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European Technical Assessment Body
for construction products



European Technical Assessment

ETA-24/0209
of 25 April 2024

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General Part

Technical Assessment Body issuing the European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

"Oryza BGT" and "Oryza Sil 650"

Product family
to which the construction product belongs

Thermal insulation mat made of silica-aerogel

Manufacturer

Beerenberg Services AS
Kokstaddalen 33
5257 KOKSTAD
NORWEGEN

Manufacturing plant

East of Yin Hai Road and North of Qiushi Road, Economic
Development Zone,
Xiangshui County, Yancheng City, Jiangsu Province,
China
Postcode: 224000

This European Technical Assessment
contains

5 pages 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

040643-00-1201

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Specific Part

1 Technical description of the product

This European Technical Assessment applies to the factory-made thermal insulation mats made of silica-based aerogel with the designations "Oryza BGT" and "Oryza Sil 650" hereafter referred to as thermal insulation mats.

To produce "Oryza BGT" and "Oryza Sil 650" the silicate-based aerogel is evenly mixed with the glass fibers. The raw materials of the aerogel are brought to a supercritical state. As the end product a mat with a thickness of approx. 10 mm is obtained.

Aluminum oxide is added to the thermal insulation mats during the manufacturing process to increase their temperature resistance.

The thermal insulation boards do not have facings or coatings and are manufactured in nominal thicknesses of 10 mm.

The European Technical Assessment has been issued for the product on the basis of agreed data/ information, deposited with Deutsches Institut für Bautechnik, which identifies the product that has been assessed. The European Technical Assessment applies only to products corresponding to this agreed data/information.

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

The thermal insulation mats are intended for use in walls, floors and ceilings and are not exposed to compression loads.

The performance according to section 3 only applies if the thermal insulation boards are installed according to the manufacturer's installation instructions and if they are protected from precipitation, wetting or weathering (heavy moisture transport, condensation) in built-in state and during transport, storage and installation.

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

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the insulating dry screed system of at least 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

For sampling, conditioning and testing the provisions of the EAD No 040643-00-1201 "Fibre reinforced silica aerogel thermal insulation".

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire test acc. to EN ISO 1716:2018 and EN ISO 1182:2020	Class A1 acc. to EN 13501-1:2018

3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal conductivity at a reference temperature of 10 °C test acc. to EN 12667:2001	Declared value of the thermal insulation: ¹ $\lambda_{10,23/50,90/90} = 0,01915 \text{ W/(m} \cdot \text{K)}$ $\lambda_{D(23/50)} = 0,020 \text{ W/(m} \cdot \text{K)}$
Conversion of humidity acc. to EN ISO 10456:2007+AC:2009	
mass-related moisture content at 23 °C/50 % rel. humidity:	$u_{23,50} = 0,0010 \text{ kg/kg}$
mass-related moisture content at 23 °C/80 % rel. humidity:	$u_{23,80} = 0,0020 \text{ kg/kg}$
mass-related moisture conversion coefficient (dry to 23 °C/50 % rel. humidity):	$f_{u1} = 5,161$
mass-related moisture conversion coefficient (23 °C/50 % rel. humidity to 23 °C/80 % rel. humidity):	$f_{u2} = 0,683$
moisture conversion factor (dry to 23 °C/50 % rel. humidity):	$F_{m1} = 1,005$
moisture conversion factor (23 °C/50 % rel. humidity to 23 °C/ 80 % rel. humidity):	$F_{m2} = 1,001$
Geometrical properties	
length, width test acc. to EN 822:2013	length tolerance: $\pm 2 \%$ width tolerance: $\pm 1,5 \%$
thickness test acc. to EN 823:2013 (with a load of 1500 Pa)	$d_N = 10 \text{ mm}$ tolerance: - 1 mm or + 3 mm (corresponds to T5 according to EN 13162)
Density test acc. to EN 1602:2013	162 kg/m ³ to 180 kg/m ³

¹ The declared value is representative for at least 90 % of the production with a confidence level of 90 %.

Essential characteristic	Performance
Dimensional stability at 70 °C and 90% relative humidity test acc. to EN 1604:2013	length $\Delta\epsilon_l$, width, $\Delta\epsilon_b$, and thickness, $\Delta\epsilon_d$: $\leq 1 \%$
Water absorption at short term partial immersion test acc. to EN 1609:2013, Method A	$W_p = 0,00 \text{ kg/m}^2$
Water vapour diffusion resistance factor test acc. to EN 12086:2013, climatic condition A	$\mu = 6$

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

In accordance with the European Assessment Document EAD No 040643-00-1201 "Fibre reinforced silica aerogel thermal insulation" the legal basis is: 1999/91/EC.

The system to be applied is: System 3

In addition, with regard to reaction to fire the applicable European legal act is: 2001/596/EC.

The system to be applied is: 1

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 Deutsches Institut für Bautechnik.

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beglaubigt:
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