



**Institut de
Tecnologia de la Construcció
de Catalunya**

Wellington 19
ES08018 Barcelona
T +34 933 09 34 04
qualprod@itec.cat
itec.cat



Member of



www.eota.eu

European Technical Assessment

ETA 17/0519
of 29.06.2017



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	Aislantes térmicos reflexivos WÜRTH
Product family to which the construction product belongs	4 – Thermal insulation products
Manufacturer	WÜRTH ESPAÑA SA C. Joiers 21 ES08184 PALAU-SOLITÀ I PLEGAMANS (Barcelona) Spain
Manufacturing plant(s)	According to annex N kept by ITeC
This European Technical Assessment contains	8 pages including 1 annex 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) 040007-00-1201 <i>Thermal insulation products for buildings with radiant heat reflective component.</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 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 is applicable to the following thermal insulation products with radiant heat reflective components:

- **TERMICPLUS:** thermo-reflective insulation product made with two external aluminium films (7 µm thickness each), one internal layer with air bubbles made of polyethylene. The product is 4 mm thick. The layers are welded by thermo-fusion.
- **TERMICPLUS NEW GENERATION:** thermo-reflective insulation product made with two external aluminium films (7 µm thickness each), two internal layers with air bubbles made of polyethylene. The product is 6 mm thick. The layers are welded by thermo-fusion.
- **TERMICPLUS NEW GENERATION PLUS:** thermo-reflective insulation product made with two external aluminium films (7 µm thickness each), with two internal layers with air bubbles made of polyethylene and one layer of polyethylene foam inside. The product is 9 mm thick. The layers are welded by thermo-fusion.
- **MULTITHERMIC PUR:** thermo-reflective insulation product made with two external aluminium films (7 µm thickness each), with two internal layers with air bubbles made of polyethylene, two layers of polyester foam and one layer of metallic polyester. The product is 9,7 mm thick. The aluminium film and the layer of bubbles are welded by thermo-fusion. Afterwards, the product is assembled by stitching.
- **TERMOPLANE:** thermo-reflective insulation product made with only one aluminium film (7 µm thickness) covered by LDPE (Low Density Polyethylene) in the external surface, with one internal layer with air bubbles made of polyethylene. The product is 8 mm thick. The layers are welded by thermo-fusion.

An aluminium adhesive tape of 50 mm width (CINTA DE ALUMINIO) is used to join the thermal insulation products during the installation.

The ETA has been issued for the products mentioned above on the basis of agreed data/information, deposited with ITeC, which identifies the product that has been assessed. The ETA applies only to products corresponding to this agreed data/information.

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

"Aislantes térmicos reflexivos WÜRTH" products (TERMICPLUS, TERMICPLUS NEW GENERATION, TERMICPLUS NEW GENERATION PLUS, MULTITHERMIC PUR and TERMOPLANE) are intended to be used in constructive systems as a thermal insulation in the following applications:

- **TERMICPLUS, TERMICPLUS NEW GENERATION, TERMICPLUS NEW GENERATION PLUS and MULTITHERMIC PUR:** thermal insulation product to be incorporated in constructive systems in walls, ceilings and roofs.
- **TERMOPLANE:** thermal insulation product to be incorporated in constructive systems in floors (not subject to compression loads).

The thermal properties of these products are related with the surface of low emissivity of the aluminum foil and the non-ventilated air space in contact with it (air gaps on the external surface contribute to the thermal resistance of the solutions with this type of products).

The use as roof underlay is not aimed by this ETA.

The thermal insulation products with radiant heat reflective components will not be used in structures where it will be exposed to compression loads, precipitation, wetting or weathering, nor will be used directly in contact with water or soil nor in constructions with risk that the critical moisture content will be exceeded.

This European Technical Assessment does not cover the complete or finished system of insulation. As for all the insulation products, the specifications of implementation for each construction must comply with the code of practice and national regulations.

The provisions made in this ETA are based on an assumed working life of at least 25 years for the insulation products. 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 means 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 "Aislantes térmicos reflexivos WÜRTH" products related to the basic requirements for construction works (hereinafter BWR) were determined according to EAD 040007-00-1201. Resulting essential characteristics are indicated in table 3.1.

