

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-15/0891
of 15 November 2015

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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

"Thermofloc boraffrei" and "Thermofloc boratreduziert"

Product family
to which the construction product belongs

Thermal insulation products made of loose, free cellulose
fibres

Manufacturer

Peter Sepele Gesellschaft m.b.H.
Bahnhofstraße 79
9710 Feistritz/Drau
ÖSTERREICH

Manufacturing plant

Peter Sepele Gesellschaft m.b.H.
Bahnhofstraße 79
9710 Feistritz/Drau
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

European Assessment Document (EAD)
040138-00-1201

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Specific part

1 Technical description of the product

The European Technical Assessment applies to the thermal insulation products made of loose, free cellulose fibres with the designations "Thermofloc boratfrei" and "Thermofloc borat-reduziert".

The cellulose fibres, produced from waste paper by mechanical crushing and provided with a flame retardant, (hereinafter referred to as thermal insulation products) serve for the production of insulation layers by means of machine processing at the place of use

The thermal insulation product "Thermofloc boratfrei" is provided with a flame retardant free of borate, the thermal insulation product "Thermofloc boratreduziert" with a borate reduced flame retardant.

The European Technical Assessment does not apply for a manual processing of the thermal insulation products.

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 thermal insulation products serve for the production of insulation layers, not exposed to compression loads, by means of machine processing at the place of use. The machine processing is carried out in dry conditions or under the addition of water. The thermal insulation product "Thermofloc boratreduziert" is only used in closed structures.

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

- Space-filling insulation in closed cavities of external and interior walls of timber frame constructions and similar structures
- Insulation in closed cavities between rafters and timber beams as well as in cavities of corresponding structures
- Exposed insulation on horizontal or moderately pitched areas ($\leq 10^\circ$), e. g. insulation of topmost storey ceilings which are not subjected to foot traffic, however, are accessible
- Cavity insulation between flooring joist battens and similar substructures

The performances given in Section 3 are only valid if the thermal insulation products are installed according to the manufacturer's installation instructions, used in compliance with the specifications and conditions given in Annex A and if they are protected from precipitation, wetting or weathering in built-in state and during transport, storage and installation.

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

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 thermal insulation products 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 040138-00-1201 "In-situ formed loose fill thermal and/or acoustic insulation products made of vegetable fibres" 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 11925-2:2010	Class E acc. to EN 13501-1:2007+A1:2009 at insulation layer thickness ≥ 40 mm

3.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Resistance to the growth of mould test acc. to EAD "In-situ formed loose fill thermal and/or acoustic insulation products made of vegetable fibres", Annex B	Evaluation level 0 acc. to EN ISO 846:1997

3.4 Safety and accessibility in use (BWR 4)

Not applicable

3.5 Protection against noise (BWR 5)

Not applicable

3.6 Energy economy and heat retention (BWR 6)

a) Thermal insulation product processed in dry conditions

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 material at 23 °C and 50 % relative humidity: $\lambda_{D(23,50)} = 0,039 \text{ W}/(\text{m} \cdot \text{K})^*$
Conversion of humidity acc. to EN ISO 10456:2007+AC:2009 mass-related moisture content at 23 °C/50 % rel. humidity: mass-related moisture content at 23 °C/80 % rel. humidity: mass-related moisture conversion coefficient (dry to 23 °C/50 % rel. humidity): mass-related moisture conversion coefficient (23 °C/50 % rel. humidity to 23 °C/80 % rel. humidity): moisture conversion factor (dry to 23 °C/50 % rel. humidity): moisture conversion factor (23 °C/50 % rel. humidity to 23 °C/ 80 % rel. humidity):	$u_{23,50} = 0,071 \text{ kg/kg}$ $u_{23,80} = 0,13 \text{ kg/kg}$ $f_{u1} = 0,34$ $f_{u2} = 0,45$ $F_{m1} = 1,02$ $F_{m2} = 1,03$

* The declared value is representative for at least 90 % of the production with a confidence level of 90 % and applies to the above-named density range. For the admissible deviation of an individual value of the thermal conductivity from the declared value the method described in EN 13172:2012, annex F, applies.

