Technical and Test Institute for Construction Prague
Prosecká 811/76a
190 00 Prague
Czech Republic
tel.: +420 286 019 400
eota@tzus.cz

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

Member of www.eota.eu

European Technical Assessment

ETA 24/0170 of 13/05/2024

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011:	Technical and Test Institute for Construction Prague
Trade name of the construction product	**ECOINSULflex** **ECOINSULpanel**
Product family to which the construction product belongs	**FACTORY-MADE THERMAL AND ACOUSTIC INSULATION PRODUCT MADE OF HEMP FIBRES**
Manufacturer	**ECOINSUL s.r.o.** **Nový Zlíchov 3172/6, Smíchov** **150 00 Praha 5** **Czech Republic**
Manufacturing plant	**ECOINSUL s.r.o.** **Minická 189** **278 01 Kralupy nad Vltavou** **Czech Republic**
This European Technical Assessment contains	9 pages including 0 annexes which forms 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. 040005-00-1201 for “Factory-made thermal insulation and/or acoustic insulation products made of vegetable or animal fibres”, June 2015

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex (es) referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, inparticular pursuant to information by the Commission according to Article 25 Paragraph 3 of regulation (EU) No 305/2011.

II Specific part

1 Technical description of the product (definition of the product)

This European Technical Assessment applies to the factory-made thermal products made of vegetable fibres **"ECOINSULflex; ECOINSULpanel"**.

The products consist of 85% hemp fibres and 15% bicomponent polyester (BiCo) binding fibres .

The insulation products are manufactured in a form of boards which are not coated.

ECOINSULflex

The insulation boards are made with the following dimensions:

Nominal thickness: 30 mm - 200 mm

Nominal length: 300 mm – 2200 mm

Nominal width: 300 mm – 2200 mm

Density range: ca 30-40 kg/m^3

Note: Standard dimensions:

length: 700 mm; 1100 mm and 2200 mm

width: 600 mm

or according to the customer´s requirement

ECOINSULpanel

The insulation boards are made with the following dimensions:

Nominal thickness: 10 mm - 200 mm

Nominal length: 300 mm – 2200 mm

Nominal width: 300 mm – 2200 mm

Density range: ca 85-115 kg/m^3

Note: Standard dimensions:

length: 700 mm; 1100 mm and 2200 mm

width: 600 mm

or according to the customer´s requirement

Products are treated with the spray fire retardant.

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

2.1 Intended use

ECOINSULflex are use as thermal and acoustic non-loaded insulation for:

- external and internal walls of timber frame constructions and similar structures
- external walls between supporting construction
- insulation between rafters and timber beams, also in cavities of corresponding structures
- pitched roofs inserted between rafters
- pitched roofs inserted under rafters

- pitched roofs inserted above rafters to grating
- wooden floors and ceilings inserted into wooden frames - suspended soffits
- partition walls and cavity walls

The insulation products are not intended to be used for external applications.

ECOINSULpanel are use as:

- external contact thermal and acoustic insulation of walls of wood or solid constructions
- external contact thermal and acoustic insulation of panelling
- internal thermal and acoustic wall insulation
- insulation for stable flat roofs with mechanical fastening
- insulation for flat roofs attics
- insulation of floors, insulation on wooden rafters and beams
- suspended ceilings with mechanical anchoring

The assessment of the insulation products only applies if the products are used in structures where it will not to be exposed to precipitation, wetting or weathering and for construction elements with no contact to water and soil or in constructions with no risk that the critical moisture content will be exceeded.

The products shall be installed in accordance with the ETA holder´s instructions.

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

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

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

The assessment of the intended use of the insulation products was carried out in compliance with the specific part of EAD “Factory-made thermal insulation and/or acoustic insulation products made of vegetable or animal fibres”.

3.1 Essential characteristics of the product

Table No. 1: Essential characteristic of the product ECOINSULflex

No	Essential characteristic and method of verification/assessment	Expression of product performance
Essential Requirement 1: Mechanical resistance and stability		
Not relevant		
Essential Requirement 2: Safety in case of fire		
1	**Reaction to fire** (Cl. 2.2.1 EAD 040005-00-1201; test acc. to EN ISO 11925-2:2020, EN 13823:2020+A1)	Class C-s2,d0 acc. to EN 13501-1:2018
Essential Requirement 3: Hygiene, health and environment		
2	**Biological resistance (growth of mould fungus)** (Annex B of EAD 040005-00-1201, EN ISO 846:1997)	No performance assessed
Essential Requirement 4: Safety in use		
Not relevant		
Essential Requirement 5: Protection against noise		
3	**Specific airflow resistivity** (Cl. 2.2.4 of EAD 040005-00-1201)	No performance assessed
4	**Dynamic stiffness** (Cl. 2.2.5 of EAD 040005-00-1201)	No performance assessed
5	**Impact sound reduction** (Cl. 2.2.6 of EAD 040005-00-1201)	No performance assessed
6	**Compressibility** (Cl. 2.2.7 of EAD 040005-00-1201)	No performance assessed

