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European Technical Assessment

ETA 18/0165
of 09.07.2018



General part

Technical Assessment Body issuing the ETA: ITeC	
ITeC has been designated according to Article 29 of Regulation (EU) No 305/2011 and is member of EOTA (European Organisation for Technical Assessment)	
Trade name of the construction product	webertherm mineral
Product family to which the construction product belongs	Kits for external thermal insulation composite system (ETICS) with mortar as thermal insulation product and renderings or discontinuous claddings as exterior skin.
Manufacturer	SAINT-GOBAIN WEBER CEMARKSA SA Ctra. C-17, km 2 ES-08110 Montcada i Reixac (Barcelona) Spain
Manufacturing plant(s)	According to Annex N kept by ITeC.
This European Technical Assessment contains	18 pages including 3 annexes which form an integral part of this assessment.
This European Technical Assessment is issued in accordance with Regulation (EU) 305/2011, on the basis of	EAD 040427-00-0404 <i>Kits for external thermal insulation composite system (ETICS) with mortar as thermal insulation product and renderings or discontinuous claddings as exterior skin.</i>

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(es) referred to above). However, partial reproduction may be made, with the written consent of 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

This ETA refers to **webertherm mineral** kits¹ for ETICS applied in-situ in which the thermal insulation product is composed by a thermal insulation mortar according to EN 998-1 and the exterior skin is a rendering system with supplementary mechanical fixings.

webertherm mineral kit components are given in table 1.1 related with ETICS components.

Detailed information and data of all the components are given in the annexes of this ETA.

Table 1.1: ETICS components.

Layer num.	ETICS components	webertherm mineral			Technical description in Annex 1
		Thick layer rendering system	Thin layer rendering system		
1	Thermal insulation mortar	webertherm aislone (*)	webertherm aislone (*)		Table A1.1
	Base coat		webertherm base (2 layers)		Table A1.2
2	Glass fibre reinforcement mesh	webertherm malla 200	webertherm malla 160		Table A1.5
	Supplementary mechanical fixings	webertherm espiga H3			Table A1.6
3	Key coat	---	---	webertene primer	Table A1.4
	Finishing coat	webertherm clima	webercal flexible	webertene advance S (*)	Table A1.3
				webertene advance M (*)	
				webertene classic L (*)	
				webertene classic XL (*)	
Ancillary components	webertherm junta dilatación webertherm perfil arranque webertherm perfil esquinero			Table A1.7	

(*) Trade name of these components could be different depending on the country. Table A1.0 in Annex 1 indicates the trade names equivalence.

¹ "Kit" means a construction product placed on the market by a single manufacturer as a set of at least two separate components that need to be put together to be incorporated in the construction works (Art. 2 n° 2 CPR).

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

webertherm mineral kits are intended for use as external insulation of buildings' walls. The walls are made of masonry (e.g. bricks, blocks, stones ...) or concrete (cast on site or as prefabricated panels).

The characteristics of the walls shall be verified prior to use of **webertherm mineral**, especially regarding conditions for reaction to fire classification and for fixing of **webertherm mineral**.

webertherm mineral kits are designed to give the wall to which it is applied a satisfactory thermal insulation.

The provisions made in this European Technical Assessment are based on an assumed working life of at least 25 years for **webertherm mineral**. 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 means for choosing the right products in relation to the expected economically reasonable working life of the works.

webertherm mineral kits are made of non-load bearing construction components. They do not contribute directly to the stability of the wall on which they are installed, but they can contribute to its durability by providing enhanced protection from the effect of weathering.

webertherm mineral kits can be used on new or existing (retrofit) vertical walls.

webertherm mineral kits are not intended to ensure the airtightness of the building envelope.

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

The assessment of **webertherm mineral** kits for the intended use was performed following the EAD 040427-00-0404 *Kits for external thermal insulation composite system (ETICS) with discontinuous claddings as exterior skin*.

Table 3.1: Summary of **webertherm mineral** performance.

