Deutsches Institut für Bautechnik

Approval body for construction products and types of construction

Bautechnisches Prüfamt

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European Technical Assessment ETA-06/0275 of 20 June 2017

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	"TecTem® Insulation Board Outdoor"
Product family to which the construction product belongs	Thermal insulation board made of expanded perlite, deviating from EN 13169
Manufacturer	KNAUF AQUAPANEL GmbH Kipperstraße 19 44147 Dortmund DEUTSCHLAND
Manufacturing plant	KNAUF AQUAPANEL GmbH Kipperstraße 19 44147 Dortmund DEUTSCHLAND
This European Technical Assessment contains	7 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	European Assessment Document (EAD) 040010-00-1201

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Specific part

1 Technical description of the product

This European Technical Assessment applies to the factory-made thermal insulation boards made of expanded perlite (EPB) with the designation "TecTem® Insulation Board Outdoor".

The thermal insulation boards deviate from the standard EN 13169 as they do not contain reinforcing fibres and do not fulfil the minimum value of bending strength stated in the standard.

The thermal insulation boards are manufactured of expanded perlite by adding binding agents, hydrophobic agents as well as other additives. The surfaces of the thermal insulation boards can be coated with a single-sided or double-sided primer.

The thermal insulation boards are made with the following dimensions:

Nominal thicknesses:	50 mm to 200 mm
Nominal length:	500 mm to 1250 mm
Nominal widths:	400 mm to 1250 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

The thermal insulation boards can be used for the following intended uses:

- External insulation of walls
- Internal insulation of walls
- Insulation of cavity walls (two-leaf walls), core insulation
- External insulation of the roof below the roofing
- Internal insulation of ceilings (including underside insulation of ceilings in cellars and underground parking garages and similar structures)

The performance according to section 3 only applies if the insulation product is installed according to the manufacture's installation instructions and if it is protected from precipitation, wetting or weathering in built-in state and during transport, storage and installation.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the insulation product of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, 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.

This European Technical Assessment does not cover the use of the thermal insulation boards in thermal insulation systems. In this regard separate European Technical Assessments are necessary for certain intended uses (e.g. in the case of a use in external thermal insulation composite systems).

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 040010-00-1201 "Insulation product made of expanded perlite (EPB)" apply.

3.1 Mechanical resistance and stability (BWR 1)

Not applicable.

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire test acc. to EN ISO 1182:2010 and EN ISO 1716:2010	Class A1 acc. to EN 13501-1:2007 + A1:2009

3.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Water vapour transmission test acc. to EN 12086:2013	$5 \leq \mu \leq 6$ [a)]
Content, emission and/or release of dangerous substances	
Substance(s) classified as EU-cat. Carc. 1A/1B (H350, H350i), in accordance with Regulation (EC) No 1272/2008.	The product does not contain these dangerous substances actively used.[b)]
Substance(s) classified as EU-cat. Muta. 1A/1B (H340), in accordance with Regulation (EC) No 1272/2008.	
Substance(s) classified as EU-cat. Acute Tox. 1, 2 and/or 3 (H300, H301, H310, H311, H339, H331); substance(s) classified as EU-cat. Repr. 1A/1B (H360, H360F, H360D, H360FD); substance(s) classified as EU-cat. STOT SE 1 and/or STOT RE 1 (H370, H372), in accordance with Regulation (EC) No 1272/2008.	
Release scenarios regarding BWR 3: IA 2, I A3, S/W 3 (according to EOTA TR 034)	

[a)] The most unfavorable value for the construction product work shall be applied each.

[b)] Assessment based on a detailed manufacturer's product declaration.

3.4 Safety and accessibility (BWR 4)

Not applicable.

3.5 Protection against noise (BWR 5)

Essential characteristic	Performance
Sound absorption	No performance assessed.

3.6 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal conductivity test acc. to EN 12667:2001, acc. to EN 13169:2013 Nominal thickness: 50 mm ≤ d_N < 120 mm Nominal thickness: 120 mm ≤ d_N ≤ 200 mm Conversion of humidity acc. to EN ISO 10456:2007 + AC:2009 The mass-related moisture content at 23 °C/ 50 % rel. humidity The mass-related moisture content at 23 °C/ 80 % rel. humidity The mass-related moisture conversion coefficient Moisture conversion factor (dry to 23 °C/ 50 % rel. humidity) Moisture conversion factor (23 °C/ 50 % rel. humidity to 23 °C/ 80 % rel. humidity)	Declared value of thermal conductivity [a)] $\lambda_{D\ (23/50)}$ = 0.045 W/(m ·K) $\lambda_{D\ (23/50)}$ = 0.044 W/(m ·K) $u_{23/50}$ = 2.0 % $u_{23/80}$ = 3.0 % f_u = 0.80 $F_{m\ (dry\ –\ 23/50)}$ = 1.02 $F_{m\ (23/50\ –\ 23/80)}$ = 1.01
Nominal length test acc. to EN 822:2013 dimensional deviations	500 mm to 1250 mm ± 3 mm (≤ 1200 mm) ± 5 mm (> 1200 mm)
Nominal widths test acc. to EN 822:2013 dimensional deviations	400 mm to 1250 mm ± 3 mm (≤ 1200 mm) ± 5 mm (> 1200 mm)
Squareness test acc. to EN 824:2013 dimensional deviation	S_b ≤ 3 mm/m
Nominal thickness test acc. to EN 823:2013 (with a load of 250 Pa ± 5 Pa) dimensional deviations	50 mm to 200 mm ± 2 mm (35 mm ≤ d_N ≤ 70 mm) ± 3 mm (70 mm < d_N ≤ 120 mm) ± 4 mm (d_N > 120 mm)
Flatness test acc. to EN 825:2013 dimensional deviations	3 mm (≤ 1200 mm) 5 mm (> 1200 mm)

Essential characteristic	**Performance**
Water absorbtion test acc. to 1609:2013 (short-term water absorption by partial immersion)	$W_p \leq 0.5$ kg/m²
Density test acc. to EN 1602:2013	90 kg/m³ to 105 kg/m³
Bending strength test acc. to EN 12089:2013	≥ 120 kPa
Compressive strength test acc. to EN 826:2013	≥ 200 kPa (CS(10\Y)200)
Deformation under specified load and temperature test acc. to EN 1605:2013 with test condition 3 (80 kPa, 60°C, 168 h)	$\Delta \varepsilon \leq 5.0$ % (DLT(3)5 acc. to EN 13169:2012+A1:2015)
Dimensional stability test acc. to EN 1604:2013 (after 48 h storage at (23 ± 2)°C and (90 ± 5) % relative humidity) maximum relative changes	± 0.5 %
Dimensional stability test acc. to EN 1604:2013 (after 48 h storage at (70 ± 2)°C and (50 ± 5) % relative humidity) maximum relative changes	± 0.5 %
Tensile strength perpendicular to faces test acc. to EN 1607:2013	≥ 80 kPa
Compressive creep	No performance assessed.
Behavior under point load	No performance assessed.
a) Declared value of thermal conductivity for a moisture content of the insulation boards at 23 °C and 50 % relative humidity; representative for at least 90 % of the production with a confidence level of 90 %.	

3.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

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

In accordance with the European Assessment Document No 040010-00-1201 "Insulation product made of expanded perlite (EPB)" the legal basis is: Commission Decision 1999/91/EC.

The system to be applied is: system 3.

In addition, the European legal basis for reaction to fire for products covered by this EAD is: Commission Decision 2001/596/EC.

The systems to be applied are: system 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 with Deutsches Institut für Bautechnik.

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