RISE Research Institutes
of Sweden AB
RISE Certifiering
Box 553
SE-371 23 Karlskrona
Sweden

Tel: +46 10 516 63 00
Web: www.ri.se/eta
Mail: certifiering@ri.se

Designated according to Article 29 of Regulation (EU) No 305/2011

Member of EOTA
www.eota.eu

European Technical Assessment

ETA 12/0240
of 24/04/2019

General Part

Technical Assessment Body issuing the European Technical Assessment:	RISE Research Institutes of Sweden AB
Trade name of the construction product	Termoträ Original and Termoträ Fire Protect
Product family to which the construction product belongs	In-situ formed loose fill thermal and/or acoustic insulation product made of vegetable fibres
Manufacturer	Svenska Termoträ AB, Oppsättarvägen 28, SE-81171 Järbo, Sweden www.termotra.se
Manufacturing plant(s)	Same as above
This European Technical Assessment contains	9 pages.
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	EAD 040138-01-1201, May 2018 - In-situ formed loose fill thermal and/or acoustic insulation products made of vegetable fibres
This version is a conversion of and replaces	ETA- 12/0240- 02/07/2012

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Specific parts

1 Technical description of the product

1.1 Description of the construction product

The product with trade name Termoträ Original and Termoträ Fire Protect consists of 95 % vegetable fibres with 5 % binding and flame retardant agents, supplied as in-situ formed loose fill vegetable fibres for mechanical installation.

The vegetable fibre consists of cellulose in form of pulp and are produced by mechanical crushing. The product is installed with diffrent densities depending on the area of application (installation density range 26 – 60 kg/m^3).

The European Technical Assessment is isssued for the product on the basis of agreed data/information, deposited with the Technical Assessment Body (RISE Research Institutes of Sweden AB), which identifies the product that has been assessed.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he consider necessary.

It is assumed that the product will be installed according to the manufacturer's instructions in accordance with appendix A of this ETA.

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

2.1 Intended uses

Insulation products, to be used in caveties of roofs, walls or floors, between rafters and timber work, supplied as loose fill for mechanical installation.

The assessment of the insulation product only applies if the product is used in structures where it will not be exposed to compression loads, precipitation, wetting or weathering and for construction elements with no contact to water and soil or in constructions with no risk that the critical moisture content will be exceeded.

2.2 Working life/durability

The assessment methods included or refered to in this EAD have been written based on the manufacturer's request to take into acount a working life of the thermal insulation product for the intended use of 50 years when installed in the works provided that the thermal insulation product is subject to appropriate installation (see 1.1). These provisions are based upon the current state of the art and the available knowledge and experience.

The indication given as to the workinglife of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when issuing the EAD nor by the Technical Assessment

Body (RISE Research Institutes of Sweden AB), but are regarded only as s means for expressing the expected economically reasonable working life of the product.

3 Performance of the product and references to the methods used for its assessment

3.1 Essential characteristics and their performance

		Characteristic	**Performance**
BWR 1	Mechanical resistance and stability	Not applicable	Not applicable
BWR 2	Safety in case of fire	Reaction to fire	Clause 3.1.1
BWR 3	Hygiene, health and the environment	Biological resistance	Clause 3.1.2
BWR 4	Safety in use	Not applicable	Not applicable
BWR 5	Protection against noise	Sound absorbtion	Clause 3.1.3
BWR 6	Energy economy and heat retention	Thermal conductivity	Clause 3.1.4
		Water vapour diffusion resistance	Clause 3.1.5
		Water absorption	Clause 3.1.6
		Corrosion developing capacity	Clause 3.1.7
		Settlement / density	Clause 3.1.8
		Critical moisture content	Clause 3.1.9
		Specific airflow resistivity	Clause 3.1.10
		Hygroscopic sorption properties	Clause 3.1.11
BWR 7	Sustainable use of natural resources	Not applicable	Not applicable

3.1.1 Reaction to fire

The reaction to fire of the insulating products has been determined according to EN ISO 11925-2.

Class E according to EN 13501-1.

3.1.2 Biological resistance

The determination of the growth of moulds fungus has been determined according to test method A of Annex B of EAD 040138-01-1201, May 2018.

Termoträ Original:

No performance assessed (NPA).