Product: webertherm mineral			Intended use: external wall insulation			
Basic Works Requirement	ETA section	Essential characteristic	webertherm mineral			
			Thick layer	Thin layer		
			webertherm clima	webercal flexible	webertene S, M, L XL	
BWR 2 Safety in case of fire	3.1	Reaction to fire	B,s1-d0			
	---	Façade fire performance	Not assessed			
BWR 3 Hygiene, health and the environment	3.2	Water absorption by capillarity (kg/m ²)	After 3 min (from initial immersion)	0,53	0,04	0,06
			After 1 h (from 3 min. immersion)	0,22	0,03	0,05
			After 24 h (from 3 min. immersion)	0,71	0,46	0,47
	3.3	Water vapour permeability (resistance to water vapour diffusion) - μ	5 - 7	7 - 43		
3.4	Accelerated ageing behaviour	After hygrothermal cycles	No defects			
		After freeze-thaw cycles	No defects	Not relevant		
BWR 4	3.5	Impact resistance	Hard body impacts	0,5 kg, 3 J 1,0 kg, 10 J	0,5 kg, 3 J	

Table 3.1: Summary of **webertherm mineral** performance.

Product: webertherm mineral		Intended use: external wall insulation				
Basic Works Requirement	ETA section	Essential characteristic	webertherm mineral			
			Thick layer	Thin layer		
			webertherm clima	webercal flexible	webertene S, M, L XL	
Safety and accessibility in use		Soft body impacts		3,0 kg, 60 J 50,0 kg, 400 J		
	3.6	Bond strength (MPa)	external layers - thermal insulation mortar	0,08 (dry)	0,08 (dry)	0,07 (dry)
			thermal insulation mortar - substrate		0,08 (dry)	
	3.7	Cohesion of the thermal insulation mortar (kPa)		70 (dry)		
	3.8	Shear strength of thermal insulation mortar (kPa)		70 (dry)		
		Shear modulus of thermal insulation mortar (kPa)		5350 (dry)		
	---	Dead load behaviour		Not relevant		
	---	Pull-through resistance		Not relevant		
---	Pull-out resistance (foam block test)		Not relevant			
BWR 5 Protection against noise	---	Improvement of airborne sound insulation		Not assessed		
BWR 6 Energy economy and heat retention	3.10	Thermal resistance (m ² ·K)/W	0,74 – 1,93	0,73 – 1,92		

Complementary information:

Requirements with respect to the mechanical resistance and stability of non-load bearing parts of the works are not included in the Basic Works Requirement *Mechanical resistance and stability* (BWR 1) but are treated under the Basic Works Requirement *Safety and accessibility in use* (BWR 4).

The fire resistance requirement is applicable to the wall itself (made of masonry or concrete) and not to the ETICS alone.

3.1 Reaction to fire

The reaction to fire of the ETICS **webertherm mineral** has been assessed according to section 2.2.1 of EAD 040427-00-0404.

Reaction to fire of the ETICS **webertherm mineral** according to EN 13501-1 is class B,s1-d0.

Note: A European reference fire scenario has not been laid down for façades. In some Member States, the classification of ETICS according to EN 13501-1 might not be sufficient for the use in façades. 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.

3.2 Water absorption by capillarity

Water absorption by capillarity has been tested according to section 2.2.2 of EAD 040427-00-0404.

Water absorption of the individual kit components are described in Annex 1.

Table 3.2: Water absorption by capillarity.

ETICS	Rendering system	Mean value (kg/m ²)		
		after 3 min (*)	after 1 h (**)	after 24 h (**)
webertherm mineral with thick layer	webertherm clima	0,53	0,22	0,71
	base coat alone	0,11	0,13	1,07
	webercal flexible	0,04	0,03	0,46
webertherm mineral with thin layer	webertene advance S	0,06	0,01	0,28
	webertene advance M	0,06	0,05	0,47
	webertene classic L	0,06	0,03	0,45
	webertene classic XL	0,06	0,05	0,39

(*) Values from initial immersion.
(**) Values from 3 minutes immersion.

3.3 Water vapour permeability

Water vapour permeability (resistance to water vapour diffusion) of the ETICS **webertherm mineral** has been assessed according to section 2.2.3 of EAD 040427-00-0404.

