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European Technical Assessment

ETA 13/0353
of 11/05/2018

General Part

Technical Assessment Body issuing the European Technical Assessment	Technický a zkušební ústav stavební Praha, s.p.
Trade name of the construction product	WATISOL VATIZOL
Product family to which the construction product belongs	Product area code: 4 Thermal insulation products. Composite insulating kits/systems.
Manufacturer	EKOCELL CZ s.r.o. Kunín č.p. 255 742 53 Kunín Czech Republic www.ekocell.cz
Manufacturing plant	Kunín č.p. 255 742 53 Kunín Czech Republic
This European Technical Assessment contains	7 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	EAD 040138-00-1201 In-situ formed loose fill thermal and/or acoustic insulation product made of vegetable fibers
This version replaces	ETA-13/0353, version 1, issued on 23/05/2013

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Specific part

1 Technical description of the product

This European Technical Assessment applies to the insulating material made of loose, free cellulose fibres with the trade names:
WATISOL
VATIZOL

The cellulose fibers are produced from the sorted recycled waste paper by mechanical crushing. The waste paper used in manufacturing process has to fulfill the quality criteria given by the manufacturer.

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/or acoustic insulation) by means of machine processing at the place of use. The reaction to fire classification of the products is improved during the production process by adding of fire retardants on the basis of boric acid and borax (sodium borate).

Detailed information are deposited with the TZÚS Praha,s.p.- Branch 0700 Ostrava.

Note: The insulation has to be covered to avoid direct contact with the user of the building.

The machine processing is carried out in dry conditions (99 % of all applications) or under the addition of water (1 % of all applications).

The product 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 product shall only be installed in structures where it is protected from wetting, weathering and moisture, soil.

The ETA is issued for the above-mentioned products on the basis of agreed data/information, deposited with the Technical Assessment Body - Technical and Test Institute for Construction Prague, which identifies the products that have been assessed.

Table 1: Minimal density of the insulation material regarding the area of application and thickness of the insulation layer

Area of application	Thickness of insulation layer [cm]	Density [kg/m^3]
Flat open area	10	30-35
	20	40
	30	45
	40	55
	50	60
	60	65
Horizontal closed cavity or cavity with the slope to 28°	10	45
	20	50
	30	55
	40	55
	50	60
	60	65
Cavity with slope approximately 45°	10	50
	20	55
	30	55
	40	60
Cavity with slope approximately 68°	10	55
	20	60
	30	65
	40	65
Cavity in the vertical partition or in the outside wall of the house	10	65
	20	65
	30	65
	40	65

Note: In case of application to cavity walls the products must be covered from both sides to avoid risk of moisture.

Note: Tolerance of the density is ± 10 %.

2.2 Assumed working life

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.

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

The characteristics of product and methods of verification of the thermal insulation were carried out in compliance with the EAD concerning “In-situ formed loose fill thermal and/or acoustic insulation products made of vegetable fibers”.

Table 2: Performances of the product

No	Essential characteristic (method of verification and assessment)	Expression of product performance
	Basic Works Requirement 2: Safety in case of fire	
1	**Reaction to fire** (EAD 040138-00-1201, Cl. 2.2.1)	Class E
	Basic Works Requirement 3: Hygiene, health and the environment	
2	**Biological resistance** (resistance to mold fungus) (EAD 040138-00-1201, Cl. 2.2.5, method A and B)	Method A: Growth intensity: 0 Method B: Class: BA Growth intensity: 0
	Basic Works Requirement 5: Protection against noise	
3	**Sound absorption** (EAD 040138-00-1201, Cl. 2.2.2) - 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 0.60 1.00 1.00 1.00 1.00 1.00 A
	Basic Works Requirement 6: Energy economy and heat retention	
4	**Thermal conductivity *** (EAD 040138-00-1201, Cl. 2.2.3) $\lambda_{D, 23,50}$ $\lambda_{10, dry}$ (30 kg/m³) $\lambda_{10, dry}$ (65 kg/m³) $\lambda_{10, dry, limit}$ (30 kg/m³) $\lambda_{10, dry, limit}$ (65 kg/m³) $\lambda_{10, dry, 90/90}$ (30 kg/m³) $\lambda_{10, dry, 90/90}$ (65 kg/m³) $\lambda_{10(23,50)}$ (30 kg/m³) $\lambda_{10(23,50)}$ (65 kg/m³) $\lambda_{10(23,80)}$ (30 kg/m³) $\lambda_{10(23,80)}$ (65 kg/m³)	 0.0386 W/m·K 0.0375 W/m·K 0.0364 W/m·K 0.0377 W/m·K 0.0365 W/m·K 0.0380 W/m·K 0.0366 W/m·K 0.0384 W/m·K 0.0380 W/m·K 0.0393 W/m·K 0.0392 W/m·K

