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European Technical Assessment

ETA-21/0623 of 26-10-2022

General Part

Technical Assessment Body issuing the European Technical Assessment

Kiwa Nederland B.V.

Trade name of the construction product

ArmaPET Eco50

Product family to which the construction product belongs

CPR PAC: 4. Thermal insulation products;
 Composite insulating kits / systems

Manufacturer

Armacell Benelux S.C.S.
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Manufacturing plant(s)

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This European Technical Assessment contains

6 pages

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of

EAD 040179-00-1201
 Factory-made products of extruded, foamed polyethylene terephthalate (PET) for thermal and/or acoustical insulation

This version replaces

N/A

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1. Technical description of the product

This European Technical Assessment applies to foam boards manufactured from extruded foamed polyester terephthalate (PET) with the following standard dimensions:

nominal thickness: 20-200 mm
nominal length: 500 mm, 600 mm, 2448 mm, 3000 mm
nominal width: 500 mm, 600 mm, 1000 mm, 1220 mm

Further dimensions on special request.

The insulation material is not faced.

The material is a post-consumer PET with a percentage of virgin PET of 0%.

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

2.1 Intended use

The foam boards “ArmaPET Eco50” are intended to be used for thermal insulation in walls (including cellar walls), ceilings, floors, roofs, between rafters and timber work.

The provisions made in this ETA are based on an assumed intended working life of 50 years for the insulation product. 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 product in relation to the expected reasonable working life of the works.

2.2 Manufacturing

The composition and the manufacturing process of the thermal / acoustical insulation products shall correspond to the product subject to the assessment testing. Details of the composition and manufacturing process are deposited at Kiwa Nederland B.V.

2.3 Design and installation

ArmaPET Eco50 can be used on its own and/or as part of a system depending on the application. When used in combination with other materials, compatibility testing should be carried out.

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

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

The reaction to fire was assessed in accordance with EN-ISO 11925-2 and was classified as **class E** in accordance with EN 13501-1.

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Release of dangerous substances

No Performance Assessed.

3.2.2 Water vapour transmission

The water vapour transmission properties were assessed in accordance with EN 12086/set A.

The water vapour diffusion resistance factor, μ , for products without facing: $\mu > 1000$.

3.3 Safety and accessibility in use (BWR 4)

3.3.1 Compressive stress or compressive strength

The compressive stress σ_{10} at 10% relative deformation was assessed in accordance with EN 826.

The compressive stress expressed as CS(10\Y)i, whereby "i" is the value in kPa:

CS(10\Y)150

3.3.2 Dimensional stability under specified temperature and humidity conditions

The dimensional stability under specified temperature and humidity conditions (48h, 70°C, 90% R.H.) of the board was assessed in accordance with EN 1604.

For thicknesses 20-40mm:

The relative change in length $\Delta\varepsilon_l \leq 6 \%$

The relative change in width $\Delta\varepsilon_b \leq 6 \%$

The relative change in thickness $\Delta\varepsilon_d \leq 6 \%$

For thicknesses 41-200mm:

The relative change in length $\Delta\varepsilon_l \leq 5 \%$

The relative change in width $\Delta\varepsilon_b \leq 5 \%$

The relative change in thickness $\Delta\varepsilon_d \leq 5 \%$

3.3.3 Dimensional stability under constant normal laboratory conditions

The dimensional stability under constant normal laboratory conditions (23°C, 50% R.H.) of the board was assessed according EN 1603.

The relative change in length $\Delta\varepsilon_l \leq \pm 1 \%$

The relative change in width $\Delta\varepsilon_b \leq \pm 1 \%$

3.3.4 Bending strength

No performance assessed.

3.3.5 Shear strength

No performance assessed

3.4 Protection against noise (BWR 5)

- 3.4.1 Specific air flow resistivity (for airborne sound insulation)
No Performance Assessed.
- 3.4.2 Sound absorption (acoustic absorption index) (for airborne sound insulation)
No Performance Assessed.
- 3.4.3 Dynamic stiffness (for impact sound material only)
No Performance Assessed.
- 3.4.4 Compressibility (for impact sound material only)
No Performance Assessed.

