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

Member of EOTA
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European Technical Assessment

ETA 22/0648
of 1.12.2022

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	**COTTON-3D**
Product family to which the construction product belongs	Factory-made thermal and/or acoustic insulation products made of vegetable fibres.
Manufacturer	**RMT INSULATION** C. Joan Güell con C. Narcís Monturiol Polígon Industrial Can Magre ES08187 SANTA EULÀLIA DE RONÇANA (Barcelona) Spain http://www.rmtinsulation.com
Manufacturing plant(s)	According to Annex N kept by ITeC.
This European Technical Assessment contains	9 pages including 2 annexes 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) 040005-00-1201 *Factory-made thermal and/or acoustic insulation products made of vegetable or animal fibres,* edition 2015.

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.

Specific parts of the European Technical Assessment

1 Technical description of the product

COTTON-3D is an insulation product in form of matts or boards made of recycled cotton fibres mixed with polyester bicomponent BICO) as binding agent.

The cotton fibres are made from frayed waste textile clothes (min. 70% cotton fibres and max. 30% other textile fibres). During the manufacturing process, the fibres are mixed with additives for enhancing its biological resistance (anti-fungal protection) and it can also be mixed with fire retardant additives. The final insulation products are obtained after a thermobonding process which includes the addition of a 20 % by weight of the binding agent.

Table 1.1: Characteristics of COTTON-3D.

Characteristic	Matt	Board
Density	24 kg/m^3 ± 10%	40 kg/m^3 ± 10%
Thickness (mm)	45, 50, 80, 100, 120 (under petition: 30 to 220)	50 and 100 (under petition: 30 to 220)
Width (mm)	600 (other dimensions can be provided under petition)	
Length (mm)	1200 (other dimensions can be provided under petition)	
Fire retardant	With or without	
Anti-fungal additives	With	
Coated	No	

The ETA has been issued for the product 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.

COTTON-3D is also put on the market under the trade names specified in Annex 2.

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

COTTON-3D is used as thermal insulation product (matts and boards) and airborne sound insulation product (only boards) not exposed to compression loads. The insulation products are intended to be used within buildings for insulation of walls, ceilings, floors and roofs, between rafters and timber work.

The insulation product COTTON-3D shall not be used in structures where it will be exposed to compression loads, precipitation, wetting or weathering, nor shall be used directly in contact with water or soil nor in constructions with risk that the critical moisture content will be exceeded.

The provisions made in this ETA are based on an assumed working life of at least 50 years for COTTON-3D. 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 COTTON-3D related to the basic requirements for construction works (hereinafter BWR) were determined according to EAD 040005-00-1201. Essential characteristics of COTTON-3D are indicated in table 3.1.

Table 3.1: Essential characteristics of COTTON-3D.

Basic Works Requirement	**Essential characteristic**	**Performance**
BWR 2 Safety in case of fire	Reaction to fire	With fire retardant: class F. Without fire retardant: not assessed.
BWR 3 Hygiene, health and the environment	Biological resistance	Growth of mould fungus: Intensity of growth 0 (according to table 4 of EN ISO 846:1997). Resistance to attack by vermin: Not relevant.
BWR 4 Safety and accessibility in use	Corrosion developing capacity	Test passed (no presence of perforations).
BWR 5 Protection against noise	Specific airflow resistivity	Matt: Not relevant (acoustic use not declared). Board: σ: 16 kPa·s/m²
	Dynamic stiffness	Not relevant
	Impact sound reduction	Not relevant
	Compressibility	Not relevant
	Sound absorption	Matt: Not relevant (acoustic use not declared) Board: α_p = see table 3.1 of section 3.1 α_w = 0,95
BWR 6 Energy economy and heat retention	Thermal conductivity	$\lambda_{D(23,50)}$ = 0,039 W/(m·K) $f_{u,1(dry-23/50)}$ = 0,13 kg/kg $f_{u,2(23/50-23/80)}$ = 1,02 kg/kg F_{m1} = 1,01 F_{m2} = 1,04 (see section 3.2)
	Water vapour diffusion resistance	μ: 1 – 4 (see section 3.3)
	Water absorption	$W_p \leq 7$ kg/m²
	Geometry	See section 3.4

Table 3.1: Essential characteristics of COTTON-3D.

