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European Technical Assessment ETA-09/0020 of 01-08-2019

General Part

Technical Assessment Body issuing the European Technical Assessment	Kiwa Nederland B.V.
Trade name of the construction Product	Pan-terre Nature
Product family to which the construction product belongs	CPR PAC: 4.Thermal insulation products; Composite insulating kits / systems
Manufacturer	Pan-Terre SAFS Rue de Milmort, 690 B - 4040 Herstal, Belgium Telephone: +32 240 58 58 Website: www.terre.be Mail: info@terre.be
Manufacturing plant(s)	Pan-Terre SAFS P.I. des Hauts-Sarts 4ème Avenue, 45 B - 4040 Herstal, Belgium
This European Technical Assessment contains	9 pages
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 040005-00-1201 Factory-made thermal and/or acoustic insulation products made of vegetable or animal fibres
This ETA replaces	ETA 09/0020, issued on 01-06-2013

1. Technical description of the product

This European Technical Assessment applies to boards manufactured from a mixture of cellulose and vegetable fibres with the following dimensions:

nominal thickness: 16 mm
nominal length: 2500 mm
nominal width: 1200 mm

The insulation material is not faced.

The dimensions correspond to the delivery program of the manufacturer.

The cellulose fibres, fabricated from waste paper comply to class 1.02 of EN 643.
NOTE: *class 1.02 equals "mixed papers and boards (sorted)" which contains a maximum of 40 % of news papers and magazines.*

The vegetable fibres meet the following criteria:
- fibre length : maximum 50 mm;
- amount of dust : maximum 10 %

The ratio cellulose fibres to vegetable fibres in the board amounts (70 ± 3)% to (30 ± 3)%.

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

The boards "Pan-terre Nature" are used in non-load bearing constructions, for airborne sound insulation in walls and or floors.

The product shall not be used in structures where it will be exposed to wetting or weathering and such constructions with direct contact to the soil.

The corrosion developing capacity of the insulation product has not been determined. Suitable measures might be necessary to avoid corrosion of metal parts of the construction in contact with.

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.

3. Performance of the product in relation to essential characteristics of the product and references to the assessment methods used for its assessment

3.1 Reaction to fire

The reaction to fire of the board is classified as **Class D** according EN 13501-1.

3.2 Biological resistance

The test and the assessment of the resistance to growth of mould fungus has been verified following the procedure as detailed in the EOTA testing procedure (Annex C of EAD " Factory-made thermal insulation material and/or acoustic insulation material made of vegetable or animal fibres ; edition 15 June 2015")
The reached class of the board is **2**.

3.3 Corrosion developing capacity
No performance assessed.

3.4 Specific airflow resistivity
The specific airflow resistivity is assessed according EN 29053 (ISO 9053).
The results are given in table 1.

Table 1 – Specific Airflow resistivity

Nominal Thickness	Airflow resistivity *r* in kPa.s/m^2
16	10155

3.5 Dynamic stiffness
No Performance Assessed.

3.6 Impact sound reduction
No Performance Assessed.

3.7 Compressibility
No Performance Assessed.

3.8 Sound absorption (sound absorption index)
The “sound absorption coefficient”, σ_S , is assessed according EN ISO 354 with the type “A “ mounting.
The “practical absorption coefficient”, σ_P , and the “weighed sound absorption coefficient” , σ_W , are calculated according EN ISO 11654.
The “Noise Reduction Coefficient (NRC)” is calculated according ASTM –C423.

The values for the “sound absorption coefficient”, σ_S , are measured on boards with nominal thicknesses of 16 mm and a nominal density of 310 kg/m^3 .
The results of the measurements and calculations are given in table 2.

Table 2 – Sound absorption coefficients σ_S , σ_P , σ_W and **NRC**

	16 mm	
Frequentie in Hz	σ_S	σ_P
125	0,10	0,11
250	0,32	0,30
500	0,27	0,28
1000	0,20	0,21
2000	0,23	0,23
4000	0,29	0,27
	σ_W	
	0,25	
	NRC	
	0,25	

3.9 Thermal conductivity
The intended use of the insulation is airborne sound insulation, therefore the characteristic “thermal conductivity” is not addressed.
No Performance Assessed.

