

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

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European Technical Assessment

ETA-18/0604
of 9 November 2021

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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

purenit Funktionswerkstoff, purenit C Funktionswerkstoff,
purenit D Funktionswerkstoff

Product family
to which the construction product belongs

thermal insulation board made of pressed rigid
polyurethane foam

Manufacturer

puren gmbh
Rengoldshauser Straße 4
88662 Überlingen
DEUTSCHLAND

Manufacturing plant

puren gmbh
Reutlingendorfer Straße 15
89611 Obermarchtal
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

EAD 040419-00-1201

This version replaces

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Specific part

1 Technical description of the product

This European Technical Assessment applies to the thermal insulation boards made of pressed rigid polyurethane foam with smooth, rigid surfaces and without additional coating, designated as "purenit Funktionswerkstoff", "purenit C Funktionswerkstoff" or "purenit D Funktionswerkstoff", hereinafter referred to as thermal insulation board.

The polyurethane (PU) rigid foam is made of ground PU residual materials (milling and cutting waste) generated during production and free from impurities.

Residual materials resulting from the production of PU foam blocks and strips laminated with a mineral fleece or aluminium are used for the thermal insulation boards.

An inorganic flame retardant is added to the thermal insulation boards "purenit C Funktionswerkstoff".

The European Technical Assessment has been issued for the products 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 polyurethane (PU) thermal insulation boards are intended to be used as thermal insulation in buildings and construction applications, including floors, walls and roofs, for construction elements with no contact to water and soil.

The performance according to section 3 only applies if the thermal insulation board is installed according to the manufacture's installation instructions and if they are 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 thermal insulation boards of at least 25 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 040419-00-1201 "Thermal insulation board made of pressed rigid polyurethane foam" apply.

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
<p>Reaction to fire</p> <p>test acc. to EN ISO 11925-2:2010 purenit Funktionswerkstoff (for $20 \text{ mm} \leq d \leq 80 \text{ mm}$)</p> <p>test acc. to EN ISO 11925-2:2020 and EN 13823:2010+A1:2014 purenit C Funktionswerkstoff (for $20 \text{ mm} \leq d \leq 80 \text{ mm}$)</p> <p>test acc. to EN ISO 11925-2:2010 and EN 13823:2002 purenit D Funktionswerkstoff (for $20 \text{ mm} \leq d \leq 40 \text{ mm}$)</p>	<p>Class E acc. to EN 13501-1:2007 + A1:2009</p> <p>Class C-s2, d0 ^{a)} acc. to EN 13501-1:2007 + A1:2009</p> <p>Class D-s3, d0 ^{b)} acc. to EN 13501-1:2007 + A1:2009</p>
<p>a) The given classification is valid for application on wood based substrates with thickness $\geq 10 \text{ mm}$ and a density $\geq 472,5 \text{ kg/m}^3$, also on substrates class A1 or A2-s1, d0 acc. to EN 13501-1 fixed mechanically or with PU-adhesive.</p> <p>b) The given classification is valid for application on substrates of plasterboards with thickness $\geq 12 \text{ mm}$ and a density $\geq 525 \text{ kg/m}^3$, also on substrates class A1 or A2-s1, d0 acc. to EN 13501-1 fixed mechanically or with PU-adhesive.</p>	

3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
<p>Thermal conductivity test acc. to EN 12667:2001 purenit Funktionswerkstoff 20 mm < d ≤ 40 mm 40 mm < d ≤ 60 mm 60 mm < d ≤ 80 mm purenit D Funktionswerkstoff 20 mm ≤ d ≤ 40 mm</p>	<p>Declared value of the thermal conductivity ^{a)}</p> <p>$\lambda_D (23/50) = 0.083 \text{ W/(m}\cdot\text{K)}$ $\lambda_D (23/50) = 0.085 \text{ W/(m}\cdot\text{K)}$ $\lambda_D (23/50) = 0.088 \text{ W/(m}\cdot\text{K)}$</p> <p>$\lambda_D (23/50) = 0.083 \text{ W/(m}\cdot\text{K)}$</p>
<p>Conversion of humidity acc. to EN ISO 10456:2007 + AC:2009 mass-related moisture content at 23 °C/50 % rel. humidity mass-related moisture content at 23 °C/80 % rel. humidity mass-related moisture conversion coefficient moisture conversion factor (23 °C/ 50 % rel. humidity to 23 °C/ 80 % rel. humidity)</p>	<p>$u_{23/50} = 0.017$ $u_{23/80} = 0.028$ $f_u = 2.86$ $F_m (23/50-23/80) = 1.03$</p>
<p>Thermal conductivity test acc. to EN 12667:2001 purenit C Funktionswerkstoff 20 mm < d ≤ 80 mm</p>	<p>Declared value of the thermal conductivity ^{a)}</p> <p>$\lambda_D (23/50) = 0.096 \text{ W/(m}\cdot\text{K)}$</p>
<p>Conversion of humidity acc. to EN ISO 10456:2007 + AC:2009 mass-related moisture content at 23 °C/50 % rel. humidity mass-related moisture content at 23 °C/80 % rel. humidity mass-related moisture conversion coefficient moisture conversion factor (23 °C/ 50 % rel. humidity to 23 °C/ 80 % rel. humidity)</p>	<p>No performance assessed No performance assessed No performance assessed No performance assessed</p>
<p>Compressive strength test acc. to EN 826:2013</p>	<p>≥ 7100 kPa</p>
<p>Water absorption test acc. to EN 1609:2013 (by short term, partial immersion)</p>	<p>$W_p \leq 0.5 \text{ kg/m}^2$</p>
<p>Hygroscopic sorption properties</p>	<p>No performance assessed</p>

Essential characteristic	Performance
Water vapour diffusion resistance coefficient	$\mu = 8$
Dimensional stability	No performance assessed
Tensile strength perpendicular to faces test acc. to EN 1607:2013	≥ 800 kPa
Density test acc. to EN 1602:2013	510 kg/m ³ to 590 kg/m ³
Nominal thickness test acc. to EN 823:2013 Deviation	20 mm to 80 mm ± 1 mm
Nominal length test acc. to EN 822:2013 Deviation	≤ 6000 mm ± 8 mm
Nominal width test acc. to EN 822:2013 Deviation	≤ 1350 mm ± 5 mm
Squareness test acc. to EN 824:2013 Deviation	$S_b \leq 2$ mm/m
Flatness test acc. to EN 825:2013 Deviation	≤ 2 mm
Bending strength	No performance assessed
Shear strength	No performance assessed
Deformation under specified compressive load and temperature conditions	No performance assessed
Compressive creep	No performance assessed
Flatness after one-sided wetting	No performance assessed
Water absorption (by long term immersion)	No performance assessed
a) Declared value of the thermal conductivity for a moisture content of the insulation material at 23 °C and 50 % relative humidity, representative for at least 90 % of the production with a confidence level of 90 %.	

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. 040419-00-1201 "Thermal insulation board made of pressed rigid polyurethane foam" the applicable European legal act 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 (for products covered by this European Assessment Document): 2001/596/EC

The system to be applied is: system 1, 3 or 4

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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