Basic Works Requirement	Essential characteristic	Performance
BWR 6 Energy economy and heat retention	Density	Matt: 24 kg/m^3 ± 10% Board: 40 kg/m^3 ± 10%
	Flatness after one-sided wetting	Not relevant
	Compressive stress or strength	Not relevant
	Dimensional stability	Not assessed
	Deformation under specified compressive load and temperature conditions	Not relevant
	Tensile strength (parallel)	σ_t: 10 kPa (average value)
	Tensile strength (perpendicular)	Not assessed
	Tensile strength perpendicular to faces in wet conditions	Not assessed
	Compressive creep	Not relevant
	Behaviour under point load	Not relevant
	Shear strength and shear modulus of elasticity	Not assessed

3.1 Sound absorption

The sound absorption is determined according to section 2.2.8 of EAD 040005-00-1201. The results are given in the table below.

Table 3.2: Sound absorption coefficients and absorption class of COTTON-3D.

Product	Area of test	Sound absorption coefficient (α_p)						α_w	Absorption class
		125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz		
COTTON-3D (thickness: 50 mm; density: 40 kg/m^3)[3]	11,07 m^2	0,20	0,65	1,00	1,00	1,00	1,00	0,95	A

3.2 Thermal conductivity

The thermal conductivity of the product is determined according to annex A. The declared value of thermal conductivity is determined according to EN ISO 10456.

The following thermal conductivity values and coefficients obtained are valid for all the cases considered in this ETA:

- The fractile value of thermal conductivity at 10 ºC, at dry conditions representing at least 90% of the production with confidence limit of 90% is **$\lambda_{(10, dry, 90/90)}$ = 0,039 W/(m·K).**
- The declared value of thermal conductivity for a moisture content of the insulating material at 23ºC and 50% relative humidity is **$\lambda_{D(23,50)}$ = 0,039 W/(m·K)** determined by conversion of the $\lambda_{(10, dry, 90/90)}$ value.
- The conversion coefficient for mass-related moisture content: **$f_{u,1(dry-23/50)}$ = 0,13 kg/kg.**
- The conversion coefficient for mass-related moisture content: **$f_{u,2(23/50-23/80)}$ = 1,02 kg/kg.**
- The moisture conversion factor dry to 23 ºC and 50% relative humidity: **F_{m1} = 1,01.**
- The moisture conversion factor 23 ºC and 50% relative humidity to 23 ºC and 80% relative humidity: **F_{m2} = 1,04**.

3.3 Water vapour diffusion resistance

Water vapour permeability (resistance to water vapour diffusion) has been assessed according to section 2.2.10 of EAD 040005-00-1201.

The water vapour resistance factor, μ, is a value between 1 to 4 (product without mineral binding and density less than 115 kg/m³). The most unfavourable factor μ depending on construction should be used for calculation.

3.4 Geometry

Geometry has been assessed according to section 2.2.12 of EAD 040005-00-1201.

Table 3.3: Geometry of COTTON-3D.

Characteristic	Matt	Board
Length	1200 mm ± 2%	
Width	600 mm ± 1,5%	
Thickness	Nominal value: see table 1.1. Tolerance: T2	
Squareness (S_b)	≤ 5 mm/m	
Flatness (S_{max})	≤ 6 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 Commission[1] 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)	Level or class	System
COTTON-3D	For thermal insulation uses not subject to fire regulations.	Any	3
	For thermal insulation uses subject to fire regulations.	F	4

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 ITeC[2], 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 1st December 2022

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

ANNEX 1: Installation

The installation instructions given by the manufacturer will be taken into account.

The installation of the product will be carried out in dry conditions.

The product will be installed following all the local or national requirements concerning the installation of the thermal insulation product nearby smoke ducts and electrical installations. The thermal insulation product will only be installed at least 20 cm apart from heat sources, e.g., heating pipes or halogen lamps. Hot spots must be protected with specific protection of sufficient dimension to ensure good protection.

The construction will be designed and installed in such a way that no harmful condensation occurs in the insulation product.

Installation of the insulation product will be performed by appropriate personnel with adequate experience in installing the product under the supervision of the person responsible for technical matters on site.

The use of the protection mask and safety glasses is recommended for the installation of the product.

ANNEX 2: Trade names of the product

NITA-COTTON PLACAS
ISOTEXTIL PANNEAUX