The equivalent water vapour permeability (resistance to water vapour diffusion) of the ETICS **webertherm mineral** has been calculated from water vapour permeability of the individual kit components according to Annex D of EAD 040427-00-0404.

Water vapour permeability of the individual kit components is given in Annex 1.

Tests carried out on samples of one specific combination of the ETICS **webertherm mineral** for each rendering system, according to EN ISO 12572, confirm the values given in table 3.3.

Table 3.3: Range of values of water vapour permeability.

ETICS	webertherm aislone thickness (mm)	Z _{ETICS} [(m ² ·s·Pa)/kg]	W _{ETICS} [kg/(m ² ·s·Pa)]	S _{d,ETICS,eq} (m)	μ _{ETICS,eq}
webertherm mineral with thick layer - webertherm clima	30 - 80	1,3E+9 – 3,0E+9	3,6E-10 – 8,1E-10	0,25 – 0,60	5 - 7
webertherm mineral with thin layer - webercal flexible - webertene advance S - webertene advance M - webertene classic L - webertene classic XL	30 - 80	1,6E+9 – 9,3E+9	1,1E-10 – 6,3E-10	0,30 – 1,90	7 - 43

Where:

Z_{ETICS} = water vapour diffusion resistance of the ETICS;

W_{ETICS} = water vapour diffusion permeance of the ETICS;

S_{d,ETICS,eq} = water vapour diffusion-equivalent air layer thickness of the ETICS;

μ_{ETICS,eq} = water vapour diffusion resistance-equivalent factor of the ETICS;

Results have been obtained with the value of water vapour permeability of the air: δ_a = 2,0·10⁻¹⁰ kg/(m·s·Pa) and the range of thickness and water vapour permeability of the different layers.

3.4 Accelerated ageing behaviour

3.4.1 Hygrothermal behaviour

Hygrothermal behaviour of the ETICS **webertherm mineral** has been tested according to section 2.2.4.1 of EAD 040427-00-0404.

The following defects have not been observed:

- deterioration such as cracking or delamination of the rendering system that allows water penetration to the internal layers;
- deterioration or cracking;
- detachment of the rendering system;
- irreversible deformation.

Mean values of the measured bond strength (according to section 2.2.6 of EAD 040427-00-0404) before and after hygrothermal cycles are given in table 3.5a.

3.4.2 Freeze-thaw behaviour

Freeze-thaw behaviour of the ETICS **webertherm mineral** has been tested according to section 2.2.4.2 of EAD 040427-00-0404 on those specimens of ETICS (including the rendering system) for which the water absorption is greater or equal than 0,5 kg/m² after 24 hours.

The following defects have not been observed:

- deterioration such as cracking or delamination of the rendering system that allows water penetration to the internal layers;
- deterioration or cracking;
- detachment of the rendering system;
- irreversible deformation.

Mean values of the measured bond strength (according to section 2.2.6 of EAD 040427-00-0404) before and after freeze-thaw cycles are given in table 3.5a.

3.5 Impact resistance

Impact resistance of the ETICS **webertherm mineral** has been tested according to section 2.2.5 of EAD 040427-00-0404.

Table 3.4: Impact resistance.

ETICS	Impact resistance passed	Degree of exposure in use (*)
webertherm mineral	Thick layer rendering system Hard body (0,5 kg) impacts of 3 joules Hard body (1,0 kg) impacts of 10 joules Soft body (3,0 kg) impacts of 60 joules Soft body (50,0 kg) impacts of 400 joules	Category I
	Thin layer rendering system Hard body (0,5 kg) impacts of 3 joules Soft body (3,0 kg) impacts of 60 joules Soft body (50,0 kg) impacts of 400 joules	Category II

(*) Category I: This category means that the degree of exposure in use should be a zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use.

Category II: This category means that the degree of exposure in use should be a zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care.

Category III: This category means that the degree of exposure in use should be a zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.

Category IV: This category means that the degree of exposure in use should be a zone out of reach from ground level.

3.6 Bond strength

Bond strength of the ETICS **webertherm mineral** has been tested according to section 2.2.6 of EAD 040427-00-0404.

