

## European Technical Assessment

**ETA 12/0240**  
of 02/05/2023

### 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](http://www.termotra.se)

**Manufacturing plant(s)**

Same as above

**This European Technical Assessment contains**

9 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**

EAD 040138-01-1201, May 2018 -  
In-situ formed loose fill thermal and/or acoustic insulation products made of vegetable fibres.

**This version replaces\***

ETA 12/0240, 24/04/2019

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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 different densities depending on the area of application (installation density range 26 – 60 kg/m<sup>3</sup>).

The European Technical Assessment is issued 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 use**

Insulation products, to be used in cavities 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 referred to in this EAD have been written based on the manufacturer's request to take into account 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 working life 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 a 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 absorption	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
BWR 7	Sustainable use of natural resources	Hygroscopic sorption properties	Clause 3.1.11
		Not applicable	Not applicable

#### 3.1.1 Reaction to fire

The reaction to fire of the insulating products has been determined according to EN 13823 and/or EN ISO 11925-2.

**Termoträ Original:** class E according to EN 13501-1.

**Termoträ Fire Protect:** class D-s2,d0 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 absorption

No performance assessed (NPA).

### 3.1.4 Thermal conductivity

#### Termoträ Original:

Lambda fractile value at 10°C, at dry conditions 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<sup>3</sup>, representing at least 90 % of the production with a confidence level of 90 % is,

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

Mass-related moisture conversion coefficient (f<sub>u,1</sub>) 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,

$$f_{u,1} = 0.168$$

Lambda 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,

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

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

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

Mass-related moisture conversion coefficient to high moisture content (f<sub>u,2</sub>) has been calculated by following the procedure described in Annex A, clause 4 of EAD 040138-01-1201, May 2018,

f<sub>u,2</sub> = No performance assessed (NPA).

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

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

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

u<sub>23/80</sub> = No performance assessed (NPA).

#### Termoträ Fire Protect:

Lambda fractile value at 10°C, at dry conditions 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<sup>3</sup>, representing at least 90 % of the production with a confidence level of 90 % is,

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

Mass-related moisture conversion coefficient (f<sub>u,1</sub>) 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,

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

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

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

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

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

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 conversion factor  $F_{m1} = 1,05$  and  $F_{m2} = 1,06$  can be used without 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.

$$\mu = 1-4$$

The most unfavourable factor  $\mu$  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<sup>3</sup> is 6.7 kPa·s/m<sup>2</sup> or 20.0 kPa s/m<sup>2</sup> at a density of 48 kg/m<sup>3</sup>.

#### 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<sup>3</sup> is 4.9 kPa·s/m<sup>2</sup> or 9.0 kPa s/m<sup>2</sup> at a density of 42 kg/m<sup>3</sup>.

### 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.

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By RISE Research Institutes of Sweden AB



Martin Tillander  
Director, Product certification

## Annex 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 ( $\leq 10^\circ$ ) 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 <sup>3</sup> )
Type 1, cavity insulation in internal and external walls.	41-60
Type 2, insulation in closed cavities in arched and pitched roofs $\leq 30^\circ$ .	35-45
Type 3, cavity insulation in horizontal roofs and floor constructions.	35-45
Type 4, exposed insulation in horizontal or moderately arched or pitched areas ( $\leq 10^\circ$ ).	26-36

Table 1b

Area of application for Termoträ Fire Protect	Density (dry) (kg/m <sup>3</sup> )
Type 1, cavity insulation in internal and external walls.	42-60
Type 2, insulation in closed cavities in arched and pitched roofs $\leq 30^\circ$ .	35-45
Type 3, cavity insulation in horizontal roofs and floor constructions.	35-45
Type 4, exposed insulation in horizontal or moderately arched or pitched areas ( $\leq 10^\circ$ ).	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