption

EAD 040083-00-0404, clause 2.2.5.1.

	Water absorption (kg/m <sup>2</sup> )	
	After 1 hour	After 24 hours
<b>Base coat onto EPS (with mesh)</b>		
webertherm baseGel	< 0,5 (test result: 0,06)	< 0,5 (test result: 0,34)
<b>Rendering system: Base coat + key coat + finishing coats, indicated hereafter:</b>		
webertherm baseGel + Procolor renovatherm imprimación + Procolor renovatherm mortero acrilico	< 0,5 (test result: 0,07)	< 0,5 (test result: 0,47)

**Table 3:** Water absorption test results (mean values).



### 3.2.2 Impact resistance

EAD 040083-00-0404, clause 2.2.8.

Rendering system Base coat + key coat + finishing coats, indicated hereafter:	Single mesh		Category
	Impact Ø mark (mm)		
	3 J	10 J	
<b>webertherm baseGel + Procolor renovatherm imprimación + Procolor renovatherm mortero acrilico*</b>	10	29	II
	14	32	
	7	36	
	9	28	
	15	35	
	(1a)	(2)	

\* Finishing coats tested on small samples.

Legend of the description of the observations after the impacts (if the observation is the same for all impacts, the legend is placed under the values of the impact mark):

- (1a) No deterioration.
- (1b) Superficial damages without cracks formation.
- (2) Presence of cracks but rendering not penetrated.

**Table 4:** Category of use according impact resistance test results.

### 3.2.3 Water vapour permeability

EAD 040083-00-0404, clause 2.2.9.1.

Characteristics	Equivalent air thickness $S_d$ (m)
<b>Base coat</b>	
<b>webertherm baseGel + webertherm malla 160</b>	≤ 2,0 (test result: 0,09)
<b>Rendering system: Base coat + key coat + finishing coats, indicated hereafter:</b>	
<b>webertherm baseGel + Procolor renovatherm imprimación + Procolor renovatherm mortero acrilico</b>	Particle size max. 1,5 mm. Floated finishing aspect. ≤ 2,0 (test result: 0,36)

**Table 5:** Water vapour permeability test results.

## 3.3 Safety and accessibility in use (BWR 4)

### 3.3.1 Bond strength between base coat and insulation product

EAD 040083-00-0404, clause 2.2.11.1.

	Bond strength			
	Minimum value (kPa)	Mean value (kPa)	Rupture typology	Required value (kPa)
On samples after 28 days drying under the same conditions of the rig	159	171	C	≥ 80
After hygrothermal cycles on the rig	111	133	C	

C: cohesive rupture in insulation product.

**Table 6:** Bond strength between base coat and insulation product test results.

### 3.3.2 Bond strength between the adhesive and the substrate

EAD 040083-00-0404, clause 2.2.11.2.

	Bond strength			
	Minimum value (kPa)	Mean value (kPa)	Rupture typology	Required value (kPa)
No complementary conditioning	480	532	B	≥ 250
2 days immersion in water + 2 h drying	240	255	B	≥ 80
2 days immersion in water + 7 days drying	512	564	B	≥ 250

A: adhesive rupture.

B: cohesive rupture in adhesive.

C: cohesive rupture in insulation product.

**Table 7:** Bond strength between adhesive and substrate (concrete) test results.

### 3.3.3 Bond strength between adhesive and the insulation product

EAD 040083-00-0404, clause 2.2.11.3.

	Bond strength			
	Minimum value (kPa)	Mean value (kPa)	Rupture typology	Required value (kPa)
No complementary conditioning	82	92	C	≥ 80 (A, B) or ≥ 30 (C)
2 days immersion in water + 2 h drying	48	56	A / C	≥ 30 (A, B) or not requirement (C)
2 days immersion in water + 7 days drying	79	89	C	≥ 80 (A, B) or not requirement (C)

A: adhesive rupture.

B: cohesive rupture in adhesive.

C: cohesive rupture in insulation product.

**Table 8:** Bond strength between adhesive and insulation product results.

### 3.3.4 Bond strength after ageing

EAD 040083-00-0404, clause 2.2.20.

System	Characteristics	Bond strength			
		Individual values (kPa)	Mean value (kPa)	Rupture typology	Required value (kPa)
Procolor renovatherm mortero acrilico*	Particle size max. 1,5 mm. Floated finishing aspect.	183	181	C	≥ 80
		194			
		182			
		178			
		169			

\*Finishing coat tested on small samples.

C: cohesive rupture in insulation product.

**Table 9:** Bond strength after ageing test results.

### 3.4 Energy economy and heat retention (BWR 6)

EAD 040083-00-0404, clause 2.2.23.

The thermal resistance of the ETICS is calculated as follows (see table 10).

Insulation product	Thermal conductivity (W/m·K)	Thickness <sup>1</sup> (mm)	Thermal resistance (m <sup>2</sup> ·K/W) <sup>(2)</sup>		
			R <sub>insulation</sub>	R <sub>render</sub>	R <sub>ETICS</sub>
webertherm placa EPS	0,037	40	1,08	0,02	1,10
		200	5,41		5,43

(1) Minimum and maximum thickness considered in the ETA.

(2) R<sub>insulation</sub>: thermal resistance of the insulation panel (in accordance with the Declaration of Performance of the insulation panels). See section 2.2.23.1 of EAD 040083-00-0404.

R<sub>render</sub>: thermal resistance of the render (base coat + key coat + finishing coat).

R<sub>ETICS</sub>: thermal resistance of the ETICS (R<sub>ETICS</sub> = R<sub>insulation</sub> + R<sub>render</sub>).

**Table 10:** Thermal resistance of the ETICS.

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

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

Where:  $\chi_p * n$ : has to be taken into account only 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 m<sup>2</sup>.