Mean and minimum values of the measured bond strength are given in:

- Table 3.5a for bond strength between the external layers and the thermal insulation mortar.
- Table 3.5b for bond strength between the thermal insulation mortar and the substrate.

Table 3.5a: Bond strength between the external layers and the thermal insulation mortar.

ETICS	Rendering system	Ageing	Mean value (MPa)	Minimum value (MPa)	Rupture (*)	Ratio (**)
webertherm mineral with thick layer	webertherm clima	Dry	0,14	0,13	80%CAis 20%CAisM	---
		2d H2O + 2h dry	0,05	0,04	100%CAis	38%
		2d H2O + 7d dry	0,08	0,07	100%CAis	55%
		Hygrothermal	0,14	0,12	96%CAis 4%CAisM	101%
		Freeze-thaw	0,05	0,04	100%CAis	34%
webertherm mineral with thin layer	base coat alone	Dry	0,11	0,09	100%CAis	---
		2d H2O + 2h dry	0,04	0,03	100%CAis	36%
		2d H2O + 7d dry	0,10	0,09	100%CAis	89%
		Hygrothermal	0,11	0,09	100%CAis	99%
	webercal flexible	Dry	0,10	0,09	100%CAis	---
		2d H2O + 2h dry	0,04	0,04	100%CAis	42%
		2d H2O + 7d dry	0,09	0,08	100%CAis	83%
	webertene advance S	Hygrothermal	0,12	0,10	100%CAis	116%
		Dry	0,08	0,07	100%CAis	---
		2d H2O + 2h dry	0,04	0,03	100%CAis	52%
	webertene advance M	2d H2O + 7d dry	0,08	0,06	100%CAis	97%
		Dry	0,07	0,07	100%CAis	---
		2d H2O + 2h dry	0,04	0,03	100%CAis	51%
	webertene classic L	2d H2O + 7d dry	0,08	0,07	100%CAis	113%
		Dry	0,09	0,09	100%CAis	---
2d H2O + 2h dry		0,04	0,03	100%CAis	41%	
webertene classic XL	2d H2O + 7d dry	0,08	0,06	100%CAis	84%	
	Hygrothermal	0,10	0,08	100%CAis	115%	
	Dry	0,08	0,07	100%CAis	---	
	webertene classic XL	2d H2O + 2h dry	0,04	0,03	100%CAis	42%
		2d H2O + 7d dry	0,08	0,08	100%CAis	100%

(*) Rupture type: AS = adhesive rupture. CAis = cohesive rupture in the insulation mortar. CAisM = cohesive rupture in the insulation mortar in the mesh area. CRs = cohesive rupture in the rendering system.

(**) From mean value after ageing vs mean value in dry conditions.

Table 3.5b: Bond strength between the thermal insulation mortar and the substrate.

Thermal insulation mortar	Ageing	Mean value (MPa)	Minimum value (MPa)	Rupture (*)	Ratio (**)
webertherm aislone	Dry	0,07	0,05	100%CAis	---
	2d H2O + 2h dry	0,03	0,03	100%CAis	42%
	2d H2O + 7d dry	0,05	0,03	100%CAis	66%

(*) Rupture type: AS = adhesive rupture. CS = cohesive rupture in the support. CAis = cohesive rupture in the thermal insulation mortar.

(**) From mean value after ageing vs mean value in dry conditions.

3.7 Cohesion of the thermal insulation mortar

Cohesion of thermal insulation mortar of **webertherm mineral** has been assessed according to section 2.2.7 of EAD 040427-00-0404.

Table 3.6: Cohesion of thermal insulation mortar.

Thermal insulation mortar	Ageing	Mean value (kPa)	Minimum value (kPa)	Ratio (*)
webertherm aislone	In dry conditions	70	49	---
	After 70 °C & 95% RH for 7 days	50	44	71%
	After 70 °C & 90% RH for 28 days	42	36	60%

(*) From mean value after ageing vs mean value in dry conditions.

