

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-23/0187  
of 17 October 2023

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### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

"thermotec BEPS-WD 160N A2"

Product family  
to which the construction product belongs

thermal insulation made of bounded EPS-granulate

Manufacturer

Mixit Dämmstoffe GmbH  
Galgenau 19  
4212 Neumarkt i. M.  
ÖSTERREICH

Manufacturing plant

Mixit Dämmstoffe GmbH  
Galgenau 19  
4212 Neumarkt i. M.  
ÖSTERREICH

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

040635-01-1201

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## Specific part

### 1 Technical description of the product

This European Technical Assessment applies to the thermal insulation product "thermotec BEPS-WD 160N A2" made of polystyrene foam granules and a mixture of binding agents (compound), hereinafter referred to as thermal insulation product.

To manufacture the thermal insulation product, new expanded polystyrene is used with the particle size of the polystyrene foam granules ranging between at least 2 mm and 5 mm at maximum.

The thermal insulation product is manufactured in the manufacturing plant in the form of a dry mixture (made of polystyrene foam granules and a mixture of binding agents). It is filled into sacks with a volume of approx. 100 litres or it can be delivered also in a mobile production unit. On the job site, water is added to the dry mixture, which is then built-in into the building structure with an earth-moist consistency.

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 product can be used for the intended uses as insulation layer for ceilings and roofs through processing at the place of application.

The nominal thickness of the insulation layer installed with the thermal insulation product is at least 45 mm and does not exceed 55 mm.

The relevant national provisions apply to the application of the thermal insulation products.

The performance according to section 3 only applies if the thermal insulation products are installed according to the manufacturer'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 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.

### 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 040635-01-1201 "Thermal and / or sound insulation based on bound polystyrene bulk material".

### 3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of the thermal insulation product (final product) with $45 \text{ mm} \leq d \leq 55 \text{ mm}$ Testing acc. to EN 13823:2020 and EN ISO 1716:2018	Class A2-s1, d0 * acc. to EN 13501-1:2018
Reaction to fire of the polysterene foam granules (EPS)	No performance assessed.
* The given classification is valid for application (without backside ventilation) on substrates with a reaction-to fire class of A1, A2-s1, d0 in accordance with EN 13501-1 or on wood-based substrates with a minimum thickness $d \geq 12 \text{ mm}$ and a minimum density $\geq 510 \text{ kg/m}^3$ .	

### 3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Water vapour diffusion resistance factor Test acc. to EN 12086:2013 (with climatic condition A)	$\mu = 7$
Content, emission and/or release of dangerous substances	
Content of chromium (VI) in cement for the binding agent Test acc. to EN 196-10:2016	0.1 ppm
Content of Hexabromocyclododecan for the EPS-granules Test acc. to EAD 040635-01-1201 (Annex B)	HBCD-free ( $\leq 3,4 \text{ ppm}$ )
Release scenarios regarding BWR 3: IA2	

### 3.3 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Compressive stress at 10 % strain Test acc. to EN 826:2013	$\geq 200 \text{ kPa}$
Longtime compressive creep under compressive loading Test acc. to EN 1606:2013 (with compression load level 20 kPa)	$\chi_{3660} = 1.12 \text{ mm}$ $\epsilon_{3660} = 1.3 \%$
Thickness and compressibility	No performance assessed.
Dimensional stability	No performance assessed.
Deformation under specified compressive load and temperature conditions Test acc. to EN 1605:2013 with testing condition 1: testlevel A: $(23 \pm 5)^\circ\text{C} / (48 \pm 1) \text{ h} / 20 \text{ kPa}$ testlevel B: $(80 \pm 1)^\circ\text{C} / (48 \pm 1) \text{ h} / 20 \text{ kPa}$	Difference of the relative deformation $\epsilon_1$ after testlevel A and $\epsilon_2$ after testlevel B $\epsilon_1 = -0.4 \%$ $\epsilon_2 = -0.8 \%$
Point load	No performance assessed.
Alkaline Resistance	No performance assessed.