3.10 Water vapour diffusion resistance

The water vapour diffusion factor of the board is assessed according to EN 12086.
The result is **μ = 1** (see 5.2.1.1).

3.11 Water absorption

No Performance Assessed.

3.12 Geometry

3.12.1 Thickness

The thickness of the board is assessed according EN 823, with a load of 50 Pa.
The deviation from the nominal thickness does not exceed **± 1,0 mm**.

3.12.2 Length

The length of the board is assessed according EN 822.
The deviation from the nominal length does not exceed **± 5,0 mm (± 0,2 %)**.

3.12.3 Width

The width of the board is assessed according EN 822.
The deviation from the nominal width does not exceed **± 5,0 mm (± 0,4 %)**.

3.12.4 Squareness

The squareness of the board is assessed according EN 824.
The deviation from squareness on length and width does not exceed **5 mm/m**.

3.12.5 Flatness

The flatness of the board is assessed according EN 825.
The deviation from the flatness shall not exceed **5 mm**.

3.13 Density

The density of the board is assessed according EN 1602.

The nominal density of the board is **310 kg/m^3.**
The tolerance on the nominal density is **± 20 kg/m^3.**

3.14 Flatness after one-sided wetting

No Performance Assessed.

3.15 Compressive stress or strength

No Performance Assessed.

3.16 Dimensional stability under specified temperature and humidity

The dimensional stability of the board is assessed according EN 1604 after conditioning for 48 h at a temperature of (70 ± 2) ºC and a relative humidity of (50 ± 5) %.

The relative change in length is $\Delta\varepsilon_l$ **< 1,0 %**
The relative change in width is $\Delta\varepsilon_b$ **< 1,0 %**
The relative change in thickness is $\Delta\varepsilon_d$ **< 1,0 %**

3.17 Deformation under specified compressive load and temperature conditions

No Performance Assessed.

3.18 Tensile strength parallel

No Performance Assessed.

3.19 Tensile strength perpendicular to faces
No Performance Assessed.

3.20 Tensile strength perpendicular to faces in wet conditions
No Performance Assessed.

3.21 Compressive creep
No Performance Assessed.

3.22 Behaviour under point load
No Performance Assessed.

3.23 Shear strength and shear modulus of elasticity
No Performance Assessed.

4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied

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 3 for the indicated intended use and relevant level(s) or class(es) of performance.

Table 3 - 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).			

When a product is classified as E, the level of AVCP shall be 3.

Concerning table 3, footnote [c], this is not applicable for the thermal and/or acoustic insulating product made of vegetable or animal fibres, because all the products are

based on organic material and therefore not covered by the Commission Decision 96/603/EC[1] and its amendment.

For the products falling under system 3 for the product performance assessment of the acoustical insulation board [see Annex V, 1.4 (b) of the CPR] the task for the assessment body will be limited to the following characteristics:

- Dimensional stability under specified temperature and humidity conditions;
- Specific airflow resistance;
- Sound absorption;
- Resistance to biological actions.

For product performance assessment, the rest of the characteristics in clause 3 are being under the responsibility of the manufacturer.

4.2 Responsibilities

4.2.1 Tasks of the manufacturer

The manufacturer has in his plant an FPC system and exercises permanent internal control of production.

All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. The FPC system has to ensure that the products are in conformity with the declarations in this European Technical Assessment.
In the framework of FPC the manufacturer shall carry out tests and controls with the prescribed test plan[2], which is part of this European Technical Assessment.

In this test plan are detailed extent, nature and frequency of testing and controls to be performed.
The results of FPC are recorded and evaluated. The records shall include at least the following information:

- designation of products and the constituents (raw materials);
- type of control or testing;
- date of manufacture of the products and date of testing of the products and the constituents;
- result of control and testing and comparison with requirements and declarations;
- result of treatment of products, which do not conform to the declarations;
- signature of the person responsible for the FPC.

On request the results shall be presented to Kiwa Nederland B.V.
The “Factory Production Control” plan shall address at least the following items / characteristics and (minimum) frequencies as detailed in Table 5.

[1] Official Journal of the European Communities N° L 267, 19.10.1996, p. 23

[2] The prescribed test plan has been deposited at Kiwa Nederland B.V.

