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Designated according to Article 29 of Regulation (EU) No 305/2011

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European Technical Assessment

ETA 17/0610
of 19/12/2017

General Part

Technical Assessment Body issuing the ETA:	**TECNALIA RESEARCH & INNOVATION**
Trade name of the construction product	AISLANAT
Product family to which the construction product belongs	In-situ formed loose fill thermal insulation product made of cellulose fibres
Manufacturer	AISLANAT, S.L. Polígono Ezkabarte c/N, Nave 3 31194 Oricain, Navarra, Spain http://www.aislantesaislanat.es/
Manufacturing plant	AISLANAT, S.L. Polígono Ezkabarte c/N, Nave 3 31194 Oricain, Navarra, Spain
This European Technical Assessment contains	11 pages including 1 annex which form an integral part of this assessment.
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) No. 040138-00-1201 for "In-situ formed loose fill thermal and/or acoustic insulation products made of vegetables fibres"

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 Part

1. Technical description of the product

This European Technical Assessment applies to the thermal insulating material made of loose, free cellulose fibres with designation "AISLANAT".

The cellulose fibres are produced from waste paper by mechanical crushing. The reaction to fire classification of the product is improved during the production process by adding of fire retardant on the basis of boric acid and borax pentahydrate. Detailed information about the fire retardant is deposited on TECNALIA.

The insulation product, AISLANAT, is installed in different densities (density range 28 – 60 kg/m^3) depending on the area of application.

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

2.1. Intended use

The product is intended to be used for the production of insulation layers (which serve as thermal and acoustic insulation) by means of machine processing at the place of use. The machine processing is carried out in dry conditions (99% of all applications) or under the addition of water (1% of all applications). The insulating material can be used for the application for walls (closed cavities of external and interior walls), roofs (closed cavities between rafters and timber beams, etc.), ceilings, floors, etc.

The insulation material shall only be installed in structures and soils, where it is protected from wetting, weathering and moisture.

The insulating material can be used as no load-bearing insulating material for intended uses where vertical or horizontal cavities are completely filled or horizontal, arched or moderately pitched exposed areas are covered.

Area of application	Recommended density of the material (kg/m^3)
Horizontal surface: attics and indoor floors (slightly tilting targets). Not subject to foot traffic for ceilings under non-habitable attics_ Blown freely into open space	28-35
Horizontal and slope (pitched) applications (tilted highest 60º compared to horizontal): mansards, roof cavities_ Blown into closed space	35-60
Vertical surface: masonry cavity walls, wall frame constructions	45-60

Table 1: Recommended density of the materials regarding the area of application.

2.2. General assumptions

Concerning the application of the insulation material also the respective national regulations shall be observed.

The design value of the thermal conductivity shall be laid down according to relevant national provisions.

The release of dangerous substances of the insulation product has not been determined. An additional assessment of the product according to national or European provisions in this respect might be necessary.

A European method of testing glowing combustion behavior does not exist. An additional assessment of the product according to national provisions might be necessary until the existing European classification system has been completed.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product, as he considers necessary.

The provisions made in this European technical assessment are based on an assumed working life of the products for 50 years. 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.

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals to guarantee a precise compression of the cellulose fibers.

The installation is carried out by appropriate personnel which have adequate experience in installing the material under the supervision of the person responsible for technical matters on site.

When calculating the thermal resistance, the nominal thickness (see table below) of the insulation layer shall be applied.

Area of application	Nominal thickness
Horizontal surface: attics and indoor floors (slightly tilting targets). Not subject to foot traffic for ceilings under non-habitable attics_ Blown freely into open space	≥ 330 mm installation thickness 9% insulation thickness shall be added to the nominal thickness
Horizontal and slope (pitched) applications (tilted highest 60º compared to horizontal): mansards, roof cavities_ Blown into closed space	Clear span of the filled cavity
Vertical surface: masonry cavity walls, wall frame constructions	Clear span of the filled cavity

Table 2: Recommended nominal thickness.

When blowing into closed cavities it shall be made sure by appropriate measures (e.g. control drillings) that the cavity is completely filled with the insulating material.

In case of installation on pitched or arched areas slipping of the thermal insulation product is to be prevented by suitable measures.

The ETA is issued for the above-mentioned product on the basis of agreed data/ information, deposited with the Technical Assessment Body – TECNALIA, which identifies the products that have been assessed.

Changes to the product or manufacturing process, which could result in this deposited data/ information being incorrect, should be notified to TECNALIA before the changes are introduced.

TECNALIA will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

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

The performance of the product only applies if the insulation material is installed according to the manufacture´s installation instructions and if they are protected from precipitation, wetting or weathering in built-in state and during transport, storage and installation.

For sampling, conditioning and testing the provisions of the EAD Nº 040138-00-1201 "In – situ formed loose fill thermal and/or acoustic insulation products made of vegetable fibres" apply.

Basic requirements for construction works	Essential characteristics	Method of verification	Performance
BWR 2	Reaction to fire	EN 13501-1:2007+A1:2009	Clause 3.1.1 of the ETA
BWR 3	Biological resistance	EAD 040138-00-1201, Annex B	Clause 3.2.1 of the ETA
BWR 5	Sound absorption	EN ISO 354:2003	Clause 3.3.1 of the ETA
BWR 6	Thermal conductivity	EAD 040138-00-1201 Annex A	Clause 3.4.1 of the ETA
	Water vapour diffusion resistance	EN 12086:2013	Clause 3.4.2 of the ETA
	Water absorption	No performance assessed	
	Corrosion developing capacity	No performance assessed	
	Settlement / density	EN 15101-1:2013 Annex B and EAD 040138-00-1201	Clause 3.4.5 of the ETA
	Critical moisture content	No performance assessed	
	Specific airflow resistivity	EN 29053:1993, Method A	Clause 3.4.7 of the ETA
	Hygroscopic sorption properties	EN ISO 12571:2013	Clause 3.4.8 of the ETA

