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SLOVENIJE

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European Technical Assessment

ETA-11/0471
of 06/06/2017

English version prepared by ZAG

GENERAL PART

**Technical Assessment Body issuing the
ETA** ZAG Ljubljana

Komercialno ime gradbenega proizvoda SPACELOFT
Trade name of the construction product

Družina proizvoda
*Product family to which the construction product
belongs*

04: **Proizvodi za toplotno izolacijo**
04: *Thermal insulation products*

Proizvajalec
Manufacturer

ASPEN AEROGELS INCORPORATED
Forbes Road bldg 30, Northborough
MA 01532 USA

Proizvodni obrat:
Manufacturing plant

Obrat 1
Plant 1

Ta Evropska tehnična ocena vsebuje
This European Technical Assessment contains

4 strani
4 pages

**Ta Evropska tehnična ocena je izdana na
podlagi Uredbe (EU) št. 305/2011 na
osnovi**

Evropskega ocenitvenega dokumenta 040643-00-
1201 »Toplotna izolacija iz silicijevega aerogela
ojačana z vlaknatim nosilcem«

*This European Technical Assessment is issued
in accordance with regulation (EU) No
305/2011, on the basis of*

*European Assessment Document (EAD) no. 040643-00-
1201 "Fibre Reinforced Silica Aerogel Thermal
Insulation"*

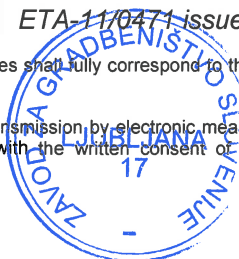
Ta ocena zamenjuje
This Assessment replaces

ETA-11/0471 izdano dne 22.06.2013

ETA-11/0471 issued on 22.06.2013

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SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1. Technical description of the product

1.1 Definition of the construction product

Fibre reinforced silica Aerogel thermal insulation SPACELOFT is flexible and nanoporous blanket.

The product comprises no coating and is produced from newly formed isotropic oriented fibres.

The product is opaque and grey in colour.

The product is delivered in rolls of the width of 1470 mm and length of 45 m. The declared thickness of the product is 10 mm.

1.2 Manufacturing

Aerogel is a solid with low density, acquired from the gel, where the liquid component is exchanged by the gas. The basis of the Aerogel is the silica. Silica Aerogel is embedded into the fibrous reinforcement of 50% polyester and 50 % of the textile grade glass fibres.

The European Technical Assessment (ETA) is issued for the product on the basis of agreed data/information, deposited with Slovenian national Building and Civil engineering institute (ZAG), which identifies the product that has been assessed and judged.

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

The ZAG 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.

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

2.1 Intended use

The product blankets are intended to be used in walls, floors and ceiling as thermal insulation. The insulation can be used in constructions where it is not exposed to wetting, weathering, heavy moisture transport, condensation or wind and where the product either is or is not exposed to compression loads.

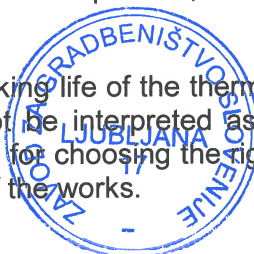
2.2 General assumptions

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

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

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

The provisions made in this ETA are based on an assumed intended working life of the thermal insulation of 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 product 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.

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 manufacturer's installation instructions and if they are protected from precipitation, wetting or weathering in build-in state and during transport, storage and installation.

3.1 Performance of the product

3.1.1 Mechanical resistance and stability (BWR 1)

Not relevant.

3.1.2 Safety in case of fire (BWR 2)

Reaction to fire

Reaction to fire class of the product classified according to EN 13501-1: **C-s1, d0**.

3.1.3 Hygiene, health and the environment (BWR 3)

Short term water absorption by partial immersion

Short term water absorption by partial immersion W_p according to EN 1609, method A is $W_p \leq 0.01 \text{ kg/m}^2$.

Water vapour permeability

Water vapour diffusion resistance factor μ is ≤ 5 according to EN 12086.

3.1.4 Safety in use (BWR 4)

Not relevant.

3.1.5 Protection against noise (BWR 5)

The "No characteristic assessed" option is used.

3.1.6 Energy economy and heat retention (BWR 6)

Thermal resistance and thermal conductivity

Thermal conductivity λ is measured according to EN 12667. Thermal conductivity is declared according to EN ISO 10456: $\lambda_{D(23,50)} = 0.015 \text{ W/mK}$. Thermal resistance is declared according to EN ISO 10456: $R_{D(23,50)} = 0.60 \text{ m}^2\text{K/W}$.

Moisture contents and conversion factors for conversion of thermal conductivity from $\lambda_{10,\text{dry},90/90}$ to $\lambda_{D(23,50)}$ and $\lambda_{D(23,80)}$: $u_{23,50} = 0.003$, $u_{23,80} = 0.006$, $F_{m1} = 1.005$ (conversion from $\lambda_{10,\text{dry},90/90}$ to $\lambda_{D(23,50)}$), $F_{m2} = 1.059$ (conversion from $\lambda_{10,\text{dry},90/90}$ to $\lambda_{D(23,80)}$).

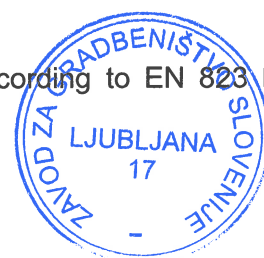
Geometry

Length and width measured according to EN 822 and thickness according to EN 823 have following tolerances:

tolerance of the length: - 300 mm / + no limit,

tolerance of the width: $\pm 25 \text{ mm}$,

tolerance of the thickness: $\pm 1 \text{ mm}$,



Dimensional stability

Dimensional stability measured according to EN 1604 for storage for 48 h at $(70 \pm 2) ^\circ\text{C}$:

length: $|\Delta\varepsilon_l| \leq 1\%$,

width: $|\Delta\varepsilon_b| \leq 1\%$,

thickness: $|\Delta\varepsilon_d| \leq 1\%$.

Apparent density

Nominal apparent density of the product measured according to EN 1602 is 150 kg/m^3 . Its tolerances are $\pm 20\%$.

3.1.7 Sustainable use of natural resources (BWR 7)

The "No characteristic assessed" option is used.

3.2 Method of assessment

The assessment of the performance of the product SPACELOFT in relation to the applicable BWR's has been made in accordance with the European Assessment Document (EAD) no. EAD 040643-00-1201 for Fibre reinforced silica aerogel thermal insulation, edition May 2017.

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 Commission¹ system of assessment and verification of constancy of performance (AVCP) **3** applies.

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 ZAG Ljubljana.

When all criteria of the assessment and verification of constancy of performance are met, the manufacturer shall issue a declaration of performance.

Issued in Ljubljana on 06. 06. 2017

Franc Capuder, M. Sc.



Head of Service for Technical Assessments and Approvals



¹ Official Journal of the European Communities L 29/44 on 03. 02. 1999.