Table 3.1: Performances of "Aislantes térmicos reflexivos WÜRTH".

BWR	ETA sect.	Essential characteristic	Performance of "Aislantes térmicos reflexivos WÜRTH"				
			TERMIC-PLUS	TERMIC-PLUS NEW GENER.	TERMIC-PLUS NEW GENER. PLUS	MULTI-THERMIC PUR	TERMO-PLANE
BWR 2	3.1	Reaction to fire	B-s1,d0	B-s1,d0	B-s1,d0	Not assessed	Not assessed
BWR 4	3.2	Corrosion developing capacity	Pass				
	3.3	Thermal resistance of core (m ² ·K/W)	0,10	0,10	0,26	0,10	0,10
	3.4	Emissivity, ε _{90/90}	0,05				
	3.5	Water vapour diffusion resistance, μ	15.184				10.400
BWR 6	3.6	Geometry					
		Length (m) [- 2%; + 5%]	30	25	25	20	20
		Width (mm) [± 2%]	1.200	1.200	1.200	1.500	1.200
		Thickness (mm) [- 2%; + 5%]	4,0	6,0	9,0	9,7	8,0
	3.7	Mass per unit area (g/m ²) [± 10%]	230	374	360	370	350
	3.8	Tensile strength parallel to faces (kPa)	504	409	288	264	371
	3.9	Peel strength (N/50mm) Before ageing	26				Not assessed

Table 3.1: Performances of "Aislantes térmicos reflexivos WÜRTH".

BWR	ETA sect.	Essential characteristic	Performance of "Aislantes térmicos reflexivos WÜRTH"					
			TERMIC-PLUS	TERMIC-PLUS NEW GENER.	TERMIC-PLUS NEW GENER. PLUS	MULTI-THERMIC PUR	TERMOPLANE	
			After ageing					
			20					
	3.10	Resist. to tearing (N)	Before ageing	27	27	54	76	55
			After ageing	24	24	56	62	51

3.1 Reaction to fire

The determination of reaction to fire of TERMICPLUS, TERMICPLUS NEW GENERATION and TERMICPLUS NEW GENERATION PLUS has been done according to EN ISO 11925-2 and EN 13823.

The reaction to fire of TERMICPLUS, TERMICPLUS NEW GENERATION and TERMICPLUS NEW GENERATION PLUS according to EN 13501-1 is class B-s1,d0.

The reaction to fire of MULTITHERMIC PUR and TERMOPLANE has not been assessed.

3.2 Corrosion developing capacity

The determination of resistance to the corrosion developing capacity has been tested according to EN ISO 9227 (see section 2.2.7 of EAD 04007-00-1201). NSS has been used for testing.

The test has been passed.

3.3 Thermal resistance of core

The thermal conductivity of the product is determined and declared according section 2.2.13 of EAD 040007-00-1201, which refers to EN 16012. With reference to EN 16012, the samples have been tested according to EN 12667. The conditioning (23 °C and 50% RH) of the samples and other aspects of assessing follow section 2.2.13.2 of the above mentioned EAD.

The declared thermal resistance R_D (declared thermal resistance representing at least 90% of the production determined with a confidence level of 90%, $R_{10,90/90}$) is determined with reference to EN ISO 10456. The declared values are:

- TERMICPLUS: 0,10 (m²·K/W)
- TERMICPLUS NEW GENERATION: 0,10 (m²·K/W)
- TERMICPLUS NEW GENERATION PLUS: 0,26 (m²·K/W)
- MULTITHERMIC PUR: 0,10 (m²·K/W)
- TERMOPLANE: 0,10 (m²·K/W)

3.4 Emissivity

The emissivity of the external reflective surfaces of the insulation product has been assessed according to section 2.2.15 of EAD 040007-00-1201. Tests have been done according to clause 5.9 and Annex D of EN 16012. The samples were aged in accordance with clause 5.3 of Annex D of EN 16012 (28 days to 70 °C and 90% RH).