3.8 Shear strength and shear modulus of thermal insulation mortar

Shear strength and shear modulus of thermal insulation mortar of **webertherm mineral** have been assessed according to section 2.2.8 of EAD 040427-00-0404.

Table 3.7: Shear strength and shear modulus of thermal insulation mortar.

Thermal insulation mortar	Ageing	Shear strength		Shear modulus	
		$f_{\tau k}$ (kPa)	Ratio (*)	G_m (kPa)	Ratio (*)
webertherm aislone	In dry conditions	70,9	---	5359	---
	After 7 d. 70 °C & 90% RH + drying	69,8	98%	5963	103%
	After 28 d. 70 °C & 90% RH + drying	73,9	96%	4974	101%

$f_{\tau k}$ = shear strength characteristic values, 5%-fractile.

G_m = shear modulus mean value.

(*) From mean value after ageing vs mean value in dry conditions.

3.9 Thermal conductivity and thermal resistance

Thermal conductivity and thermal resistance (R-value) have been assessed according to section 2.2.11 of EAD 040427-00-0404.

Thermal conductivity and moisture conversion factor of webertherm aislone have been determined according to section I.1 of Annex I of EAD 040427-00-0404.

Table 3.8: Thermal conductivity and moisture conversion factor.

Thermal insulation mortar	Thermal conductivity [W/(m·K)]			Moisture conversion factor	
	$\lambda_{10,dry,mean}$	$\lambda_{10,dry,90/90}$	$\lambda_{10,dry,50/90}$	$f_{u,1}$	$f_{u,2}$
webertherm aislone	0,042	0,043	0,042	1,526	6,158

Thermal resistance (R-value) of the ETICS **webertherm mineral** has been calculated from the thermal values and geometry of the components (see Annex 1) according to section 6.2 of EN ISO 6946.

Table 3.9: Thermal resistance.

ETICS	webertherm aislone thickness (mm)	R_{ETICS} [(m ² ·K)/W] (*)	ΔU [W/(m ² ·K)]
webertherm mineral with thick layer	30	0,74	$\Delta U = n_{fix} \cdot X_p$ (**)
	40	0,98	
	50	1,22	
	60	1,46	
	70	1,69	
	80	1,93	
webertherm mineral with thin layer	30	0,73	$\Delta U = n_{fix} \cdot X_p$ (**)
	40	0,96	
	50	1,20	
	60	1,44	
	70	1,68	
	80	1,92	

(*) Information regarding the thermal transmittance of the whole external wall (U) including the ETICS and the thermal bridges (ΔU) is given in Annex 2.

(**) Where:

ΔU = correction term of the thermal transmittance for anchors;

n_{fix} = number of anchors per unit area (usually 1 or 2 fix/m²);

X_p = point thermal transmittance value of one anchor (see table A1.6 of Annex 1).

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

According to the decision 1997/556/EC, as amended of the European Commission², the systems of AVCP (see EC delegated regulation (EU) No 568/2014 amending Annex V to Regulation (EU) 305/2011) given in the following table applies.

Table 4.1: Applicable AVPC system.

Product	Intended use	Level or class	System
webertherm mineral	In external walls not subject to fire regulations	Any	2+
	In external walls subject to fire regulations	B,s1-d0	

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 ITeC³, with which the factory production control shall be in accordance.

Issued in Barcelona on 09 July 2018

by the Catalonia Institute of Construction Technology.



Ferran Bermejo Nualart
 Technical Director, ITeC

² 1997/556/EC – Commission Decision of date 14 July 1997, published in the Official Journal of the European Union (OJEU) L229/14 of 20/08/1997.

