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European Technical Assessment

ETA 16/0046
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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	AIR-BUR TERMIC®
Product family to which the construction product belongs	4 – Thermal insulation products
Manufacturer	BUR 2000 SAU C. Progrés 45 ES08850 GAVÀ (Barcelona) Spain
Manufacturing plant(s)	Camí dels Sagraments, 34 Polígono Industrial Sant Ermengol ES-08630 Abrera Spain
This European Technical Assessment contains	9 pages including 1 annex which forms an integral part of this assessment.
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>
This version replaces	ETA 16/0046, issued on 22.12.2016

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.

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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:

- AIR-BUR TERMIC 10: 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.
- AIR-BUR TERMIC DB: 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.
- AIR-BUR TERMIC DBF: 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.
- AIB-BUR MULTITERMIC: 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.
- AIR-BUR TERMIC S-YC: 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 can be 8 mm and 13 mm thick. The layers are welded by thermo-fusion.
- AIR-BUR TERMIC CM XPS: 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 of XPS (extruded polystyrene foam). The product can be 24, 34, 44, 54, 64, or 84 mm thick.

An aluminium adhesive tape of 50 mm width (CintAlu) is used to join the AIR-BUR TERMIC reflective insulation products during the installation. Alternatively, for AIR-BUR TERMIC S-YC and AIR-BUR TERMIC CM XPS, a cross-linked polyethylene foam adhesive tape of 45 mm (CintPex) can be used too.

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)

AIR-BUR TERMIC products (AIR-BUR TERMIC 10, AIR-BUR TERMIC DB, AIR-BUR TERMIC DBF, AIR-BUR MULTITERMIC, AIR-BUR TERMIC S-YC and AIR-BUR TERMIC CM XPS) are intended to be used in constructive systems as a thermal insulation in the following applications:

- AIR-BUR TERMIC 10, AIR-BUR TERMIC DB, AIR-BUR TERMIC DBF and AIR-BUR MULTITERMIC: thermal insulation product to be incorporated in constructive systems in walls, ceilings and roofs.
- AIR-BUR TERMIC S-YC and AIR-BUR TERMIC CM XPS: thermal insulation product to be incorporated in constructive systems in floors, ceilings and roofs.

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

The thermal insulation products with radiant heat reflective components will not be used in structures where it will be exposed to compression loads (except for AIR-BUR TERMIC S-YC and AIR-BUR TERMIC CM XPS), 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 AIR-BUR TERMIC 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 AIR-BUR TERMIC products related to the basic requirements for construction works (hereinafter BWR) were determined according to EAD 040007-00-1201. Resulting essential characteristics of AIR-BUR TERMIC are indicated in table 3.1.

Table 3.1: Performance of AIR-BUR TERMIC.

BWR	Essential characteristic	Performance of AIR-BUR							
		TERMIC 10	TERMIC DB	TERMIC DBF	MULTI TERMIC	TERMIC S-YC	TERMIC CM XPS		
BWR 2	Reaction to fire	B-s1,d0	B-s1,d0	B-s1,d0	Not assessed	Not assessed	Not assessed		
BWR 3	Biological resistance	Not relevant							
BWR 4	Corrosion developing capacity	Pass							
BWR 5	Specific airflow resistivity	Not relevant							
	Dynamic stiffness	Not relevant							
	Impact sound reduction	Not relevant							
	Compressibility	Not relevant							
	Sound absorption	Not relevant							
BWR 6	Thermal core resistance (m ² ·K/W)	0,10	0,10	0,25	0,10	8 mm	0,25	24 mm	0,70
								34 mm	1,00
								44 mm	1,30
						13 mm	0,25	54 mm	1,60
								64 mm	1,90
								84 mm	2,50
	Durability of thermal resistance against ageing/ degradation	See section 3.4 and A1.3.							

Table 3.1: Performance of AIR-BUR TERMIC.

