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### **European Technical Assessment**

ETA 21/0460 14/10/2022

English translation prepared by IETcc. Original version in Spanish language

#### **General Part**

#### Technical Assessment Body issuing the European Technical Assessment:

Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)

<b>Trade</b>	name	of the	constr	uction
produ	ct			

### the

#### Sistema RHONATHERM® ORGANIC

Product family to which construction product belongs

External Thermal Insulation Composite System with rendering for use on building walls

Manufacturer

#### Pinturas ISAVAL®, S.L.

C/ Velluters, parcela 2 - 14 - Pol. Ind. Casanova 46394 - Ribarroja del Turia, Valencia - Spain

Manufacturing plant(s)

C/ Velluters, parcela 2 - 14 - Pol. Ind. Casanova 46394 - Ribarroja del Turia, Valencia - Spain.

This European Technical Assessment contains

10 pages including 2 Annex which form an integral part of this assessment.

Annex 3 contains confidential information and is 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

040083-00-0404:

External thermal insulation composite systems (ETICS) with renderings

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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#### **Specific parts**

#### 1 Technical description of the product

The External Thermal Insulation Composite System (from now on, referred to as ETICS) "RHONATHERM® ORGANIC" is designed and installed in accordance with the manufacturer, design and installation instructions, deposited at the IETcc<sup>(1)</sup>. It is made up on site from these components. The manufacturer is ultimately responsible for the ETICS.

RHONATHERM® ORGANIC is defined as "bonded system with supplementary mechanical fixings" with is used with EPS-XPS panel, and "mechanically fixed ETICS with supplementary adhesive" with is used with MW panel. The minimum number of fasteners per square metres are 6 for EPS and MW and 8 fasteners for building higher than 24 m.

This ETICS comprises the following components, which are factory produced by the manufacturer or a supplier.

		Com	ponents			Coverage ([kg/m²)	Thickness [mm]
Thermal	RHONATHERM® PANEL EPS: Bonded Board of Expanded polystyrene (EPS) (EN 13163) with supplementary mechanical fixings (minimum 6 fasteners/m²)						10 - 180
Insulation + method of	RHONATHERM® PANEL supplementary mechanica	(EN 13164) with	1,0 - 6,5	30 - 180			
fixing	RHONATHERM® PANEL adhesive (minimum 6 faste		cally fixed Mineral wo	ol (MW) (EN 13162) v	vith supplementary	3,0 - 24,0	30 - 180
Adhesive	RHONATHERM® RHON (cement based mortar in p					1,2 - 1,5 (powder, and	≥ 3,0
Base coat	RHONATHERM® RHONATHERM® RHONA					per mm layer thickness)	3 - 5
	Malla RHONATHERM® R					0,16	0,58
	Other different mesh can marking according to EAD	040016-00-04		haracteristics	RHONAMESH T-1	50, if they ha	ve the CE
	Characteristics			Values			
Glass fibre	Mesh size (mm)			$(3.5 \times 3.8) \pm 0.5$		1	
mesh	Elongation after age			≤ 3,8			
	Mass per unit area	(g/m²)		≥ 160			
	Thickness			$0,58 \pm 0,2 \text{ mm}$			
	Organic content 20 ± 4						
	After ageing (alkali conditi warp direction shall be at I					1.3.8.1) in the	e weft and
Primer coat	RHONATHERM® REVIQU	JARZ PRIMER	R. Acrylic primer which	may require optional	ly 10-15% water	0,35 - 0,4	
	RHONATHERM® REVIQUES-02/05/10/15/20, Q-150/2		Ready to use acrylic r particles (0.2 mm - 2 i		ize grading		
	RHONATHERM® REVIQU	JARZ SC	Ready to use silicone mortar with different size grading particles (0.5 mm - 2 mm)				
Finishing coat	RHONATHERM® REVIQU	JARZ NT	Ready to use acrylic nanotechnological mortar with different size grading particles (0.5 mm - 2 mm)			1.0 – 4.0	0.2 – 2.5
	(0.5 mm - 2 mm)  RHONA T-300 + PRIMER + RHONATHERM® REVIQUARZ LISO  RHONATHERM® REVIQUARZ LISO  RHONATHERM® REVIQUARZ LISO  RHONATHERM® REVIQUARZ LISO. High performance acrylic coating which may require optionally 5-15 % water						
Decorative coat	HIDROFUGANTE INVISIE	BLE ACQUA	Water-repellent impre siloxanes for absorbe		on silanes and	0.2 - 0.6	< 0.2
Coat	Plastic anchors (expansion with thickness of insulation				t lengths in relation		
	Fasteners	ETA n.º	Diameter Plate (mm)	Stiffness (kN/mm)	Minimum tension load (N)*		
Fasteners	RHONATHERM® Fijación.	04 / 0023	60	0,6	600	Remain u	nder the
1 adichiero	*These values show the m	inimum pull oi	It of the fastener in the	e weakest support (e	nclosed in its FTA)	manufa	
	Other higher values appear			weakest support (c	noiosca in its ETA).	respons	
Other higher values appear in their ETAS.  Other fasteners can be used with CE marking (EAD 330196-00-0604, they have to have a p dimension ≥ 60 mm diameter and Stiffness ≥ 0,6 kN/mm.  An additional larger washer can be used with RHONATHERM® PANEL MW						ТООРОТК	Sionity
Ancillary elements	Aluminium and PVC profile	es: base, corne	ers, top and window sil	ls, expansion joint an	d its fixing devices		