³ 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: Technical description of kit components

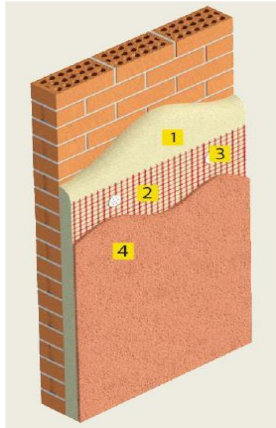
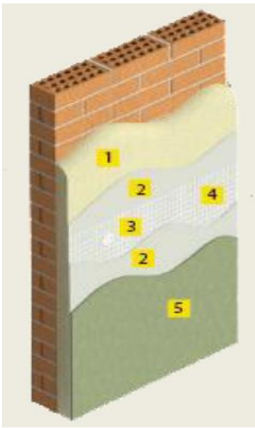
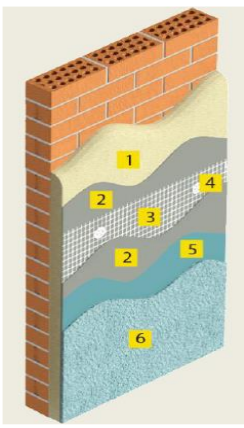
webertherm mineral		
With thick layer rendering systems	With thin layer rendering systems	
		
<ol style="list-style-type: none"> 1. webertherm aislone 2. webertherm malla 200 3. webertherm espiga H3 4. webertherm clima 	<ol style="list-style-type: none"> 1. webertherm aislone 2. webertherm base 3. webertherm malla 160 4. webertherm espiga H3 5. webercal flexible 	<ol style="list-style-type: none"> 1. webertherm aislone 2. webertherm base 3. webertherm malla 160 4. webertherm espiga H3 5. webertene primer 6. webertene classic XL, classic L, advance M or advance S

Table A1.0: Trade names equivalence.

Spain	Italy	Other countries
webertherm aislone	webertherm X-light 042	webertherm aislone
webertene classic L	webercote acrylcover M	webertene stilo / cromasil
webertene classic XL	webercote acrylcover G	webertene geos
webertene advance M	webercote siloxcover R	webertene habitat
webertene advance S	webercote siloxcover F	webertene micro

Table A1.1: Thermal insulation mortar.

Characteristic	Reference	webertherm aislone
Generic type	EN 998-1	Thermal insulating mortar (T)
Colour	---	Very light yellow
Thickness range (mm)	---	30 - 80 (max. 40 mm per layer)
Coverage (kg/m ² per 10 mm thickness)	---	1,6
Weight per bag (kg) as delivery (dry mortar)	---	150 ± 25
Water-product ratio	---	5,5 - 6,0 litres per bag (30 l)
Density of hardened mortar (kg/m ³)	EN 1015-10	150 ± 5
Water absorption (kg/m ² ·min ^{0,5})	EN 1015-18	W1 (≤ 0,4)
Water vapour resistance factor, μ	EN 1015-19	≤ 5
Flexural strength (MPa)	EN 1015-11	≥ 0,25
Compression strength (MPa)		0,4 – 2,5 (CSI)
Thermal conductivity, λ _{10,dry(p=50%)} (W/m·K)	I.1 of Annex I of EAD 040427-00-0404	0,042
Heat of combustion (PCS-value) (MJ/kg)	EN ISO 1716	4,55
Reaction to fire	EN 13501-1	B,s1-d0

Table A1.2: Base coat for thin layer rendering systems.

Characteristic	Reference	webertherm base
Generic type	EN 998-1	General purpose rendering mortar (GP) for exterior applications
Colour	---	Grey or white
Thickness range (mm)	---	3 - 6 (2 - 3 per layer)
Coverage (kg/m ² per 1 mm thickness)	---	1,5
Weight per bag (kg) as delivery (dry mortar)	---	25 ± 1
Water-product ratio	---	5,5 - 6,5 litres per bag (25 kg)
Density of hardened mortar (kg/m ³)	EN 1015-10	1300 - 1500
Water absorption (kg/m ² ·min ^{0,5})	EN 1015-18	W2 (≤ 0,2)
Water vapour resistance factor, μ	EN 1015-19	≤ 10
Shrinkage (mm/m)	J.6 of EAD 040427-00-0404	< 2
Static modulus of elasticity (MPa)	J.5.2 of EAD 040427-00-0404	< 7000
Flexural strength (MPa)	EN 1015-11	≥ 2,0
Compression strength (MPa)		≥ 3,5 (CSIII)
Thermal conductivity, λ _{10,dry(p=50%)} (W/m·K)	EN 1745	0,44
Ash content (450 °C) (%)	J.4.1 of EAD 040427-00-0404	90 ± 1
Heat of combustion (PCS-value) (MJ/kg)	EN ISO 1716	0,59
Reaction to fire	EN 13501-1	A1

Table A1.3a: Finishing coat for thick layer rendering systems.