Table 5 – Factory Production Control plan

Nr	Subject/type of control	Minimum frequency of control
(1)	(2)	(3)
1	Cellulose fibres	Per delivered batch
2	Vegetable fibres	Per delivered batch
3	Thickness	One panel per pallet
4	Length	One panel per pallet
5	Width	One panel per pallet
6	Squareness	One panel per pallet
7	Flatness	One panel per pallet
8	Density	One panel per pallet

Forty panels are stocked per pallet.

4.2.2 Tasks of the Technical Assessment Bodies

4.2.2.1 Product performance assessment of the products

For product performance assessment the results of the tests performed as part of the assessment for the European Technical Assessment shall be used, unless there are changes in the composition of the product (raw materials), production line or plant. In such cases the necessary product performance assessment has to be agreed between the manufacturer and Kiwa Nederland B.V. This testing can result in a revision of the European Technical Assessment.

4.3 CE marking

The CE marking shall be affixed on the products, the packaging or the attached label. The symbol "CE" shall be accompanied by the following information:

- Number of the ETA – **ETA – 09/0020**;
- Trade name of the product – **PAN-TERRE NATURE**;
- Name or identification mark of the producer and manufacturing plant;
- Last two digits of the year in which the CE marking was affixed;
- Intended use of the product – **Airborne sound insulation**;
- Nominal density, nominal dimensions (length, width and thickness);
- Class of reaction to fire – Class **D**;
- Water vapour diffusion factor – **μ = 1**;
- Dimensional stability;
- Specific airflow resistivity;
- Sound absorption coefficient, practical absorption coefficient and noise reduction coefficient (NRC).

5. Assumptions under which the fitness of the products for the intended use was favourably assessed

5.1 Manufacturing

The thermal insulation products shall correspond as far as their composition and manufacturing process is concerned to the products subject to the assessment tests.

The composition and the manufacturing process of the airborne sound insulation product correspond to the product subject to the assessment testing. Details of the composition and manufacturing process are deposited at Kiwa Nederland B.V.

5.2 Installation

5.2.1 Parameters for the design of construction works or parts of construction works

5.2.1.1 Value of water vapour diffusion resistance

For evaluating the diffusion equivalent thickness of air layer of the thermal insulation products the value **μ = 1** of water vapour diffusion resistance factor shall be used. The construction shall be designed and installed in such a way that no harmful condensation occurs within the works.

5.2.1.2 Sound insulation

For the application of the product for acoustical insulation it is necessary to have knowledge how to use the practical absorption coefficient σ_P and weighed sound absorption coefficient σ_W .

5.2.2 Parameters for the installation in the construction works or parts of construction works

The fitness for the intended use of the product Pan-Terre Nature is given under the following conditions:

- The installation shall be carried out by appropriate personnel under the supervision of the project representative;
- The installation shall be carried out in accordance the manufacturer's specifications (installation guidelines).

6. Recommendations for the manufacturer

6.1 Recommendations on packaging, transport and storage

Packaging of the products has to be such that they are protected from moisture during transport and storage unless other measures are foreseen by the manufacturer for this purpose.

6.2 Recommendations on installation

At installation the product shall be protected from moisture. The installation guidelines of the manufacturer shall be followed.

6.3 Accompanying information

In the information accompanying the CE marking the manufacturer shall indicate that product during transport, storage and installation shall be protected from moisture. The responsibility of the manufacturer is further to ensure that the information on the installation procedure is clearly shown on the package and/or the enclosed instruction sheet.

7. Bibliography

EN 822	Thermal insulating products for building applications – Determination of length and width
EN 823	Thermal insulating products for building applications – Determination of thickness
EN 824	Thermal insulating products for building applications – Determination of squareness
EN 825	Thermal insulating products for building applications – Determination of flatness
EN 643	Paper and board – European list of standard grades of recovered paper and board

EN 1602	Thermal insulating products for building applications – Determination of the apparent density
EN 1604	Thermal insulating products for building applications – Determination of dimensional stability under specified temperature and humidity conditions
EN 13501-1	Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests
EN ISO 354	Acoustics – Measurements of sound absorption in a reverberation room
EN ISO 11654	Sound absorbers for use in buildings – Rating of sound absorption
EN 2905 (ISO 9053)	Acoustics – Materials for acoustical applications – Determination of airflow resistance
ASTM C 423 – 08	Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

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