<sup>1)</sup> The technical documentation of this European Technical Assessment is deposited at the *Instituto de Ciencias de la Construcción Eduardo Torroja* (IETcc) and, as far as relevant for the tasks of the notified bodies involved in the attestation of conformity procedure, is handed over to the notified bodies.

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

#### 2.1 Intended use(s)

This ETICS is intended to be used as external thermal insulation for building walls. The walls are made of masonry (bricks, blocks...) or concrete (cast on site or as prefabricated panels) with a reaction to fire classification A1 to A2-s2,d0 according to EN 13501-1 or A1 according to the EC decision 96/603/EC as amended. The ETICS is designed to give the wall to which is applied satisfactory thermal insulation.

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

This 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.

This ETA covers application of ETICS on supports of masonry or concrete.

#### 2.2 Relevant general conditions for the use of the kit

The provisions made in this European Technical Assessment are based on an assumed working life of 25 years from installation in the works, according to EAD 040083-00-0404, provided that the conditions lay down for the installation, packaging, transport and storage as well as appropriate use, maintenance and repair are met. In this respect.

The indications given on the working life cannot be interpreted as a guarantee given neither by the product manufacturer nor by EOTA nor by the Technical Assessment Body issuing this ETA, but are regarded only as a means for choosing the right product in relation to the expected economically reasonable working life of the works.

**Installation**. The ETICS is installed on site. It is the responsibility of the manufacturer to guarantee that the information about design and installation of this ETICS is effectively communicated to the concerned people. This information can be given using reproductions of the respective parts of this ETA. Besides, all the data concerning the execution shall be clearly indicated on the packaging and/or the enclosed instruction sheets using one or several illustrations.

The wall on which the ETICS is applied shall be sufficiently stable and airtight. Its stiffness shall be large enough to ensure that ETICS is not subjected to deformations, which could lead to damage.

<u>Design</u>. In any case, the user shall comply with the national regulations and particularly concerning fires and wind load resistance. Only the components described in clause 1 with characteristics according to clause 3 of this ETA can be used for this ETICS.

The works including the details (connection, joint,.) shall be designed in order to avoid water penetration behind the system. The minimal surface area for the bonded ETICS, and the method of bonding shall comply with the characteristics of the ETICS as well as the national regulations. In any case, the minimal surface shall be at least 45 % for EPS/XPS and 80% for MW. Besides, the numbers of fasteners used with MW must comply with the National requirements<sup>(2)</sup>.

<u>Execution</u>. The recognition and preparation of the substrate as well as the generalities about the execution of the ETICS shall be carried out in compliance with the manufacturer prescriptions and the corresponding national regulations.

The particularities in execution linked to the method of bonding and the application of the rendering system shall be handled in accordance with manufacturer prescriptions. In particular, it is suitable to comply with the quantities of rendering applied, the thickness regularity and the drying periods between layers.

<sup>(2)</sup> The value of the pull through to calculate the numbers of fasteners will be the minor value between the average value of pull through fastener-MW (defined in this ETA)and the average value pull out of the fastener-support (defined in its ETA).