Characteristic	Reference	webertherm clima
Generic type	EN 998-1	One coat rendering mortar (OC) for exterior applications
Colour	---	Various
Thickness range (mm)	---	10 - 15
Coverage (kg/m ² per 1 mm thickness)	---	1,5
Weight per bag (kg) as delivery (dry mortar)	---	1100 - 1300
Water-product ratio	---	4,5 - 5,5 litres per bag (25 kg)
Density of hardened mortar (kg/m ³)	EN 1015-10	1400 - 1600
Water absorption (kg/m ² ·min ^{0,5})	EN 1015-18	W2 (≤ 0,2)
Water vapour resistance factor, μ	EN 1015-19	≤ 10
Flexural strength (MPa)	EN 1015-11	≥ 1,0
Compression strength (MPa)		≥ 3,5 (CSIII)
Thermal conductivity, λ _{10,dry(p=50%)} (W/m·K)	EN 1745	0,47
Reaction to fire	EN 13501-1	A1

Table A1.3b: Finishing coat for thin layer rendering systems.

Characteristic	Reference	webercal flexible	webertene			
			advance S	advance M	classic L	classic XL
Generic type	EN 15824	Renders based on organic binders for exterior applications				
Colour	---	Various				
Thickness range (mm)	---	1,0 – 1,5	1,0 – 2,0	1,5 – 2,0	2,0 – 3,0	
Coverage (kg/m ² per 1 mm thickness)	---	0,8 – 1,0	1,4 – 1,5	1,2 – 1,4	1,4 – 1,6	1,6 – 1,7
Granulometry (mm)	---	≤ 0,25	≤ 0,8	≤ 1,2	≤ 1,5	≤ 1,8
Weight (kg) as delivery	---	4,0 ± 0,5 per bag (dry)	25 ± 0,5 per bucket (paste)			
Water-product ratio (l/kg)	---	0,40 – 0,45	---			
Density of hardened mortar (kg/m ³)	EN 1015-10	1500 ± 50	1900 ± 50			
Water absorption (kg/m ² ·h ^{0,5})	EN 1062-3	W2 (≤ 0,5 > 0,1)			W1 (> 0,5)	
Water vapour permeability, S _d (m)	EN ISO 7783	V2 (≥ 0,14 < 1,4)				
Thermal conductivity, λ _{10,dry(p=50%)} (W/m·K)	EN 1745	0,53	1,00		1,17	
Heat of combustion (PCS-value) (MJ/kg)	EN ISO 1716	4,61	3,10			
Reaction to fire	EN 13501-1	B, s1-d0	A2, s1-d0			

Table A1.4: Primer for thin layer rendering systems.

Characteristic	Reference	webertene primer
Generic type	EN 1062-1	Aqueous dispersion of synthetic resins resistant to alkalis
Colour	---	Various
Thickness range (mm)	---	< 0,2
Coverage (kg/m ² per 1 mm thickness)	---	0,5
Density of delivered product (kg/m ³) (liquid)	J.1.1 of Annex J of EAD040427-00-0404	1550 ± 95
Viscosity (m·Pa·s)	Internal procedure (LR 01)	5000 ± 1000
pH	Internal procedure (LA 01)	8,5 ± 1
Dry extract (%)	J.3.1 of Annex J of EAD040427-00-0404	65 ± 3
Ash content (450 °C) (%)	J.4.1 of Annex J of EAD040427-00-0404	50 ± 2
PCS _S -value (MJ/kg)	EN ISO 1716	6,68

Table A1.5: Reinforcement mesh.