### 3.4 Protection against noise (BWR 5)

Essential characteristic	Performance
Dynamic stiffness	No performance assessed.
Impact sound reduction	No performance assessed.

### 3.5 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal conductivity at mean reference temperature of 10°C Test acc. to EN 12667:2001	Declared value * for a moisture content of the insulation product at 23 °C and 50 % relative humidity: $\lambda_{D(23,50)} = 0.065 \text{ W/(m} \cdot \text{K)}$ **
Conversion of humidity acc. to EN ISO 10456:2010:	
Mass-related moisture content at 23 °C/50 % rel. humidity:	$u_{23,50} = 0.035 \text{ kg/kg}$
Mass-related moisture content at 23 °C/80 % rel. humidity:	$u_{23,80} = 0.052 \text{ kg/kg}$
Moisture conversion factor (dry to 23 °C/50 % rel. humidity):	$F_{m1} = 1.02$
Moisture conversion factor (23 °C/50 % rel. humidity to 23 °C/80 % rel. humidity):	$F_{m2} = 1.07$
Particle size distribution of polystyrene granulate Test acc. to EN 933-1:2012 (without the washing and drying procedure prior to the sieving process) maximum particle size of EPS-granulate volume percentage of dust particles of EPS-granulate	$\leq 5 \text{ mm}$ (PS5 acc. to EN 16025:2013) $< 1 \%$ (D0 acc. to EN 16025:2013)
Short-term water absorption by partial immersion Test acc. to EN ISO 29767:2019 (Method A)	$W_p \leq 1.7 \text{ kg/m}^2$
Density of fresh mortar Test acc. to EN 1015-6:1998+A1:2006 (with a measuring vessel with a volume of at least 5 litres)	$180 \text{ kg/m}^3$ to $220 \text{ kg/m}^3$
Bulk density of the dry mixture of granulated polystyrene and compound Test acc. to EN 1097-3:1998 (with a measuring vessel with a volume of at least 5 litres)	$130 \text{ kg/m}^3$ to $150 \text{ kg/m}^3$
Density of the thermal insulation (final product) Test acc. to EN 1602:2013	$160 \text{ kg/m}^3$ to $190 \text{ kg/m}^3$

Essential characteristic	Performance
Moisture sorption Test acc. to EN ISO 12571:2021	u = 0.016 kg/kg (at 23 °C and 50 % rel. humidity) u = 0.071 kg/kg (at 23 °C and 80 % rel. humidity)
<p>* The declared value is representative for at least 90 % of the production with a level of reliability 90 % and applies to the density range of the thermal insulation (final product) given in section 3.5.</p> <p>** The design value of thermal conductivity shall be determined in accordance with the respective national regulations.</p>	

**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 040635-01-1201 "Thermal and/or sound insulation based on bound polystyrene bulk material" the legal basis is:

Commission Decision 1999/91/EC (as amended 2001/596/EC).

The system to be applied is: system 3.

In addition, with regard to reaction to fire for products covered by this EAD the applicable European legal act is: 1999/91/EC (as amended 2001/596/EC).

The system to be applied is: 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 at Deutsches Institut für Bautechnik.

Issued in Berlin on 17 October 2023 by Deutsches Institut für Bautechnik

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Head of Section

Beglaubigt  
Getzlaff

"thermotec BEPS-WD 160N A2"

## Annex A

The thermal conductivity value given in Section 3.5 applies if the following is considered concerning the installation:

- If the thermal insulation product is delivered in sacks and then processed on the job site, the entire content of a delivered and marked sack is mixed with mixing water (no processing of partial quantities of the content).
- When installing the thermal insulation product, the density of the fresh mortar in accordance with Section 3.5 is adhered to. The density is checked by the executing company.
- The amount of water added ranges between 5.0 litres and 6.0 litres per 100 litres of dry mixture.
- For the working process steps following after the installation of the thermal insulation layer, the time limits indicated by the manufacturer are adhered to.
- The installation thickness corresponds to at least the nominal thickness at every point, but does not exceed the thickness 55 mm. The installation thickness is checked by the executing company.