

European Technical Assessment

ETA 24/0066
of 21.03.2024



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

Kit SOLTEC PANEL-FIX

Product family to which the construction product belongs

Adhesives for wall cladding.

Manufacturer

ADHESIVOS SOLTEC SL
P.I. Can Petit
Av. del Vallès 724, Nave A
ES08227 Terrassa (Barcelona)
Spain

Manufacturing plant(s)

According to Annex N kept by ITeC.

This European Technical Assessment contains

13 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

European Assessment Document EAD 250005-00-0606.

General comments

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es)).

Specific parts of the European Technical Assessment

1 Technical description of the product

This ETA is applicable to the adhesive kit SOLTEC PANEL-FIX, which consists of the following components:

- Adhesive SOLTEC PANEL-FIX: one component silane modified polymer adhesive. Design characteristics are given in table 1.
- Primer SOLTEC PANEL-FIX 451SW: liquid consistency primer for the treatment of surfaces (porous and nonporous).

Other ancillary products for adhesion surface preparation:

- Adhesion promoter SOLTEC PANEL-FIX P202: surface pre-treatment activator agent.
- Tape SOLTEC PANEL-FIX C: double-sided adhesive PE foam spacer tape. This tape is used for the initial bonding of the cladding elements until the complete curing of the adhesive SOLTEC PANEL-FIX and to ensure the correct dimensions of the adhesive bead.

Components detailed information and data are given in Annex 1 of this ETA.

Other external wall cladding products (cladding elements, subframe components, thermal insulation, anchors, etc.) are not part of the kit assessed in this ETA.

Table 1: Design characteristics of the kit SOLTEC PANEL-FIX.

Characteristic	Design value
Thickness	$e = 3 \text{ mm}$
Adhesive bead	$b \geq 12 \text{ mm}$
Maximum design tensile stress	$\sigma_{des} = 0,22 \text{ MPa}$
Maximum design shear stress	$\tau_{des} = 7 \text{ kPa}$
Maximum dynamic shear displacement	$\Delta_{s,d} = 1,35 \text{ mm}$

2 Specification of the intended use(s) in accordance with the applicable EAD

SOLTEC PANEL-FIX kit is intended for bonding opaque cladding elements onto metal supporting subframes in ventilated façades (rainscreens).

Each specific type of substrate material to be used on-site should be verified by means of the validation procedure described in Annex 2 of this ETA, based on the requirements given in Annex 2 of EAD 250005-00-0606. The performance given in section 3 of this ETA are only valid if the adhesive is used in compliance with the conditions given in Annex 2.

The provisions made in this ETA are based on a working life of the kit SOLTEC PANEL-FIX of at least 25 years, provided that the conditions laid down in the manufacturer's instructions for the installation, use and maintenance are met. These provisions are based upon the current state of the art and the available knowledge and experience.

The indications given as to the working life of the product cannot be interpreted as a guarantee but are regarded only as a means for choosing the appropriate 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

3.1 Performance of the product

The assessment of SOLTEC PANEL-FIX kit has been performed in accordance with EAD 250005-00-0606 for *Adhesives for wall cladding (March 2018)*.

Table 2: Performance of the product.

Product: SOLTEC PANEL-FIX kit		Intended use: Adhesive for wall cladding	
Basic requirement	Essential characteristic	Performance	
BWR 2 Safety in case of fire	Reaction to fire	NPA ¹	
BWR 3 Hygiene, health and the environment	Content, emissions and/or release of dangerous substances	NPA	
BWR 4 Safety and accessibility in use	Initial mechanical resistance	NT (+ 23 °C)	$\sigma_{u,c} = 1,48$ MPa
		HT (+ 60 °C)	$\sigma_{u,c} = 1,23$ MPa
		LT (- 20 °C)	$\sigma_{u,c} = 1,73$ MPa
	Residual mechanical resistance	Ageing under temperature and high humidity	$\sigma_{u,c} = 1,35$ MPa
		Immersion in water	$\sigma_{u,c} = 1,04$ MPa
		High humidity and NaCl atmosphere	$\sigma_{u,c} = 1,12$ MPa
		High humidity and SO ₂ atmosphere	$\sigma_{u,c} = 1,16$ MPa
		Mechanical fatigue in tension	$\sigma_{u,c} = 1,28$ MPa
	Shear under cyclic loading	$\sigma_{u,c} = 1,52$ MPa $S_{t,c} = 13,1$ %	
	Shear creep and climatic ageing	$S_{t,v} = 0,60$ mm	
Tear resistance	$\sigma_{u,c} = 1,31$ MPa		
Aspects of Durability	Shrinkage	$\Delta m = - 2,7$ % $\Delta V = - 4,2$ %	
	Gas inclusion	Not relevant	
	Effects of materials in contact	$\sigma_{u,c} = 1,09$ MPa No discolouration	
	Specific mass	1,350 kg/l	
	Elastic modulus	1,65 MPa	
	Flow resistance	No flow	
	Hardness	47	
Colour	White		

Note: see table 3 for detailed performance of the mechanical resistance.