Characteristic	Reference	webertherm malla 200	webertherm malla 160
Designation		R161 A101	R 131 A101
Thickness (mm)	ETA 13/0392	0,66 ± 0,20	0,52 ± 0,20
Mass per unit area (g/m ²)		195 ± 5	160 ± 5
Ash content (625 °C) (%)	L.4.2 of EAD 040427-00-0404	---	82 ± 1
Organic content (%)	ETA 13/0392	20 ± 4	20 ± 4
Heat of combustion (PCS-value) (MJ/kg)	EN ISO 1716	---	4,49
Mesh size (mm)		7,5 x 6,5	3,5 x 3,8
Tensile strength (N/mm)	without ageing	≥ 36	≥ 36
	after conditioning	≥ 20	≥ 20
	residual (%)	≥ 50	≥ 50
Elongation (%) in standard conditions		4,0	3,8

Table A1.6: Supplementary mechanical fixings.

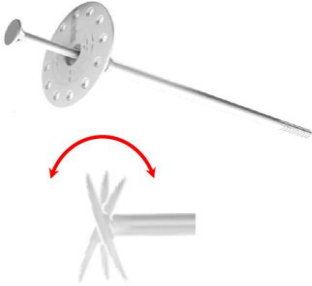
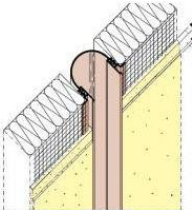
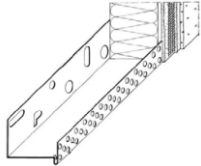
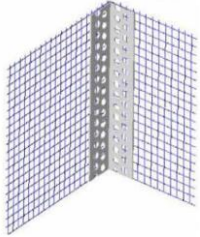
Characteristics	webertherm espiga H3
Reference document	ETA 14/0130
Form	
Dimensions	
Material	According to ETA
Mechanical characteristics	
Point thermal transmittance for one anchor, X_p [W/K]	$\leq 0,001$

Table A1.7: Ancillary components.

Characteristics	webertherm junta dilatación	webertherm perfil arranque	webertherm perfil esquinero
Form			
Material	PVC	Aluminium alloy	PVC

ANNEX 2: Thermal transmittance

The thermal bridges caused by the anchors influence the thermal transmittance of the whole external wall and shall be taken into account using the following calculation:

$$U_c = U + \Delta U \quad [W/(m^2 \cdot K)]$$

Where:

U_c : corrected thermal transmittance of the whole external wall, including thermal bridges;

U : thermal transmittance of the whole external wall without thermal bridges;

ΔU : correction term of the thermal transmittance for anchors

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

R_{ETICS} : thermal resistance of the ETICS [W/(m²·K)] (see table 3.9 of ETA).

$R_{substrate}$: thermal resistance of the substrate wall [W/(m²·K)]

R_{si} : internal surface thermal resistance [W/(m²·K)]

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

$$\Delta U = X_p \cdot n_{fix}$$

X_p : point thermal transmittance value of one anchor [W/K] (see table A1.6 of Annex 1)

n_{fix} : number of anchors per unit area [1/m²].

ANNEX 3: Design, installation, maintenance and repair criteria

A3.1 Design

The design of the external thermal insulation composite system using **webertherm mineral** kits should consider:

- It is assumed that the substrate wall meets the necessary requirements regarding the mechanical strength and the airtightness, as well as the relevant resistance regarding watertightness and water vapour.
- The accommodation of the designed system movements to the substrate or structural movements.
- The execution of singular parts of the façade according to the manufacturer's specifications.

A3.2 Installation

Application of the external thermal insulation composite system using **webertherm mineral** kits should be carried out:

- According to the specifications of the manufacturer and using the components specified in this ETA.
- In accordance with the design and drawings prepared for the specific works. The manufacturer should ensure that the information on these provisions is given to those concerned.
- By appropriately qualified staff and under the supervision of the technical responsible of the specific works.

A3.3 Maintenance and repair

Maintenance of the external thermal insulation composite system using **webertherm mineral** kits includes inspections on site, taking into account the following aspects:

- the appearance of any damage such as cracking, detachment, delamination, and mould presence due to permanent moisture or permanent irreversible deformation;
- the presence of water accumulation;

When necessary, any repair to localised damaged areas must be carried out with the same components and following the repair instructions given by the manufacturer.