7	**Sound absorption**
	(Cl. 2.2.8 EAD 040005-00-1201; EN ISO 354:2003; EN ISO 11654:1997)
	(relating to the thickness of 50 mm)
	- acoustic absorption index α_w
	- sound absorption coefficient α_p calculated in 1/1 octave bands at the frequency:
	  - 125 Hz
	  - 250 Hz;
	  - 500 Hz;1000 Hz;
	  - 2000 Hz;
	  - 4000 Hz
	- class
		0,70
		
		0,25
		0,50
		0,65
		0,80
		0,75
		C

Table No. 1 *(conluded)*

No	Essential characteristic and method of verification/assessment	Expression of product performance
Essential Requirement 6: Energy economy and heat retention		
8	**Thermal conductivity***** **(**Annex A of EAD 040005-00-1201, EN 12667:2001, EN ISO 10456:2007/AC:2009) $\lambda_{10,\ dry,mean}$ [W/m.K]] $\lambda_{D,\ 23,50}$ [W/m.K]] $\lambda_{D,\ 10,dry,90/90}$ [W/m.K]] **moisture conversion factors:** $F_{m1(dry-23/50)}$ $F_{m2(23/50-23/80)}$	 0.0375 0.041 0.0386 1.05 1.06
9	**Water vapour diffusion resistance** μ*) (Cl. 2.2.10 EAD 040005-00-1201; EN 12086:2013)	≤ 2
10	**Water absorption** (Cl. 2.2.11 EAD 040005-00-1201; EN 1609, method A)	No performance assessed
11	**Geometry***) (Cl. 2.2.12 EAD 040005-00-1201) - **width** (EN 822:2013) - **thickness** (EN 823:2013) - **length** (EN 822:2013) - **squarenes S_b** (EN 824:2013) - **flatness S_{max}** (EN 825:2013)	 ± 1.5 % T3 (acc. to EN 13171:2012+A1:2015) ± 2 % No performance assessed No performance assessed
12	**Density***) (Cl. 2.2.13 EAD 040005-00-1201; EN 1602:2013)	± 5 %
13	**Dimensional stability under specified and humidity** *) (Cl. 2.2.16 EAD 040005-00-1201; EN 1604:2013) **a) (70±2)°C , RH (90±5)%, 48 hours** $\Delta\varepsilon_l$ $\Delta\varepsilon_b$ $\Delta\varepsilon_d$ **b) (70±2)°C, 48 hours** $\Delta\varepsilon_l$ $\Delta\varepsilon_b$ $\Delta\varepsilon_d$	 ≤ 1% ≤ 1% ≤ 1% *Note: According to EN 13171:2012+A1:2015 level DS(70,90)1* ≤ 1% ≤ 1% ≤ 1% *Note: According to EN 13171:2012+A1:2015 level DS(70,-)1*
14	**Tensile strength parallel to faces** *) (Cl. 2.2.18 EAD 040005-00-1201; EN 1608:2013) - longitudinally - transversally	 ≥ 50 kPa ≥ 10 kPa

Notes:

*This characteristic also relates to BWR5.

**Other essential characteristics are not relevant for this product.

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

Table No. 2: Essential characteristic of the product ECOINSULpanel

No	Essential characteristic and method of verification/assessment	Expression of product performance
Essential Requirement 1: Mechanical resistance and stability		
Not relevant		
Essential Requirement 2: Safety in case of fire		
1	**Reaction to fire** (Cl. 2.2.1 EAD 040005-00-1201; test acc. to EN ISO 11925-2:2020, EN 13823:2020+A1)	Class C-s2,d0 acc. to EN 13501-1:2018
Essential Requirement 3: Hygiene, health and environment		
2	**Biological resistance (growth of mould fungus)** (Annex B of EAD 040005-00-1201, EN ISO 846:1997)	No performance assessed
Essential Requirement 4: Safety in use		
Not relevant		
Essential Requirement 5: Protection against noise		
3	**Specific airflow resistivity** (Cl. 2.2.4 EAD 040005-00-1201)	No performance assessed
4	**Dynamic stiffness** (Cl. 2.2.5 EAD 040005-00-1201)	No performance assessed
5	**Impact sound reduction** (Cl. 2.2.6 EAD 040005-00-1201)	No performance assessed
6	**Compressibility** (Cl. 2.2.7 EAD 040005-00-1201)	No performance assessed
7	**Sound absorption** (Cl. 2.2.8 EAD 040005-00-1201; EN ISO 354:2003; EN ISO 11654:1997) (relating to the thickness of 100 mm) - acoustic absorption index α_w - sound absorption coefficient α_p calculated in 1/1 octave bands at the frequency: - 125 Hz - 250 Hz;500 Hz;1000 Hz;2000 Hz; - 4000 Hz - class	1.00 0.55 1.00 1.00 A
Essential Requirement 6: Energy economy and heat retention		
8	**Thermal conductivity***** **(**Annex A of EAD 040005-00-1201, EN 12667:2001, EN ISO 10456:2007/AC:2009) $\lambda_{10,\ dry,mean}$ [W/m.K]] $\lambda_{D,\ 23,50}$ [W/m.K]] $\lambda_{D,\ 10,dry,90/90}$ [W/m.K]] **moisture conversion factors:** $F_{m1(dry-23/50)}$ $F_{m2(23/50-23/80)}$	 0.0379 0.041 0.0384 1.05 1.06
9	**Water vapour diffusion resistance** μ*) (Cl. 2.2.10 of EAD 040005-00-1201; EN 12086:2013)	≤ 2
10	**Water absorption** (Cl. 2.2.11 of EAD 040005-00-1201; EN 1609, method A)	No performance assessed