¹ NPA: No Performance Assessed.

Table 3: Mechanical resistance of SOLTEC PANEL-FIX kit.

Characteristic		Tensile stress at rupture (MPa)		Elongation at rupture (%)	Ratio	Cohesive rupture (%)
		$\sigma_{u,m}$	$\sigma_{u,c}$	$\epsilon_{u,m}$	ΔX_m	$C_{r,m}$
Initial	NT	1,64	1,48	154	--	94
	HT	1,33	1,23	100	0,81	98
	LT	1,92	1,73	146	1,17	92
Residual	HT+HR	1,63	1,35	151	1,00	97
	H ₂ O	1,20	1,04	131	0,73	91
	HR+NaCl	1,30	1,12	158	0,80	96
	HR+SO ₂	1,24	1,16	127	0,76	97
	MFT	1,68	1,28	136	1,02	99
Shear under cyclic loading		1,67	1,52	--	1,02	98
Tear Resistance		1,44	1,31	105	0,88	93
Effects of materials in contact		1,41	1,09	145	0,74	97

NT: at normal temperature (+ 23 °C).

HT: at high temperature (+ 60 °C).

LT: at low temperature (- 20 °C).

HT+HR: after 1004 ± 4 hours at high temperature (60 ± 2) °C and high relative humidity (85 ± 2) %.

H₂O: after immersion in water for 7 days at normal temperature.

HR+NaCl: after high humidity and NaCl atmosphere for 480 ± 2 hours.

HR+SO₂: after high humidity and SO₂ atmosphere.

MFT: after mechanical fatigue in tension.

u: mean (average) value.

c: characteristic value giving 75% confidence that 95% of the test results will be higher than this value.

ΔX_m : ratio to initial mechanical resistance at normal temperature (mean values).

3.2 Methods used for the assessment

The assessment has been carried in this ETA on HPL panels according to EN 438-7 and anodised aluminium alloy supporting profiles according to EN 755.

3.2.1 Initial mechanical resistance

The initial mechanical resistance has been tested in accordance with section 2.2.4 of EAD 250005-00-0606.

3.2.2 Residual mechanical resistance

The residual mechanical resistance has been tested in accordance with section 2.2.5 of EAD 250005-00-0606.

3.2.3 Shear under cyclic loading

The shear under cyclic loading has been tested in accordance with section 2.2.6 of EAD 250005-00-0606.

3.2.4 Shear creep and climatic ageing

The shear creep and climatic ageing has been tested in accordance with section 2.2.7 of EAD 250005-00-0606.

3.2.5 Tear resistance

The tear resistance has been tested in accordance with section 2.2.8 of EAD 250005-00-0606.

3.2.6 Durability

The relevant characteristics of durability have been tested in accordance with section 2.2.9 of EAD 250005-00-0606. The reference methods are given in the next table.

Table 4: Durability test methods.

Characteristic	Method
Shrinkage	EN ISO 10563
Effects of materials in contact	EAD 250005-00-0606, section 2.2.9.3
Specific mass	EN ISO 1183-1
Elastic modulus	EN ISO 527-3
Flow resistance	EN ISO 7390, method A
Hardness	EN ISO 868
Colour	EN ISO 11664-4

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

According to the Decision 1999/470/EC of the European Commission for construction adhesives, as amended by Commission Decision 2001/596/EC, 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 apply.

Table 5: AVCP system.

Product(s)	Intended use(s)	Level(s) or class(es)	System(s)
Structural adhesives	For uses subject to reaction to fire regulations	NPA	4
	For structural uses in buildings and other civil engineering works	Any	2+

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 and agreed in accordance with EAD 250005-00-0606, section 3.

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

The factory production control operated by the manufacturer shall be in accordance with the above mentioned *Control Plan*.