Termoträ Fire Protect:

Class 0 (No growth of moulds visible under the microscope), according to table 4 of EN ISO 846.

3.1.3 Sound absorbtion

No performance assessed (NPA).

3.1.4 Thermal conductivity

Termoträ Original:

Lambda fractile value at 10°C, at dry conditiones has been determined at the reference temperature of 10 °C at dry conditions according to Annex A, clause 1 of EAD 040138-01-1201, May 2018.

The fractile value of thermal conductivity for the density 26 - 41 kg/m^3, representing at least 90 % of the production with a confidence level of 90 % an is,

$\lambda_{10,dry,90/90}$ = 0.0373 W/(m · K)

Mass-related moisture conversion coefficient (fu,1) for conversion of $\lambda_{10,dry}$ to $\lambda_{23,50}$ has been calculated by following the procedure described in Annex A, clause 2 of EAD 040138-01-1201, May 2018 and is,

$f_{u,1}$ = 0.168

Lamda declared at 23°C and 50% relative humidity $\lambda_{D(23,50)}$ has been calculated by following the procedure described in Annex A, clause 3 of EAD 040138-01-1201, May 2018 and is,

$u_{23/50}$ = 0.095 kg/kg

The calculated lamda declared at 23°C and 50% relative humidity for the density 26 - 41 kg/m^3, representing at least 90 % of the production with a confidence level of 90 % is,

$\lambda_{D(23,50)}$ = 0.038 W/(m · K)

Mass-related moisture conversion coefficient to high moisture content ($f_{u,2}$) has been calculated by following the procedure described in Annex A, clause 4 of EAD 040138-01-1201, May 2018,

$f_{u,2}$ = No performance assessed (NPA).

the mass-related moisture content at 23°C and 50% relative humidity is

$u_{23/50}$ = 0.095 kg/kg

the mass-related moisture content at 23°C and 80% relative humidity

$u_{23/80}$= No performance assessed (NPA).

Termoträ Fire Protect:

Lambda fractile value at 10°C, at dry conditiones has been determined at the reference temperature of 10 °C at dry conditions according to Annex A, clause 1 of EAD 040138-01-1201, May 2018.

The fractile value of thermal conductivity for the density 27 - 42 kg/m^3, representing at least 90 % of the production with a confidence level of 90 % an is,

$\lambda_{10,dry,90/90}$ = 0.0373 W/(m · K)

Mass-related moisture conversion coefficient (fu,1) for conversion of $\lambda_{10,dry}$ to $\lambda_{23,50}$ has been calculated by following the procedure described in Annex A, clause 2 of EAD 040138-01-1201, May 2018 and is,

$f_{u,1}$ = 0.168

Lamda declared at 23°C and 50% relative humidity $\lambda_{D(23,50)}$ has been calculated by following the procedure described in Annex A, clause 3 of EAD 040138-01-1201, May 2018 and is,

$_{u23/50}$ = 0.095 kg/kg

The calculated lamda declared at 23°C and 50% relative humidity for the density 27- 42 kg/m^3, representing at least 90 % of the production with a confidence level of 90 % is,

$\lambda_{D(23,50)}$ = = 0.038 W/(m · K)

Mass-related moisture conversion coefficient to high moisture content ($f_{u,2}$) has been calculated by following the procedure described in Annex A, clause 4 of EAD 040138-01-1201, May 2018,

$f_{u,2}$ = No performance assessed (NPA).

the mass-related moisture content at 23°C and 50% relative humidity is

$u_{23/50}$ = 0.095 kg/kg

the mass-related moisture content at 23°C and 80% relative humidity

$u_{23/80}$= No performance assessed (NPA).

Moisture conversion factor (dry-23/50 and 23/50-23/80)
For insulation products made of cellulose (made from paper) without mineral binding agents or potato starch the moisture converion factor F_{m1} = 1,05 and F_{m2} = 1,06 can be used wothout testing.

3.1.5 Water vapour diffusion resistance

The water vapour diffusion factor has been assumed to be between 1 and 4 according to EAD 040138-01-1201, May 2018, Clause 2.2.4.

μ = 1-4

The most unfavourable factor μ depending on construction has to be used for calculation.

3.1.6 Water absorption

No performance assessed (NPA).