**Use, maintenance and repair of the works.** It is accepted that the finishing coats shall normally be maintained in order to fully preserve the system's performance. Maintenance will include at least:

- The repairing of localised damaged areas due to accidents
- The application of various products or paints, possibly after washing or ad hoc preparation.

Necessary repairs should be done rapidly. It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance.

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

The identification tests and the assessment for the intended use of this ETICS according to the Basic Work Requirements (BWR) were carried out in compliance with EAD 040083-00-0404, The characteristics of each system shall correspond to the respective values laid down in following tables of this ETA, checked by IETcc.

Methods of verification and of assessing and judging are listed afterwards.

#### 3.1 Safety in case of fire (BWR 2)

Basic requirement for construction works 2: Safety in case of fire						
Essential characteristic		Relevant clause in EAD	Performance			
Reaction to fire of ETICS		2.2.1.1				
System con (Adhesive + Insulation + Base of		shing coat)				
System composition: Adhesive: RHONATHERM® RHONA T- 600 +	Fir	ishing coat				
Insulation: EPS/XPS (thickness 180 mm)  RHONATHERM® RHONA T- 711 +  RHONATHERM® REVIQUARZ PRIMER +  One of these finishing layers	RHONATHE RHONATHE	RM® REVIQUARZ Q/G FRM® REVIQUARZ SC RM® REVIQUARZ NT THERM® REVIQUARZ LISO				
Insulation: MW (thickness 160 mm) RHONATHERM® RHONA T- 700 + RHONATHERM® RHONAMESH T-150 RHONATHERM® REVIQUARZ PRIMER +	RHONATHE RHONATHE RHONATHE	RM® REVIQUARZ Q/G RM® REVIQUARZ SC RM® REVIQUARZ NT	B-s2, d0			
One of these finishing layers	T-300 + RHONAT	HERM® REVIQUARZ LISO	EDO: E			
Reaction to fire of thermal insulation material		2.2.1.2	XPS: E			
Facade fire performance	2.2.2	NPA				
Propensity to undergo continuous smoulde *Without or with HIDROFUGANTE INVISIBLE		2.2.3	NPA			

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

Basic requirement for construction works 3: Hygiene, health, and the environment						
Essential characteristic	Relevant clause in EAD					
Content, emission and/or release of dangerous substances. Leachable substances	2.2.4	The leachable substances are not determined in accordance with this EAD. NPD				
		Rendering	After 1h	After 24h		
Water absorption of the base		RHONATHERM® RHONA T-711	0.03	0.2		
coat and rendering system	2.2.5.1	RHONATHERM® REVIQUARZ Q/G	0.1	0,3		
	2.2.3.1	RHONATHERM® REVIQUARZ SC	0,04	0,2		
(kg/m²)		RHONATHERM® REVIQUARZ NT	0.1	0,48		
		T-300 + RHONATHERM® REVIQUARZ LISO	0,03	0,23		
Water absorption of the thermal		RHONATHERM® PANEL EPS: EN ISO 29767: ≤ 1 kg/m <sup>2</sup>				
Water absorption of the thermal	2.2.5. 2	RHONATHERM® PANEL XPS: EN ISO 29767: ≤ 1 kg/m <sup>2</sup>				
insulation		RHONATHERM® PANEL MW: EN ISO 297	67: ≤ 1 kg/r	n <sup>2</sup>		

Water-tightness of the ETICS Hygrothermal behaviour	2.2.6	The ETICS is assessed resistant to hygrothermal cycles on a rig, passed the test without defects and without pass through of water				
Water tightness of the ETICS: Freeze-thaw behaviour	2.2.7	The water absorption of the base coat and of rendering system is less than 0.5 kg/m² after 24 hours and so the system can be assessed as freeze/thaw resistant without any further testing.				
		Rendering	160	Double 160		
		EPS / XPS / MW + RHONATHERM®	RHONA T-711			
Impact resistance	2.2.8	RHONATHERM® RHONA T-711				
(Category)	2.2.0	RHONATHERM® REVIQUARZ Q/G RHONATHERM® REVIQUARZ SC	1/1/1	1/1/1		
		RHONATHERM® REVIQUARZ NT	1/1/1	17171		
		T-300 + RHONATHERM® REVIQUARZ LISO				
		Base coat + finishing coat	(S <sub>d</sub> , m)	Required		
		RHONATHERM® RHONA T-711	0,4			
		RHONATHERM® REVIQUARZ Q/G	0,6			
Water vapour permeability of	2.29.1	RHONATHERM® REVIQUARZ SC	0,4	< 1		
the rendering system*		RHONATHERM® REVIQUARZ NT	0,4			
		T-300 + RHONATHERM® REVIQUARZ LISO	0.3			
		Any finishing coat + HIDROFUGANTE INVISIBLE ACQUA	NPA			
Metan vanava nama ability of		RHONATHERM® PANEL EPS: EN 12086: μ = 30 -70				
Water vapour permeability of	2.2.9.2	RHONATHERM® PANEL XPS: EN 12086: µ ≥ 60				
the thermal insulation		RHONATHERM® PANEL MW: EN 12086: μ = 1				