3.5 Energy economy and heat retention (BWR 6)

- 3.5.1 Thermal resistance and thermal conductivity
The thermal resistance and thermal conductivity were assessed in accordance with clause 4.2.1 of EN 13164 and EN 12667.

The thermal conductivity of the board $\lambda_D = 0,035 \text{ W/(m.K)}$

For the thermal resistance of the board R_D , see Table 1:

Table 1: thermal resistance R_D ($\text{m}^2.\text{K/W}$)

Nominal thickness d_N (mm)	ArmaPet Eco50 $\lambda_D = 0,035 \text{ W/(m.K)}$
20	0,55
30	0,85
40	1,10
50	1,40
60	1,70
70	2,00
80	2,25
90	2,55
100	2,85
110	3,10
120	3,40
130	3,70
140	4,00
150	4,25
160	4,55
170	4,85
180	5,10
190	5,40
200	5,70

3.5.2 Dimensions

3.5.2.1 Thickness

The thickness of the board was assessed in accordance with EN 823.

The deviation from the nominal thickness does not exceed $\pm 1 \text{ mm}$. The tolerance class is **T3**.

3.5.2.2 Length

The length of the board was assessed in accordance with EN 822.

The deviation from the nominal length does not exceed ± 8 mm for products ≤ 1500 mm.

The deviation from the nominal length does not exceed ± 10 mm for products > 1500 mm.

3.5.2.3 Width

The width of the board was assessed in accordance with EN 822.

The deviation from the nominal length does not exceed ± 8 mm for products ≤ 1500 mm.

The deviation from the nominal length does not exceed ± 10 mm for products > 1500 mm.

3.5.2.4 Squareness

The squareness of the board was assessed in accordance with EN 824.

The deviation from squareness on length and width does not exceed **5 mm/m**.

3.5.2.5 Flatness

The flatness of the board was assessed in accordance with EN 825.

The deviation from the flatness does not exceed **6 mm**.

3.5.3 Short-term water absorption by partial immersion

No Performance Assessed.

3.5.4 Long-term water absorption by immersion

The long-term water absorption by total immersion W_{It} was assessed in accordance with EN 12087, method 2A.

The value of the long-term water absorption by total immersion $WL(T)_i$ in volume %, whereby "i" is the value in volume %: **WL(T)3**.

3.5.5 Long-term water absorption by diffusion

No Performance Assessed.

3.5.6 Freeze-thaw resistance

No Performance Assessed.

3.5.7 Deformation under specified compressive load and temperature conditions

The deformation under specified load and temperature conditions was assessed in accordance with EN 1605.

The level of deformation is **DLT(2)5**.

3.5.8 Tensile strength perpendicular to faces

No Performance Assessed.

3.5.9 Compressive creep

No Performance Assessed.

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

4.1 Systems of AVCP

The AVCP systems of factory made thermal insulation products, established by EC decision 95/204/EC of 31.05.95 (OJ L 129) revised by decision 99/91/EC of 25.01.99 (OJ L 29) amended by the decision 01/596/EC of 8th January 2001 (OJ L 209), are shown in Table 2 for the indicated intended use and relevant level(s) or class(es) of performance.

Table 2 - AVCP system of factory-made thermal insulation products for any intended use

Product(s)	Intended use(s)	Level(s) or class(es) (reaction to fire)	AVCP system(s)
Thermal insulation products (Factory made products)	For uses subject to regulations on reaction to fire	(A1, A2, B, C) ^a	1
		(A1, A2, B, C) ^b , D, E	3
		(A1 to E) ^c , F	4
	Any	-	3
System 1: See Regulation (EU) 305/2011 (CPR) Annex V, 1.2 System 3: See Regulation (EU) 305/2011 (CPR) Annex V, 1.4 System 4: See Regulation (EU) 305/2011 (CPR) Annex V, 1.5			
^a Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)			
^b Products/materials not covered by footnote (a).			
^c Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of classes A1 according to Commission Decision 96/603/EC, as amended).			

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 ACVP system are laid down in the control plan which is deposited at Kiwa.

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