$\chi_p$ : local influence of thermal bridge caused by 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 material and for anchors with an air gap at the head of the screw ( $\chi_p * n$  negligible for  $n < 20$ ).

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

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

The influence of thermal bridges can also be calculated as described in EN ISO 10211.

$U$ : thermal transmittance of the normal part of the covered wall (excluding thermal bridges) W/(m<sup>2</sup>·K) determined as follows:

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

Where:

$R_i$ : thermal resistance of the insulation product (according to declaration of performance) in (m<sup>2</sup>·K)/W.

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

$R_{\text{substrate}}$ : thermal resistance of the substrate of the building (concrete, brick...) in (m<sup>2</sup>·K)/W.

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

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

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

According to the decision 97/556/EC amended by Decision 2001/596/EC, as amended of the European Commission<sup>1</sup>, the systems of AVCP (see EC delegated regulation (EU) No 568/2014 amending Annex V to Regulation (EU) 305/2011) given in the table 11 applies.

<sup>1</sup> Official Journal of the European Union (OJEU) L229/15 of 20/08/1997.

Official Journal of the European Union (OJEU) L209/33 of 02/08/2011.

Trade name of the system	Intended use(s)	Level(s) or class(es) (Reaction to fire)	AVCP system
<b>Sistema Renovatherm base EPS</b>	External thermal insulation composite system/kits (ETICS) with rendering in external walls subject to fire regulations.	A1 <sup>(2)</sup> , A2 <sup>(2)</sup> , B <sup>(2)</sup> , C <sup>(2)</sup> , D, E, F or A1 <sup>(3)</sup> to E <sup>(3)</sup>	2+
	External thermal insulation composite system/kits (ETICS) with rendering in external walls not subject to fire regulations.	Any	2+

- (1) Products/material for which as 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).

**Table 11:** Applicable AVPC system.

## 5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

All the necessary technical details for the implementation of the AVCP system are laid down in the *Control Plan* deposited with the ITeC<sup>2</sup>, with which the factory production control shall be in accordance.

Products not manufactured by the kit manufacturer shall also be controlled according to the Control Plan.

Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, then they shall be subject to suitable checks/tests by the kit manufacturer before acceptance.

Any change in the manufacturing procedure which may affect the properties of the product shall be notified and the necessary type-testing revised according to the *Control Plan*.

Issued in Barcelona on 24 October 2023

by the Catalonia Institute of Construction Technology.



Ferran Bermejo Nualart  
Technical Director, ITeC

<sup>2</sup> The *Control Plan* is a confidential part of the ETA and is only handed over to the notified certification body involved in the assessment and verification of constancy of performance.

**ANNEX 1: Insulation product characteristics**

Description and characteristics		EPS panels
Trade name	<b>webertherm placa EPS</b>	
Description	Factory-prefabricated uncoated boards for bonded ETICS, made of expanded polystyrene (EPS) according to EN 13163	
Reaction to fire EN 13501-1	E [density: 15-20 kg/m <sup>3</sup> ]	
Thermal resistance ((m <sup>2</sup> ·K)/W)	acc. to the Declaration of Performance	
Thermal conductivity (W/(m·K))	0,037	
Thickness EN 823	T2	
Length EN 822	L2	
Width EN 822	W2	
Squareness EN 824	S2	
Flatness EN 825	P5	
Dimensional stability under:	specified temperature and humidity EN 1604	DS(70,-)1, DS(70,90)1
	laboratory conditions EN 1603	DS(N)2
Tensile strength (kPa) EN 1607	≥ 150 (TR150)	
Compression strength (kPa) EN 826	< 60 CS(10)60	
Water absorption (total immersion) EN 12087	WL(T)5	
Water vapour diffusion resistance factor (μ) EN 12086	MU60	
Shear strength (N/mm <sup>2</sup> ) EN 12090	≥ 0,02	
Shear modulus (N/mm <sup>2</sup> ) EN 12090	≥ 1,0	

**Table A1.1:** Characteristics of insulation product (EPS panels).

## ANNEX 2: Anchors characteristics

Anchors with an ETA according to EAD 330196-01-0604 (or according to ETAG 014 used as EAD).

The anchors are composed of a plastic expansion sleeve with a plate with a diameter of 60 mm, and a plastic or metallic nail or screw.

Use categories and characteristic resistances in the substrate are given in each anchor's ETA.

Trade name	ETA reference	Mounting	Plate stiffness (kN/mm)
<b>webertherm espiga H3</b>	ETA 14/0130	Surface assembly	≥ 0,6
<b>webertherm espiga SLD 5</b>	ETA 17/0077	Surface assembly	≥ 0,6
<b>webertherm espiga SRD 5</b>	ETA 17/0077	Surface assembly	≥ 0,6
<b>webertherm espiga STR U 2G</b>	ETA 04/0023	Surface assembly	≥ 0,6

**Table A2.1:** Characteristics of anchors for insulation products.

**ANNEX 3: Glass fibre mesh characteristics**

Trade name: webertherm malla 160.

Mesh size: 3,5 mm x 3,8 mm.

Weight per unit area  $\geq 160$  g/m<sup>2</sup>.

ETA reference: ETA 13/0392.

	webertherm malla 160		Required value
	Warp	Weft	
Tensile strength in the as-delivered state (mean value)	38,5 N/mm	56,5 N/mm	--
Tensile strength after artificial ageing (mean value)	25,0 N/mm	37,4 N/mm	> 20 N/mm
Residual strength after artificial ageing	65 %	66 %	> 50%
Elongation in as-delivered state (mean value)	2,57 %	3,34 %	--
Elongation after artificial ageing (mean value)	1,64 %	2,10 %	--

**Table A3.1:** Test results and requirements of the glass fibre mesh **webertherm malla 160**.