Issued in Barcelona on 21 March 2024

by the Catalonia Institute of Construction Technology.



Ferran Bermejo Nualart
Technical Director, ITeC

ANNEX 1. Description of the SOLTEC PANEL-FIX components

Information included in tables A1.1 to A1.4 has been provided by the manufacturer.

Table A1.1: Adhesive SOLTEC PANEL-FIX.

Property	Reference	Value
Chemical base	--	Silane modified polymer
Cure mechanism	--	Environment moisture
Density (wet)	Internal manufacturer's method	1,335 kg/l ± 0,020 kg/l
Sagging	ISO 7390	< 2 mm
Application temperature	--	+5 °C to +35 °C
Skin time at 23 °C / 50% RH	Internal manufacturer's method	20 min ± 10 min
Curing speed	Internal manufacturer's method	≥ 3 mm per 24 hours
Service temperature (cured sealant)	--	- 40 °C to + 100 °C
Shelf-life storage	--	12 months

Table A1.2: Primer SOLTEC PANEL-FIX 451SW.

Property	Reference	Value
Chemical base	--	Solution containing isocyanates
Colour	--	Black
Solid content	Internal manufacturer's method	35 % - 38%
Density (wet)	Internal manufacturer's method	0,935 kg/l ± 0,025 kg/l
Application temperature	--	+5 °C to +35 °C
Application method	--	Felt tip applicator
Consumption	--	8,5 ml/m
Drying time	--	< 15 min (≥ 20° C) / > 15 min (< 20° C)
Shelf-life storage	--	12 months

Table A1.3: Promoter SOLTEC PANEL-FIX P202.

Property	Reference	Value
Chemical base	--	Organic polysilane mixture solution
Colour	--	Colourless
Application temperature	--	+5 °C to +35 °C
Application method	--	Tissue
Consumption	--	4 ml/m
Drying time	--	10 min
Shelf-life storage	--	12 months

Table A1.4: Tape SOLTEC PANEL-FIX C.

Property	Reference	Value
Chemical base	--	PE foam/acrylic adhesive
Colour	--	Anthracite grey
Section dimension	--	12 mm x 3 mm
Density	--	50 kg/m ³
Adhesive strength	Afera 5001	(16,0 ± 1,5) N/25 mm
Elongation at break (longitudinal)	ISO 1926	230 %
Elongation at break (transversal)	ISO 1926	200 %
Compressive strength at 10 %	ISO 3386-1	36 kPa
Compressive strength at 25 %	ISO 3386-1	63 kPa
Compressive strength at 50 %	ISO 3386-1	140 kPa
Peel adhesion 180° (30 minutes)	--	≥ 18 N/25 mm
Tensile strength (longitudinal)	ISO 1926	600 kPa
Tensile strength (transversal)	ISO 1926	440 kPa
Application temperature	--	+5 °C to +35 °C
Service temperature	--	-30 °C to +100 °C
Shelf-life storage	--	12 months

ANNEX 2. Design and installation criteria

A2.1. Design

The design of the external wall claddings in ventilated façades using SOLTEC PANEL-FIX kit for bonding the opaque cladding elements on aluminium alloy subframe of vertical profiles shall consider:

- Failure of the adhesive bead might cause risk to human life and/or have considerable economic consequences. Therefore, special care shall be considered with respect to:
 - The verification of the minimum dimension of the adhesive bead bite, bead length and minimum number of beads by each cladding element by means of calculation, considering the design values given in table 1 of this ETA. National safety factors, other National provisions and specific provisions given by the kit manufacturer must be followed.
 - The correct adhesion on the specific substrate materials (cladding element and subframe profile) to be used on-site shall be verified according to the procedure described in section A2.3 with the products actually used in the project. The performance given in section 3 of this ETA are only valid when the adhesive system shows a cohesive failure on the specific substrate materials.
 - The verification of the specific qualification and training of the SOLTEC PANEL-FIX kit installer.
- The verification of the whole external wall cladding design (including cladding elements, subframe components and anchors to the substrate wall) by means of calculation, considering the mechanical characteristic values of each component, to resist the actions (dead loads, wind loads, hygrothermal loads, etc.) applying on the specific works. National safety factors and other National provisions must be followed.
- The accommodation of the designed system movements to the substrate or structural movements.
- The execution of singular parts of the façade; construction details regarding drainage and ventilation provisions should be considered. Water stagnation is not allowed in the vicinity of the adhesive bead. Therefore, the bonded cladding shall be designed with an efficient drainage and ventilation.
- The corrosion protection of the metallic components considering the category of corrosivity of the atmosphere of works (e.g., according to EN ISO 9223).
- Since the joints between cladding elements are usually not watertight, the first layer behind ventilated air space (e.g., insulation layer) should be composed by materials with low water absorption.