The declared value of emissivity ϵ_D (declared emissivity representing at least 90% of the production determined with a confidence level of 90%, $\epsilon_{90/90}$) is: $\epsilon_D = \epsilon_{90/90} = 0,05$.

3.5 Water vapour diffusion resistance

Water vapour permeability (resistance to water vapour diffusion) has been tested according to EN ISO 12572 (see section 2.2.16 of EAD 040007-00-1201). Samples were done with two pieces of the insulation product joined with the adhesive tape.

The results of the test are shown in table 3.1.

3.6 Geometry

Length and width have been determined in accordance with EN 822 and thickness has been determined according to EN 16012 (see section 2.2.19 of EAD 04007-00-1201).

The results are shown in table 3.1.

3.7 Mass per unit area

Mass per unit area has been determined in accordance with EN 1602 (see section 2.2.20 of EAD 040007-00-1201).

The results are shown in table 3.1.

3.8 Tensile strength parallel to faces

Tensile strength parallel to faces has been tested according to EN 1608 (see section 2.2.24 of EAD 040007-00-1201).

The results are shown in table 3.1.

3.9 Peel strength or mechanical resistance of the adhesive tape

The mechanical resistance of the adhesive tape (CINTA DE ALUMINIO) to the foil surface of "Aislantes térmicos reflexivos WÜRTH" products has been determined according to EN ISO 11339 (see section 2.2.6 of EAD 040007-00-1201). The test has been carried out before and after ageing the samples according to clause 5.3 of Annex D of EN 16012.

The results are shown in table 3.1.

3.10 Resistance to tearing

The resistance to tearing (nail shank) has been determined according to EN 12310-1 (see section 2.2.26 of EAD 040007-00-1201). The test has been carried out before and after ageing the samples according to clause 5.3 of Annex D of EN 16012.

The results of the test are shown in table 3.1.

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

According to the decision 1999/91/EC of the European Commission¹ amended by Decision 2001/596/EC of the European Commission², the system 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(s)	System
TERMICPLUS TERMICPLUS NEW GENERATION TERMICPLUS NEW GENERATION PLUS MULTITHERMIC PUR TERMOPLANE	Both for thermal insulation uses subject and not subject to fire regulations.	3

5 Technical details necessary for the implementation of the AVCP system, as provided for 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.

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 29 June 2017

by the Catalonia Institute of Construction Technology.



Ferran Bermejo Nualart

Technical Director, ITeC

¹ Official Journal of the European Union (OJEU) L29/44 of 03/02/1999.

² Official Journal of the European Union (OJEU) L209/33 of 02/08/2001.

³ The *Control Plan* is a confidential part of the ETA.

Annex 1: Additional information

A1.1 Design and installation parameters related to the water vapour diffusion resistance

The product will be installed on the warm side of the construction.

Constructions integrating the reflective product must be designed and executed to avoid interstitial and surface condensation.

A1.2 Aspects related to the determination of thermal resistance and coefficient U of thermal transmission of construction works.

The value of thermal resistance or of thermal coefficient of transmission U of a wall is to be determined in accordance with the relevant national provisions and based on actual installation configuration.

Once installed the insulation product, the thermal resistance of the wall increases by the effect of the thermal resistance of the core of the product and the thermal resistance of the air spaces neighbouring its side(s). The global thermal resistance (it means the thermal resistance of the product together with the thermal resistance of the air spaces) will be determined according to EN ISO 6946.

The thermal resistance of each air cavity depends on:

- design emissivity of the product,
- design thickness of each air space⁴,
- ventilation rate of each air space (tight, weakly or highly ventilated),
- orientation of wall: heat flow up, down or horizontal.

In absence of air spaces next to "Aislantes térmicos reflexivos WÜRTH" products, the thermal resistance of the product once installed is equal to the intrinsic thermal resistance given in section 3.3 of the present ETA.

A1.3 Durability of thermal resistance

The value of emissivity given in the present ETA (see section 3.4) already provides information of the ageing of the low emissivity surface because the tested samples were aged samples.

⁴ The minimum thickness recommended for the air cavity is 20 mm; these cavities need to be airtight.