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

Easential characteristic   Clause   FAD	В	asic require	ement for cons	truction works 4: Saf	ety and accessibility i	n use		
Sond strength		0.000.00		Performance				
and insulation product (minimum / mean value) (k/Pa)  Bond strength between adhesive and substrate (minimum / mean value) (k/Pa)  Bond strength between adhesive and substrate (minimum / mean value) (k/Pa)  Bond strength between adhesive and insulation board make the product of the product				Initial state				
XPS   200 / 240 ≥ 80   200 / 240 ≥ 80   MW   6 / 6   6 / 6   6 / 6   6   6   6   6		2 2 11 1		100 / 170 ≥ 80	100 / 170 ≥ 80		-	
MW   6/6   1		2.2.11.1	XPS	200 / 240 ≥ 80	200 / 240 ≥ 80		-	
Bond strength			MW	6/6	6/6		-	
2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.2     2.2.11.3	, , ,		The breakage lo	ocation was 100 % on the		EPS/ XPS		
2.2.11.2   800 / 1150 ≥ 250   800 / 950 ≥ 80   1000 / 1300 ≥ 250			Ini	tial etate				
Monother the part of the faces of the fraction of the faces of elasticity th.Insulation Shear strength / shear modulus of elasticity th.Insulation Shear strength / shear modulus of elasticity th.Insulation Short strength of the faces of the faces of the faces of elasticity th.Insulation Short strength (Pa)    Monother the faces of elasticity th.Insulation   Short strength (Pa)			1111	tiai state	and 2 h drying	and 7 d	drying	
Initial state   and 2 h drying   and 7 d drying	(minimum /mean value)	2.2.11.2	800 /	1150 ≥ 250	800 / 950 ≥ 80	1000 / 130	0 ≥ 250	
between adhesive and insulation (minimum /mean value) (kPa)  2.2.11.3  EPS 80 / 109 ≥ 80 80 / 113 ≥ 30 100 / 150 ≥ 80  MW 7 / 7 7 9 6 / 7  The breakage location was 100% on the insulation board  Fixing strength (transverse displacement test)  Pull-through of the fasteners. (minimum / mean value) (kN/fastener)  Pull-through of the fasteners or tale to the faces of thermal insulation  Shear strength / shear modulus of elasticity th.Insulation  Rendering strip tensile test: base coat  Bond strength after ageing (minimum / mean value) (kPa)  EPS 80 / 109 ≥ 80 80 / 113 ≥ 30 100 / 150 ≥ 80  RO / 120 ≥ 80  MW 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 9  Ro / 7	Rond strength			Initial state				
and insulation (minimum /mean value) (kPa)  2.2.11.3				00//00/				
(minimum /mean value) (kPa)         XPS   120 / 150 ≥ 80   100 / 140 ≥ 30   150 / 220 ≥ 80		2.2.11.3						
The breakage location was 100% on the insulation board  Fixing strength (transverse displacement test)  Pull-through of the fasteners. (minimum / mean value) (kN/fastener)  Tensile perpendicular to the faces of elasticity th.Insulation  Shear strength / shear modulus of elasticity th.Insulation  Rendering strip tensile test: base coat  The test is not required since mechanically fixed ETICS with supplementary adhesive where the bonded area exceeds 20 %.  