No	Essential characteristic (method of verification and assessment)	Expression of product performance
	For conversion of humidity the following applies: - mass-related moisture contents $u_{23,50}$ (30 kg/m³) $u_{23,50}$ (65 kg/m³) $u_{23,80}$ (30 kg/m³) $u_{23,80}$ (65 kg/m³) - moisture conversion factors $f_{u,1}$ (30 kg/m³) $f_{u,1}$ (65 kg/m³) - conversion factors to high moisture content $f_{u,2}$ (30 kg/m³) $f_{u,2}$ (65 kg/m³) $f_{u,2}$	 0.0947 0.0435 0.1240 0.0697 0.2505 0.8261 0.7898 1.7672 1.2785
5	**Water vapor diffusion resistance** (EAD 040138-00-1201, Cl. 2.2.4) - water vapor resistance factor μ	 < 1.5
6	**Water absorption** (for specific applications only) (EAD 040138-00-1201, Cl. 2.2.6)	No performance assessed
7	**Corrosion developing capacity** (EAD 040138-00-1201, Cl. 2.2.7)	No performance assessed
8a	**Settlement in cavities of walls and between rafters** (EAD 040138-00-1201, Cl. 2.2.8)	No settlement and cracks (settlement ≤ 1%) Class: SC O for bulk density 60 kg/m³
8b	**Settlement under cyclical temperature and cyclic humidity** (EAD 040138-00-1201, Cl. 2.2.8)	No performance assessed
8c	**Settlement under impact excitation and constant temperature and humidity conditions** (EAD 040138-00-1201, Cl. 2.2.8)	No performance assessed
9	**Critical moisture content** (EAD 040138-00-1201, Cl. 2.2.9)	75 % Note: Testing and assessing procedures are currently not available for insulation products covered by the used EAD. Therefore, the value of 75 % shall at present be declared as the critical moisture content.
10	**Specific airflow resistivity **** (EAD 040138-00-1201, Cl. 2.2.10)	1.7 kPa.s.m^{-2}
11	**Hygroscopic and sorption properties** (EAD 040138-00-1201, Cl. 2.2.11)	Hygroscopic sorption and desorption curves (see Annex 1 of the ETA)

*) In case of free placing (e.g. on the ceiling or between beams) a reduced insulation layer thickness for calculating the thermal resistance is to be determined from the installation thickness taking account the settlement. Reduction value for intended use in cavities of walls and between rafters is 1 % and was determined from the highest permitted value of settlement (according to Annex B.2 of EN 15101-1) based on test results. Regarding the fact that other types of settlement were not assessed, the reduction value may be different in other cases.

**) This characteristic also relates to BWR 5, bulk density 40 kg/m³.

Declared values of λ are representative for at least 90 % of the production with a confidence level of 90% and covers the density range (30-65) kg/m^3. For the admissable deviation of an individual value of thermal conductivity from the declared value the method described in annex F of EN 13172 applies.

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

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[1] of the European Commission the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011 and Commission delegated Regulation (EU) No 568/2014) given in the following table applies:

Product(s)	Intended use(s)	Level(s) or class(es)	System(s)
Thermal insulating products (factory-made products and products intended to be formed *in-situ*)	Any	---	3

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 AVCP system are laid down in the control plan deposited at the Technický a zkušební ústav stavební Praha, s.p.