3.1.7 Corrosion developing capacity

Termoträ original:

The corrosion developing capacity has been determined according to test method identical to EN 15101-1, Annex E.

Copper coupon: No perforations of the copper coupon were observed.

Zinc coupon: No perforations of the of the Zinc coupon were observed.

Termoträ Fire Protect:

No performance assessed (NPA).

3.1.8 Settlement / density

No performance assessed (NPA).

3.1.9 Critical moisture content

No performance assessed (NPA).

3.1.10 Specific airflow resistivity

Termoträ Original:

The specific airflow resistivity of the insulating material has been determined according to the standard EN 29053, Method A. The mean value of the airflow resistance per unit length at a density of 30 kg/m^3 is 6.7 kPa·s/m^2 or 20.0 kPa s/m^2 at a density of 48 kg/m^3.

Termoträ Fire Protect:

The specific airflow resistivity of the insulating material has been determined according to the standard EN 29053, Method A. The mean value of the airflow resistance per unit length at a density of 27 kg/m^3 is 4.9 kPa·s/m^2 or 9.0 kPa s/m^2 at a density of 42 kg/m^3.

3.1.11 Hygroscopic sorption properties

No performance assessed (NPA).

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

According to the decision 1999/91/EC the system of assessment and verification of constancy of performance (see Annex V to the regulation (EU) No 305/2011) 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 described in EAD 040138-01-1201, May 2018, table 2, Control plan for the manufacturer.

Issued in Borås on 24.04.2019
By RISE Research Institutes of Sweden AB

Johan Åkesson
Certification Manager

APPENDIX A- Manufacturer´s installation instructions

Installation criteria for declared performance

- The installation instruction given by the manufacturer shall be taken into account. Machine installation of the insulation material shall be performed by companies trained by the manufacturer. In case of exposed insulation in pitched areas (≤10°) slipping of insulation material shall be avoided by appropriate measures.
- The thermal insulation material shall only be installed, stored and transported in structures where it will be protected from wetting and weathering and direct contact to soil.
- Depending on the area of application the densities in Table 1 shall be observed and controlled by the installer.

Table 1a

Area of application for Termoträ Original	**Density (dry) (kg/m^3)**
Type 1, cavity insulation in internal and external walls.	41-60
Type 2, insulation in closed cavities in arched and pitched roofs ≤30°.	35-45
Type 3, cavity insulation in horizontal roofs and floor constructions.	35-45
Type 4, exposed insulation in horizontal or moderately arched or pithed areas (≤10°).	26-36

Table 1b

Area of application for Termoträ Fire Protect	**Density (dry) (kg/m^3)**
Type 1, cavity insulation in internal and external walls.	42-60
Type 2, insulation in closed cavities in arched and pitched roofs ≤30°.	35-45
Type 3, cavity insulation in horizontal roofs and floor constructions.	35-45
Type 4, exposed insulation in horizontal or moderately arched or pithed areas (≤10°).	27-37

- NOTE that special attention applies to the insulation work of fire-protected REI constructions and installations of spotlights.
- Monitoring of different designs moisture properties and need for ventilation.
- Open wall compartment for good material filling and possibly hoses inside the compartments.

- The density is determined by calculation as a quotient from mass of the material brought in and the full volume. The execution company shall check the density including the moisture.
- The insulation layer shall have a constant installation thickness considering the nominal thickness. For that purpose, suitable height marks shall be arranged in sufficient distances before the processing. The executing company shall check the installation thickness.
- When calculating the thermal resistance, the nominal thickness of the insulation layer according to Table 2 shall be applied.

Table 2

Area of application **Termoträ Original/Termoträ Fire Protect**	**Nominal thickness**
Cavity insulation in walls.	Clear span of the filled cavity
Cavity insulation in in arched and pitched roofs (>10°), horizontal roofs and floor constructions.	Clear span of the filled cavity
Exposed insulation in horizontal and moderately pitched areas.	15% ≤ 25 cm > 20% installation thickness should be added to the nominal thickness

- For each application, the executing company issues a certificate that contains following specify by reference to this European Technical Assessment.
- Trade names Original or Fire Protect
- Date of installation
- Installer company and responsible person
- Construction address and each construction
- Installation thickness, volume and density
- Calculation of required amount of material
- Installed amount of material
- Comparison between approved and completed installation for approval
- Signature