In the middle of RHONATHERM® PANEL MW of 6 cm with TR ≥ 7,5  Dry condition (Center // border) Wet condition (Center // border)  0,23 / 0,26 // 0,21 / 0.24 0.12 /0.14  RHONATHERM® PANEL EPS: EN 1607, TR = 100 kPa  RHONATHERM® PANEL MW: EN 1607, TR = 200 kPa  RHONATHERM® PANEL MW: EN 1607, TR = 200 kPa  RHONATHERM® PANEL EPS: EN 12090: Shear strength/(kPa): 75; Shear modulus (kPa):1000  Rendering strip tensile test: base coat  RHONATHERM® PANEL XPS: EN 12090: Shear modulus (kPa):1000  Rendering strip tensile test: base coat  RHONATHERM® PANEL XPS: EN 12090: Shear modulus (kPa):1000  Rendering strip tensile test: base coat  RHONATHERM® RANEL XPS: EN 12090: Shear modulus (kPa):1000  Rendering strip tensile test: base coat  RHONATHERM® REVIQUARZ Q/G  RHONATHERM® REVIQUARZ Q/G  RHONATHERM® REVIQUARZ SC  RHONATHERM® REVIQUARZ NT  T-300 + RHONATHERM® REVIQUARZ LISO  RHONATHERM® REVIQUARZ LISO								
Fixing strength (transverse displacement test)  Pull-through of the fasteners. (minimum / mean value) (kN/fastener)  Shear strength / shear modulus of elasticity th.Insulation  Rendering strip tensile test: base coat  Bond strength after ageing (minimum / mean value) (kPa)  Bond strength after ageing (minimum / mean value) (kPa)  Bond strength after ageing (minimum / mean value) (kPa)  Fixing strength (transverse where the bonded area exceeds 20 %.  In the middle of RHONATHERM® PANEL MW of 6 cm with TR ≥ 7,5  Dry condition (Center // border) Wet condition (Center // border)  O,23 / 0,26 // 0,29 // 0,12 // 0.14  RHONATHERM® PANEL EPS: EN 1607, TR = 100 kPa  RHONATHERM® PANEL EPS: EN 1607, TR = 200 kPa  RHONATHERM® PANEL W: EN 1607, TR = 7,5 kPa  RHONATHERM® PANEL EPS: EN 12090: Shear strength(kPa): 75; Shear modulus (kPa):1000  RHONATHERM® PANEL XPS: EN 12090: Shear strength(kPa): 150; Shear modulus (kPa):1000  Rendering strip tensile test: base coat  RHONATHERM® PANEL XPS: EN 12090: Shear strength(kPa): 150; Shear modulus (kPa):1000  Rendering strip tensile test: base coat  Rendering EVIQUARZ Q/G  RHONATHERM® REVIQUARZ Q/G  RHONATHERM® REVIQUARZ SC  RHONATHERM® REVIQUARZ NT  T-300 + RHONATHERM® REVIQUARZ LISO  RHONATHERM® REVIQUARZ LISO	(kPa)					6//		
transverse displacement test)  Pull-through of the fasteners. Pull-through of the fasteners. Very condition (Center // border)  Pull-through of the fasteners. Pull-through of the fasteners. Very condition (Center // border)  Pull-through of the fasteners. Pull-through of the fa	Fixing strength							
Dry condition (Center // border)   Wet condition (Center // border)	(transverse	2.2.12				n supplementar <u>y</u>	y adhesive,	
Dry condition (Center // border)   Wet condition (Center // border)			In	the middle of RHONATH	HERM® PANEL MW of 6 of	cm with TR ≥ 7,5		