b) Thermal insulation product processed under the addition of water

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 material at 23 °C and 50 % relative humidity: $\lambda_{D(23,50)} = 0,042 \text{ W/(m} \cdot \text{K)}^*$
Conversion of humidity acc. to EN ISO 10456:2007+AC:2009 mass-related moisture content at 23 °C/50 % rel. humidity: mass-related moisture content at 23 °C/80 % rel. humidity: mass-related moisture conversion coefficient (dry to 23 °C/50 % rel. humidity): mass-related moisture conversion coefficient (23 °C/50 % rel. humidity to 23 °C/80 % rel. humidity): moisture conversion factor (dry to 23 °C/50 % rel. humidity): moisture conversion factor (23 °C/50 % rel. humidity to 23 °C/ 80 % rel. humidity):	$u_{23,50} = 0,066 \text{ kg/kg}$ $u_{23,80} = 0,126 \text{ kg/kg}$ $f_{u1} = 0,38$ $f_{u2} = 0,40$ $F_{m1} = 1,025$ $F_{m2} = 1,025$

* The declared value is representative for at least 90 % of the production with a confidence level of 90 % and applies to the above-named density range. For the admissible deviation of an individual value of the thermal conductivity from the declared value the method described in EN 13172:2012, annex F, applies.

c) Independent of the processing procedure

Essential characteristic	Performance
Water vapour diffusion resistance coefficient test acc. to EN 12086:2013, climate condition C	$\mu = 1 \text{ bis } 2^*$
Corrosion developing capacity test acc. to EN 15101-1:2013, Annex E	CR acc. to EN 15101-1:2013
Settlement Settling under impact excitation	$\leq 10 \%$ at a minimum density of 30 kg/m^3 and a maximum thickness of 300 mm
Settling under vibration in wall cavity	SC 0 acc. to EN 15101-1:2013 ($\leq 1 \%$) at a minimum density of 45 kg/m^3 and a maximum thickness of 240 mm
Airflow resistance** test acc. to EN 29053:1993	$\geq 5 \text{ kPa} \cdot \text{s/m}^2$
Critical moisture content	No performance assessed.
Hygroscopic sorption properties	No performance assessed.

* The most unfavourable value for the construction work shall be applied each.

** Also relevant concerning BWR 5.

English translation prepared by DIBt

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 EAD No. 040138-00-1201, the applicable European legal act is: 1999/91/EC.

The system to be applied is: 3

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.

Issued in Berlin on 17 December 2015 by Deutsches Institut für Bautechnik

Dirk Brandenburger
Head of Department

beglaubigt:
Iffländer

ANNEX A

The performances of the thermal insulation products given in Section 3 are valid if the following will be considered concerning installation and use:

- Densities at built-in stage:

Area of application	Processing	Density
exposed	dry	30 to 44 kg/m ³
	under the addition of water	30 to 50 kg/m ³
Cavity insulation, space-filling		45 to 60 kg/m ³

The density is determined by calculation as a quotient from the mass of the material brought in and the full volume.

- The thermal insulation layer has a constant installation thickness taking account of the nominal thickness. For that purpose suitable height marks are arranged by the executing company in sufficient distances before the processing. The executing company check the installation thickness and the density.
- When calculating the thermal resistance of the construction elements, the nominal thickness of the thermal insulation layer is applied as follows:

Area of application	nominal thickness
exposed	installation thickness minus 10 %
Cavity insulation, space-filling	clear span of the filled cavity

- The requirements concerning ventilation openings and the ventilation section above the thermal insulation layer are considered.
- In case of processing under the addition of water it is ensured that the main share of added water is evaporated before closing the cavity. The time period necessary for this depends on the climatic conditions of the surroundings. In case of processing under the addition of water only building materials allowing an evaporation of moisture are used as facing.
- In case of installation on pitched or arched areas slipping of the thermal insulation product is prevented by suitable measures.
- In case of use as space-filling thermal insulation in closed cavities it is made sure by appropriate measures (e. g. control drillings) that the cavity is completely filled with the thermal insulation product.
- The thermal insulation products are only processed by companies stated in a list of the manufacturer which have adequate experience in installing the material. Concerning this matter the manufacturer has trained these companies.
- The executing company issue a certificate which contains the following information with reference to this European Technical Assessment for each application place:
 - Thermal insulation product made of cellulose fibres Thermofloc boratfrei (or Thermofloc boratreduziert) according to European Technical Assessment ETA-15/0891
 - executing company
 - building project and building component
 - date of installation
 - processing procedure
 - installation thickness