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

The reaction to fire of "AISLANAT" is classified according to EN 13501-1:2007+A1:2009 and Delegated Regulation (UE) 2016/364

End use application	Class according to EN 13501-1 and Delegated Regulation (UE) 2016/364
- installation density of "AISLANAT" is 28 kg/m³ to 60 kg/m³, - insulation layer thickness ≥ 100 mm, - end use application with and without air gap, - end use application substrates defined in EN 13238 for the following standard substrate: "gypsum plaster"; density of the board ≥ (700 ± 100) kg/m³, and board thickness (12 ± 2) mm, reaction to fire of the board: class A2, s1-d0.	B-s2, d0
- installation density of "AISLANAT" is 28 kg/m³ to 60 kg/m³, - insulation layer thickness ≥ 40mm.	E

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Biological resistance

The test and the assessment of the resistance to growth of mould fungus have been verified according to annex B of EAD 040138-00-1201. The reached class of "AISLANT" is "Class 0".

3.3 Protection against noise (BWR 5)

3.3.1 Sound absorption

The assessment of the sound absorption of "AISLANAT" (density 60 kg/m^3) is carried out according to EN ISO 354:2003. The measured value of sound absorption coefficient, α_w, is 0,6.

The sound absorption coefficient, α_p, calculated in 1/1 octave bands is:

Frequency	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
α_p	0,10	0,30	0,70	0,95	0,95	0,90

3.4 Energy economy and heat retention (BWR 6)

3.4.1 Thermal conductivity

The assessment of the thermal conductivity of "AISLANAT" is carried out according to Annex A of EAD No. 040138-00-1201. The declared value of thermal conductivity is determined according to EN 10456:2007.

The fractile value of thermal conductivity for the density range of 28 kg/m³ - 60 kg/m³ is:

Thermal conductivity at mean reference temperature of 10ºC, according to EN 12667:2002	The declared value of thermal conductivity for the all density range is $\lambda_{D(23,50)}$ = 0,043 W/(m.K) $\lambda_{(10,dry,90/90)}$ = 0,040 W/(m.K) representing at least 90 % of the production with a confidence limit of 90%
Conversion of humidity to EN 10456:2007	
mass related moisture content at 23 °C/ 50 % relative humidity	$u_{23,50}$ = 0,11 kg/ kg
mass related moisture content at 23 °C/ 80 % relative humidity	$u_{23,80}$ = 0,18 kg/ kg
Mass related moisture conversion coefficient:	$f_{u,1(dry-23/50)}$ = 0,5 kg/ kg $f_{u,2\ (23/50-23/80)}$ = 0,5 kg/ kg
_the moisture conversion factor dry to 23 °C/ 50 % relative humidity	$F_{m,1}$ = 1,05
_the moisture conversion factor 23 °C/50 % relative humidity to 23 °C/ 80 % relative humidity	$F_{m,2}$ = 1,06

Declared values of λ are representative for at least 90% of the production with a confidence level of 90% and covers the defined density range. For the admissible deviation of an individual value of thermal conductivity from the declared value the method described in annex F of EN 13172:2012 applies.

The performance given in the ETA are only valid for the specified densities.

3.4.2 Water vapour diffusion resistance

The water vapour diffusion resistance factor of "AISLANAT" may be assumed to be between 1 and 4. The most unfavourable factor, μ, depending on construction must to be used for calculation.

3.4.3 Water absorption

No performance assessed.

3.4.4 Corrosion developing capacity

No performance assessed.

3.4.5 Settlement / density

The assessment of the settlement of "AISLANAT" is carried out according to the test methods stated in EN 15101-1:2013, Annex B.

- Settling in cavities of walls and between rafters according to clause 2.2.8.2 of EAD 040138-00-1201:

Method	Minimum installation density of product	Maximum thickness	Settlement/ Class
EN 15101-1:2013 Annex B2	28 kg/m^3	100 mm	S_d = 0 % SC 0
EN 15101-1:2013 Annex B2	60 kg/m^3	100 mm	S_d = 0 % SC 0

- Settling in horizontal applications, lofts and floors according to clause 2.2.8.1 of EAD 040138-00-1201 and clause 2.2.8.4 of EAD 040138-00-1201:

Method	Minimum installation density of product	Maximum thickness	Settlement/ Class
EN 15101-1:2013 Annex B3	28 kg/m^3	330 mm	S_v = 8,8%
EN 15101-1:2013 Annex B1	35 kg/m^3	300 mm	S_{cyc} = 22% Class SH25

3.4.6 Critical moisture content

No performance assessed.

3.4.7 Specific airflow resistivity

The airflow resistance of "AISLANAT" is assessed according to EN 29053:1993, method A. The mean longitudinal airflow resistance at a density of 50 kg/m³ is at least 44 kPa/s/m².

3.4.8 Hygroscopic sorption properties

The hygroscopic sorption properties of "AISLANAT" is assessed according to EN ISO 12571:2013. The sorption and desorption curves are in annex A of the ETA.

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 as amended, the system of assessment and verification of constancy of performance (according to Annex V of Regulation (EU) No 305/2011) is 3.

In addition, according to the Decision 1999/454/EC, amended by Decision 2001/596/EC of the European Commission the system of assessment and verification of constancy of performance, with regard to reaction to fire class B, is 1.

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

At the necessary technical details for the implementation of the AVCP system are laid down in the Control Plan deposited at Tecnalia Research and Innovation, with which the Factory Production Control shall be in accordance.

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

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Annex A

Hygroscopic sorption and desorption curves of “AISLANAT”.