BWR	Essential characteristic	Performance of AIR-BUR							
		TERMIC 10	TERMIC DB	TERMIC DBF	MULTI TERMIC	TERMIC S-YC	TERMIC CM XPS		
	Emissivity, $\epsilon_{90/90}$	0,05							
	Water vapour diffusion resistance, μ	(CintAlu)	15.184		CintAlu	10.400	CintAlu	531	
					CintPex	126	CintPex	18	
	Water absorption	Not assessed							
	Watertightness	Not assessed							
Geometry	Length (m) [-2%; +5%]	50	25	25	20	20	1,25		
	Width (mm) [$\pm 2\%$]	1.200	1.200	1.200	1.500	1.200	1.200		
	Thickness (mm) [-2%; +5%]	4,0	6,0	9,0	9,7	8,0 13,0	24,0 34,0 44,0 54,0 64,0 84,0		
Mass per unit area (kg/m ²) [$\pm 10\%$]		0,23	0,37	0,36	0,37	8 mm	0,35	24 mm	0,83
								34 mm	1,17
						13 mm	0,46	44 mm	1,51
								54 mm	1,86
								64 mm	2,20
84 mm	2,89								
Squareness S_b (mm/m)	Not relevant						0		
Compressive strength for products exposed to compression loads, σ_m (kPa)	Not relevant				10		60		
Dimensional stability (%)								$\Delta_{\epsilon l}$	0,5
								$\Delta_{\epsilon b}$	-0,3
								$\Delta_{\epsilon d}$	0,3
Tensile strength parallel to faces (kPa)	504	409	288	264	371		Not assessed		
Tensile strength perpendicular to faces	Not assessed								
Resist. to tearing (N)	Before ageing	27	27	54	76	55		263	
	After ageing	24	24	56	62	51		255	

Table 3.1: Performance of AIR-BUR TERMIC.

BWR	Essential characteristic	Performance of AIR-BUR				
		TERMIC 10	TERMIC DB	TERMIC DBF	MULTI TERMIC	TERMIC S-YC
Peel strength	Before ageing	26 (N/50mm)			8 (N/100mm)	4 (N/100mm)
	After ageing	20 (N/50mm)			7 (N/100mm)	2 (N/100mm)
Compressive creep for products exposed to compression load		Not relevant			See section 3.6	See section 3.6
Behaviour under point load for products exposed to compression load (N)		Not relevant			6	1450

3.1 Reaction to fire

The determination of reaction to fire of AIR-BUR TERMIC 10, AIR-BUR TERMIC DB and AIR-BUR TERMIC DBF has been done according to EN ISO 11925-2 and EN 13823.

The reaction to fire of AIR-BUR TERMIC 10, AIR-BUR TERMIC DB and AIR-BUR TERMIC DBF according to EN 13501-1 is class B-s1,d0.

The reaction to fire of AIR-BUR MULTITERMIC, AIR-BUR TERMIC S-YC and AIR-BUR TERMIC CM XPS 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 to section 2.2.13 of EAD 04007-00-1201, 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:

- AIR-BUR TERMIC 10: 0,10 (m²·K/W)
- AIR-BUR TERMIC DB: 0,10 (m²·K/W)
- AIR-BUR TERMIC DBF: 0,26 (m²·K/W)
- AIR-BUR MULTITERMIC: 0,10 (m²·K/W)

- AIR-BUR TERMIC S-YC:
 - 8 mm: 0,25 (m²·K/W)
 - 13 mm: 0,25 (m²·K/W)
- AIR-BUR TERMIC CM XPS:
 - 24 mm: 0,70 (m²·K/W)
 - 34 mm: 1,00 (m²·K/W)
 - 44 mm: 1,30 (m²·K/W)
 - 54 mm: 1,60 (m²·K/W)
 - 64 mm: 1,90 (m²·K/W)
 - 84 mm: 2,50 (m²·K/W)

3.4 Emissivity

The emissivity of the external reflective surfaces of the insulation product has been assessed according to section 2.2.11 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 (CintAlu). Two different adhesive tapes (CintAlu and CintPex) were employed for AIR-BUR S-YC and AIR-BUR TERMIC CM XPS products.

The results of the test are shown in table 3.1.

3.6 Compressive creep for products exposed to compression load

Compressive creep, X_{ct} , and the corresponding compressive stress σ_c have been tested according to EN 1606 (see section 2.2.24 of EAD 04007-00-1201). The results of the test are shown in table below.

Table 3.2: Compressive creep test results.

Product	Total thickness reduction (X_t)	Compressive stress σ_c (kPa)	Expected deformation to ten years (mm)	Expected relative deformation to ten years (%)	Expected relative creep to ten years (%)
TERMIC S-YC	$X_t = 0,02 + 0,223644 \cdot t^{0,22341}$	2,2	2,87	37	36,7
TERMIC CM XPS	$X_t = 3,065 + 1,011514 \cdot t^{0,22341}$	100	5,2	15,4	6,4

Where:

t in hours

X_t in mm

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 AVCP system.

Product	Intended use(s)	System
AIR-BUR TERMIC 10		
AIR-BUR TERMIC DB		
AIR-BUR TERMIC DBF	Both for thermal insulation uses subject and not subject to fire regulations.	3
AIR-BUR MULTITERMIC		
AIR-BUR TERMIC S-YC		
AIR-BUR TERMIC CM XPS		

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 20 September 2023

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 or floor: heat flow up, down or horizontal.

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.