A2.2. Installation

Installation of the external wall claddings for ventilated façades using SOLTEC PANEL-FIX kit shall be carried out:

- According to the manufacturer's instructions and using the components specified in this ETA.
- Only on validated substrate materials according to section A2.3, ensuring the cohesive failure of the adhesive SOLTEC PANEL-FIX.

- In accordance with the design and drawings prepared for the specific works. The manufacturer should ensure that the relevant information is provided to those concerned.
- By appropriately qualified staff and under the supervision of the technical responsible of the specific works.
- Components' shelf life and storage conditions must be observed (see tables in Annex 1 of this ETA and manufacturer's manual).

A2.3. Substrate material validation procedure

The correct adhesion of SOLTEC PANEL-FIX kit on each specific substrate material to be installed on-site is verified by the manufacturer before the cladding system validation.

The manufacturer's validation procedure involves the verification of the correct adhesion, cohesive failure, and mechanical properties both at initial conditions and after specific ageing conditions, following the principles given in Annex 2 of EAD 250005-00-0606.

Annex 3 of this ETA includes the specific trade name of the cladding panels that have been accepted by ADHESIVOS SOLTEC SL to be used with SOLTEC PANEL-FIX kit.

ANNEX 3. Cladding panels accepted by ADHESIVOS SOLTEC SL to be used with SOLTEC PANEL-FIX kit (informative)

Table A3.1 includes the trade name of the cladding panels that have been accepted by ADHESIVOS SOLTEC SL to be used with SOLTEC PANEL-FIX kit, which is not part of the assessment carried out in this ETA. This acceptance of ADHESIVOS SOLTEC SL is based on the results of the validation procedure as described in section A2.3.

The assessment of the panels for the use as external wall cladding elements glued to the subframe is not covered, neither by EAD 250005-00-0606 nor by this ETA. Therefore, the panels given in Annex 3 have not been assessed by ITeC for the use as external wall cladding elements glued to the subframe.

Table A3.1: Cladding panels accepted by ADHESIVOS SOLTEC SL to be used with SOLTEC PANEL-FIX kit.

Generic type	Technical reference	Manufacturer	Trade name
HPL laminate	EN 438-7	FUNDERMAX GmbH	FunderMax Exterior
		TRESPA INTERNATIONAL BV	Trespa Meteon
		LAMITECH SAS	Panelex
		PARKLEX PRODEMA INT SL	Naturclad
Fibre-cement panels	EN 12467	ETERNIT NV	Equitone Tectiva
			Equitone Lunara
			Equitone Linea
Ceramic tiles	EN 14411	AZUVI CERAMICS SLU	Lamiker
		COSENTINO GLOBAL SLU	Dekton Protect
Ceramic tiles with a backside fibreglass mesh	--	THE SIZE SURFACES SL	Neolith
		LAMINAM SPA	Laminam 3+
			Laminam 5+
		LEVANTINA Y ASOCIADOS DE MINERALES SA	Techlam
Aluminium composite panels	EAD 210046-00-1201	ALBOND ALUMINIUM AS	Albond
		ELVAL COLOUR IBÉRICA SL	Etalbond
		STAC SL	Stacbond A2
			Stacbond FR
		ALUcoil SA	Larson A2
		Larson FR	
Agglomerated stone	EN 15286	CERÁMICAS CUATRO PALOMAS SA	Gracco Surface ⁽ⁱ⁾
Polymer composite panel	--	ZENON	Zenon Solid Surface
Compressed mineral wool panels	EAD 090001-00-0404	ROCKWOOL PENINSULAR SAU	Rockpanel Colours
			Rockpanel Metals
			Rockpanel Chameleon
			Rockpanel Ply
			Rockpanel Woods
			Rockpanel Stones
			Rockpanel Natural

⁽ⁱ⁾ Gracco Surface cladding panel is installed with complementary mechanical fixing to prevent from excessive shear stress due to its high weight, in accordance with the manufacturer's installation manual (although cohesive failure mode and mechanical resistance of the adhesive system is validated by the manufacturer according to the procedure described in section A2.3).