Table No. 2 *(conluded)*

No	Essential characteristic and method of verification/assessment	Expression of product performance
11	**Geometry***) (Cl. 2.2.12 of EAD 040005-00-1201) - **width** (EN 822:2013) - **thickness** (EN 823:2013) - **length** (EN 822:2013) - **squarenes S_b** (EN 824:2013) - **flatness S_{max}** (EN 825:2013)	 ± 1.5 % T3 (acc. to EN 13171:2012+A1:2015) ± 2 % ≤ 5 mm/m ≤ 6 m
12	**Density***) (Cl. 2.2.13 of EAD 040005-00-1201; EN 1602:2013)	± 5 %
13	**Dimensional stability under specified and humidity** *) (Cl. 2.2.16 of EAD 040005-00-1201; EN 1604:2013) **(70±2)°C, 48 hours** $\Delta\varepsilon_l$ $\Delta\varepsilon_b$ $\Delta\varepsilon_d$	 ≤ 1% ≤ 1% ≤ 1% *Note: According to EN 13171:2012+A1:2015 level DS(70,-)1*
14	**Tensile strength parallel to faces** *) (Cl. 2.2.18 of EAD 040005-00-1201; EN 1608:2013) - longitudinally - transversally	 ≥ 100 kPa ≥ 15 kPa
15	**Deformation under specified compressive load and temperature conditions*** (Cl. 2.2.17 of EAD 040005-00-1201; EN 1605:2013) **20 kPa, (80±1)°C and 48 hours, after level B** ε_2	 ≤ 40 %
16	**Compressive stress at 10% deformation* σ_{10}** (Cl. 2.2.15 of EAD 040005-00-1201; EN 826:2013)	≥ 25 kPa
17	**Compressive creep*** (Cl. 2.2.21 of EAD 040005-00-1201)	No performance assessed

Notes:

*This characteristic also relates to BWR5.

**Other essential characteristics are not relevant for this product.

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

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

4.1 AVCP System(s)

According to the decision 1999/91/EC of the European Commission (Official Journal of the European Union – OJEU – L29/44 of 03/02/1999), as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) given in the following table applies.

Table No. 3: Applicable AVCP system

Product	Intended use(s)	Level or class	System
ECOINSULflex ECOINSULpanel	For thermal insulation uses not subject to fire regulations.	Any	3
	For thermal insulation uses subject to fire regulations.	C-s2,d0	1

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

In order to help the Notified Body to make an evaluation of conformity, the Technical Assessment Body issuing the ETA shall supply the information detailed below. This information shall initially be prepared or collected by the Technical Assessment Body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

1) The ETA

Where confidentiality of information is required, this ETA makes reference to the manufacturer's technical documentation which contains such information.

2) Basic manufacturing process

The basic manufacturing process is described in sufficient detail to support the proposed FPC methods.

3) Product and materials specifications

The manufacturer's documentation includes:

- detailed drawings (possibly including manufacturing tolerances),
- incoming (raw) materials specifications and declarations,
- references to European and/or international standards,
- technical data sheets.

4) Control Plan (as a part of FPC)

The manufacturer and the Technical and Test Institute for Construction Prague- branch Prague have agreed a control plan which is deposited with the Technical and Test Institute for Construction Prague – branch Prague in documentation which accompanies the ETA. The control plan specifies the type and frequency of checks/tests conducted during production and on the final product. This includes the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product.

Issued in Prague on 13.05.2024

By

Ing. Jiří Studnička, Ph.D.

Head of the Technical Assessment Body