(minimum / mean value) (kN/fastener)         0,23 / 0,26 // 0.21 / 0.24         0,19 / 0,23 // 0.12 / 0.14           Tensile perpendicular to the faces of thermal insulation         2.2.14.1         RHONATHERM® PANEL EPS: EN 1607, TR = 100 kPa           RHONATHERM® PANEL XPS: EN 1607, TR = 200 kPa         RHONATHERM® PANEL W: EN 1607, TR = 7,5 kPa           RHONATHERM® PANEL EPS: EN 12090: Shear strength (kPa): 75; Shear modulus (kPa):1000           Rendering strip tensile test: base coat         2.2.17           Rendering tensile test: base coat         2.2.17           Rendering         EPS           XPS         MW           RHONATHERM® REVIQUARZ Q/G         RHONATHERM® REVIQUARZ SC           RHONATHERM® REVIQUARZ NT         120 / 140           1-300 + RHONATHERM® REVIQUARZ LISO         120 / 140		2 2 12 1	Dry condition (Center // border)				rder)	
Tensile perpendicular to the faces of thermal insulation  Shear strength / Shear modulus of elasticity th.Insulation  Rendering strip tensile test: base coat  Rendering test: base coat  Rendering strip tensile test: base coat  Rendering strip (KPa): 75. Shear modulus (kPa):1000  Rendering strip tensile test: base coat  Rendering strip (KPa): 150; Shear modulus (kPa):1000  Rendering strip tensile test: base coat  Rendering panel s	(minimum / mean	2.2.13.1						
to the faces of thermal insulation  2.2.14.1  RHONATHERM® PANEL XPS: EN 1607, TR = 200 kPa RHONATHERM® PANEL MW: EN 1607, TR = 7,5 kPa  RHONATHERM® PANEL EPS: EN 12090: Shear strength / Shear modulus of elasticity th.Insulation  Rendering strip tensile test: base coat  Rendering Panel LXPS: EN 12090: base and coat tensile test: base coat  Rendering Panel LXPS: EN 12090: base and coat tensile test: base coat tensile	, ,					0.12 /0.14		
RHONATHERM® PANEL MW: EN 1607, TR = 7,5 kPa	Tensile perpendicular							
Shear strength / Shear modulus of elasticity th.Insulation		2.2.14.1						
Shear strength   Shear strength   Shear strength   Shear strength   Shear modulus (kPa):1000	thermal insulation							
Shear modulus of elasticity th.Insulation	Shear strength /							
Shear strength(kPa): 150; Shear modulus (kPa):1000		2.2.15						
Rendering strip	elasticity th.Insulation							
Tensile test: base coat   2.2.17   NPA			Shear strength(	kPa): 150; Shear modulu	is (kPa):1000			
Bond strength after ageing (minimum / mean value) (kPa)  RHONATHERM® REVIQUARZ Q/G RHONATHERM® REVIQUARZ SC RHONATHERM® REVIQUARZ NT T-300 + RHONATHERM® REVIQUARZ LISO  RHONATHERM® REVIQUARZ LISO		2.2.17	NPA	NPA				
ageing (minimum / mean value) (kPa)         2.2.20         RHONATHERM® REVIQUARZ SC RHONATHERM® REVIQUARZ NT T-300 + RHONATHERM® REVIQUARZ LISO         120 / 140         200 / 250         6 / 6				Rendering	EPS	XPS	MW	
(minimum / mean value)         (kPa)         RHONATHERM® REVIQUARZ NT         120 / 140         200 / 250         6 / 6	ageing (minimum / mean value)		RHONATHERM® I	REVIQUARZ Q/G				
(minimum / mean value) (kPa)  RHONATHERM® REVIQUARZ NT  T-300 + RHONATHERM® REVIQUARZ LISO		2,2.20			460 / 440	000/555	0 / 5	
T-300 + RHONATHERM® REVIQUARZ LISO			RHONATHERM® I	REVIQUARZ NT	120 / 140 200 / 25		6/6	
THE DIEGRAUE IUGAUUT WAS TOO /O OH THE HISTIAUUT DUATU			322 : 13.3.0		on was 100% on the insula	tion board		