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Head of the TAB

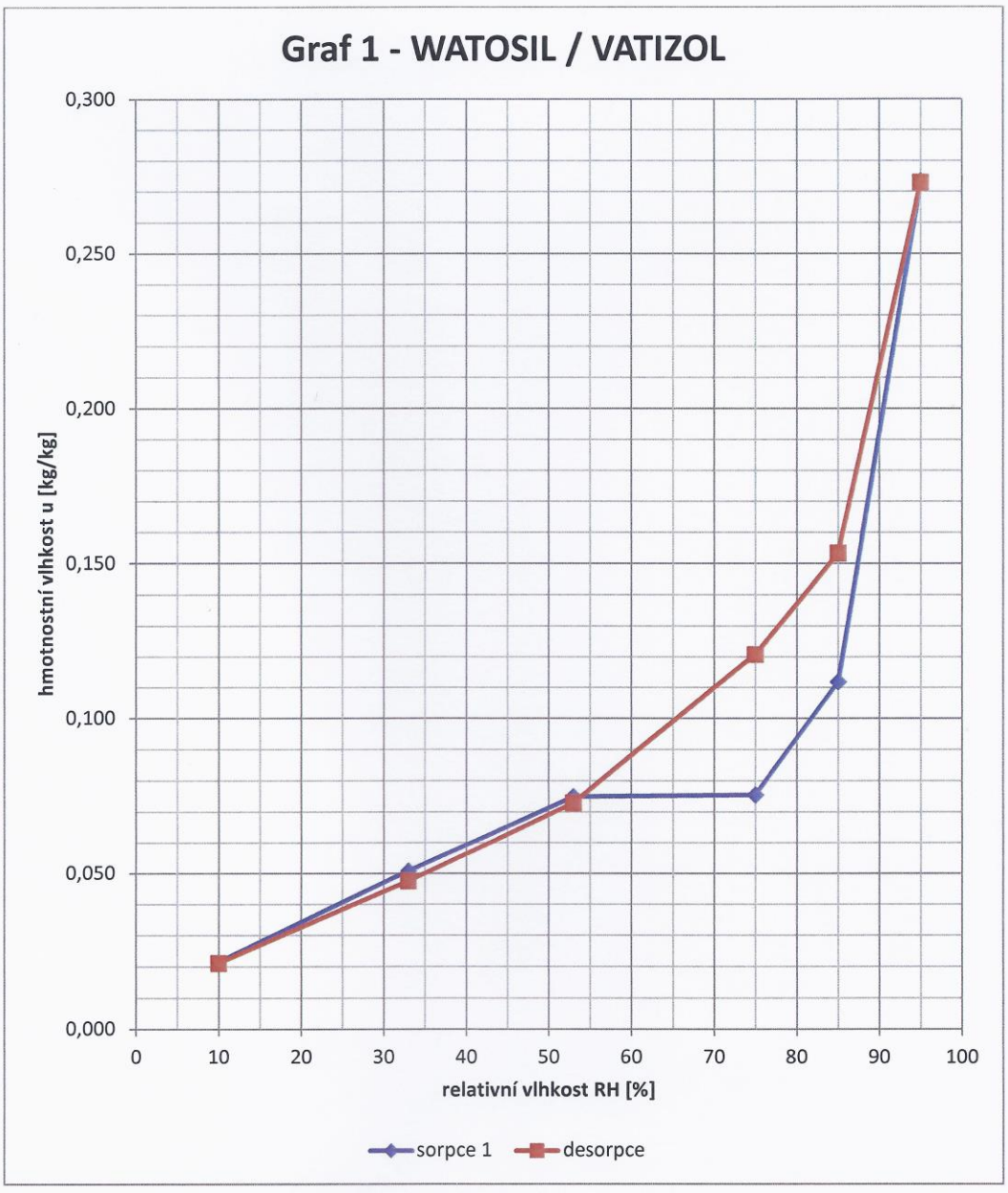
Annexes:

Annex No 1: Hygroscopic sorption and desorption curves (1 page)

[1] 1999/91/EC - Commission Decision of 25 January 1999, published in the Official Journal of the European Communities, L 29/44 of 03/02/1999

Annex No 1

Hygroscopic sorption and desorption curves



Graph No 1: Hygroscopic sorption and desorption curves