Mechanical and		Status	Warp	Weft
physical	2 2 21	Initial / After ageing (N/ mm) 44 / 22 45		45 / 25
characteristics of the	2.2.21	Deference (%)	≤ 50	
mesh		Elongation after ageing (%)	≤ 4	

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

Basic requirement for construction works 6: Energy economy and heat retention					
Essential characteristic	Relevant clause in EAD	Performance			
Thermal resistance thermal transmittance		RHONATHERM® PANEL EPS $\lambda_D = 0.037 \text{ W/mK}$			
	2.2.23.1	RHONATHERM® PANEL XPS λ <sub>D</sub> = 0.034 - 0,036 W/mK			
		RHONATHERM® PANEL MW $\lambda_D = 0,036 \text{ W/mK}$			

The additional thermal resistance provided by the ETICS (Retics) to the substrate wall is calculated from the thermal resistance of the thermal insulation product (Rinsulation), determined in accordance with 2.2.23.1, and from either the tabulated R render value of the render system (Rrender is about 0.02 m²K/W) or Rrender determined by test according to EN 12667 or EN 12664 (depending on expected thermal resistance).

Retics = Rinsulation+ Rrender [(
$$m^2 \cdot K$$
)/W]

as described in EN ISO 10456.

The thermal bridges caused by mechanical fixing devices influence the thermal transmittance of the entire wall and shall be taken into account using the following calculation:

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

With: U<sub>c</sub> corrected thermal transmittance of the entire wall, including thermal bridges thermal transmittance of the entire wall, including ETICS, without thermal bridges

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

 $R_{\text{substrate}}$  thermal resistance of the substrate wall [(m<sup>2</sup>·K)/W]

 $R_{se}$  external surface thermal resistance [(m<sup>2</sup>·K)/W]

R<sub>si</sub> internal surface thermal resistance [(m²·K)/W]

ΔU correction term of the thermal transmittance for mechanical fixing devices

=  $\chi_p$  \* n (for anchors) +  $\Sigma \psi i$  \*  $\ell i$  (for profiles) ( formula x)

 $\chi_p$  point thermal transmittance value of the anchor [W/K]. If not specified in ETA for anchors, the following values apply:

= 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 a plastic material or a minimum 15 mm air gap at the head of the screw/nail.

= 0.008 W/K for all other anchors (worst case)

n number of anchors per m<sup>2</sup>. In case n is more than 16, the formula (x) is not applied.

ψi linear thermal transmittance value of the profile [W/(m·K)]

length of the profile per m<sup>2</sup>.

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

It shall be calculated according to this standard if there are more than 16 anchors per  $m^2$  foreseen. The declared  $\chi_p$  -values do not apply in this case.

# 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 of the European Commission<sup>(3)</sup> amended by 2001/596/EC<sup>(4)</sup>, a system 2+ of assessment and verification of constancy of performance (see EC delegated regulation (EU) No 568/2014 amending Annex V to Regulation (EU) No 305/2011) applies.

Product	Intended uses	Level or Classes	System
RHONATHERM® ORGANIC	External Thermal Insulation Composite System with rendering for use on building walls	Any	2+

This system of attestation of conformity +2 is defined as follows:

<u>Tasks for the manufacturer</u>: Initial type-testing of the product, Factory production control and Testing of samples taken at the factory in accordance with a prescribed test plan.

Tasks for the notified body: Certification of factory production control on the basis of:

- Initial inspection of factory and of factory production control.
- Continuous surveillance (annual), assessment and assessment of factory production control.

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan which is deposited at IETcc<sup>(5)</sup>.

#### 5.1 Tasks of the manufacturer

**Factory production control.** The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this ETA.

The manufacturer may only use components stated in the technical documentation of this ETA including Control Plan. The incoming raw materials are subjected to verifications by the manufacturer before acceptance.

The factory production control shall be in accordance with the Control Plan. The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.

For the components of the ETICS, which the manufacturer does not manufacture by himself, he shall make sure that factory production control carried out by the other manufacturers gives the guarantee of the components compliance with the ETA.

**Initial type-testing of the product**. The initial type-testing have been conducted by the IETcc to issued this ETA in accordance with the EAD 040083-00-0404 "External thermal insulation composite systems (ETICS) with renderings". The verifications underlying this ETA have been furnished on samples from the current production.

Other tasks of the manufacturer. The manufacturer shall, on the basis of a contract, involve a body which is notified for the tasks referred to in section 4 in order to undertake the actions laid down in this clause. For this purpose, the control plan shall be handed over by the manufacturer to the notified bodies involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this ETA.

Official Journal of the European Communities L229/14 of 20.08.1997

<sup>(4)</sup> Official Journal of the European Communities L209/33 of 02.08.2001

<sup>(5)</sup> The Control Plan is a confidential part of the ETA and only handed over to the notified certification body involved in the assessment and verification of constancy of performance.

#### 5.2 Tasks of notified bodies.

**Initial inspection of factory and of factory production control**. The Notified Body shall ascertain that, in accordance with the Control Plan, the factory (in particular the employees and the equipment) and the factory production control are suitable to ensure continuous and orderly manufacturing of the components according to the specifications mentioned in clause 2 of this ETA.

Continuous surveillance, assessment and assessment of factory production control, in accordance with the provisions laid down in the control plan, at least one per year.

The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report. The notified certification body involved by the manufacturer shall issue an EC Certificate of factory production control stating the conformity of the provisions of this ETA.

In cases where the provisions of the ETA and its control plan are no longer fulfilled the notified certification body shall withdraw the certificate of conformity and inform to IETcc without delay.

Issued in Madrid on 14 of October of 2022

Ву

Director

on behalf of Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc - CSIC)



