

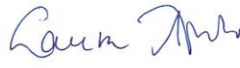


# ENVIRONMENTAL PRODUCT DECLARATION

## Termex, blown-in cellulose fiber insulation



Program operator, publisher:	
Owner of the declaration:	Termex-Eriste Oy
Name of the product:	Termex
Declaration number:	RTS_150_21
Registration number:	
ECO Platform reference number:	
Issue date:	
Valid to:	
Scope of the declaration	This environmental product declaration covers the environmental impacts of <b>Termex thermal insulation</b> . The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020). This declaration covers the life cycle stages from cradle-to-gate, end of life stage and benefits and loads beyond the system boundary.
	 Jessica Karhu <small>RTS EPD Committee secretary</small>  Laura Ajilo <small>Managing Director</small>

## 1. GENERAL INFORMATION, THE SCOPE AND VERIFICATION OF THE DECLARATION

### Owner of the declaration, manufacturer

Termex-Eriste Oy  
Ilolantie 14, 43100 SAARIJÄRVI  
Termex@termex.fi

### Product name and number

Termex  
GTIN 06429830086017

### Place of production

Produced in Saarijärvi, Finland and Bialogard, Poland

### Additional information

Additional Information from [pasi.typpo@termex.fi](mailto:pasi.typpo@termex.fi)

### Product Category Rules and the scope of the declaration

The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020)

### Author of the life-cycle assessment and declaration

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P.O. Box 1000, FI-02044 VTT, Finland [www.vttresearch.com/en](http://www.vttresearch.com/en)  
Compiler D. Sc. (tech) Tiina Vainio-Kaila

### Verification

The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020).

The declaration was verified according to abovementioned standards and PCR rules by:

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Third party verification on 14.5.2021.

Verification is valid 14.5.2021-14.5.2026.

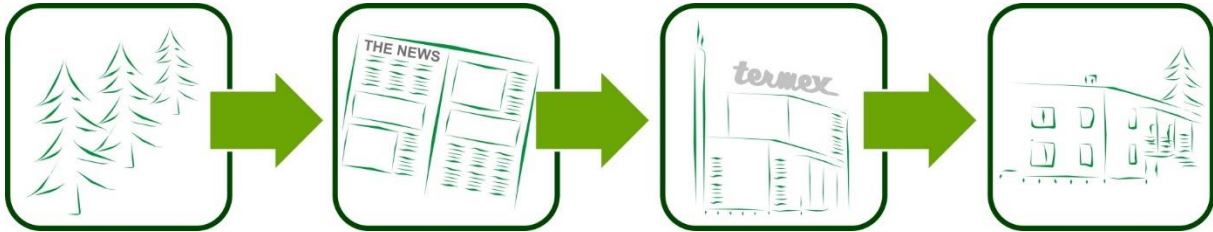
### Declaration issue date and validity

Declaration issue date 2.9.2021. The declaration is valid 5 years, 2.9.2026.

## 2. PRODUCT INFORMATION

### Product description

The declaration is made for loose-fill cellulose insulation, Termex, which is manufactured in two different locations, in Saarijärvi, Finland and Bialogard, Poland. Wastepaper is mixed with boric acid and organic salt to produce blown-in thermal insulation.



Termex can be used as insulation in horizontal, vertical and inclined spaces. It is installed with a blowing equipment.

### Key information of environmental information reported per kilogram

Indicators	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Climate change - total	kg CO <sub>2</sub> eq.	-1.31E+00	2.20E-02	3.11E-03	-1,28E+00	2.35E-03	1.61E-03	1.61E-00	0.00E+00	-8,89E-01
Abiotic depletion, minerals & metals	kg Sb eq.	2.68E-07	1.15E-09	2.42E-09	2.71E-07	2.21E-10	0.00E+00	3.37E-08	0.00E+00	-7.30E-08
Abiotic depletion of fossil resources	MJ, net calorific value	2.05E+00	3.92E-01	2.26E-02	2.47E+00	3.56E-02	0.00E+00	2.45E-01	0.00E+00	-1.19E+01
Water use	m <sup>3</sup> world eq. Deprived	4.83E-02	1.03E-04	4.23E-05	4.85E-02	1.81E-02	0.00E+00	2.35E-03	0.00E+00	-1.41E-02
Biogenic carbon content in product	kg C/kg	0.00E+00	0.00E+00	1,35E+00	1,35E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of secondary material	kg/kg	9,00E-01	0.00E+00	0.00E+00	9,00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

### Technical information

Density	26-60 kg/m <sup>3</sup>
Thermal conductivity λD(23,50)	0,038 W/mK
Technical service life	50 years
Assessment document	ETA/CE
Fire Class	B-s2, d0 E

## Product raw materials

Material	Amount %	Usability			Origin of the material	Raw material type
		Renewable	Non-renewable	Recycled		
Waste paper	90%			x	Finland	Bio-based
Boric acid	~5%		x		Turkey	Mineral
Organic salt	~5%		x		Finland	Mineral

## Substances under European Chemicals Agency's REACH, SVHC restrictions

Name	EC number	CAS Number
Boric acid	233-139-2	10043-35-3

### 3. SCOPE OF LIFE CYCLE ASSESSMENT

This EPD covers cradle to gate, A1-A5 with options, modules C1-C4 and D, as shown in the Figure 1.

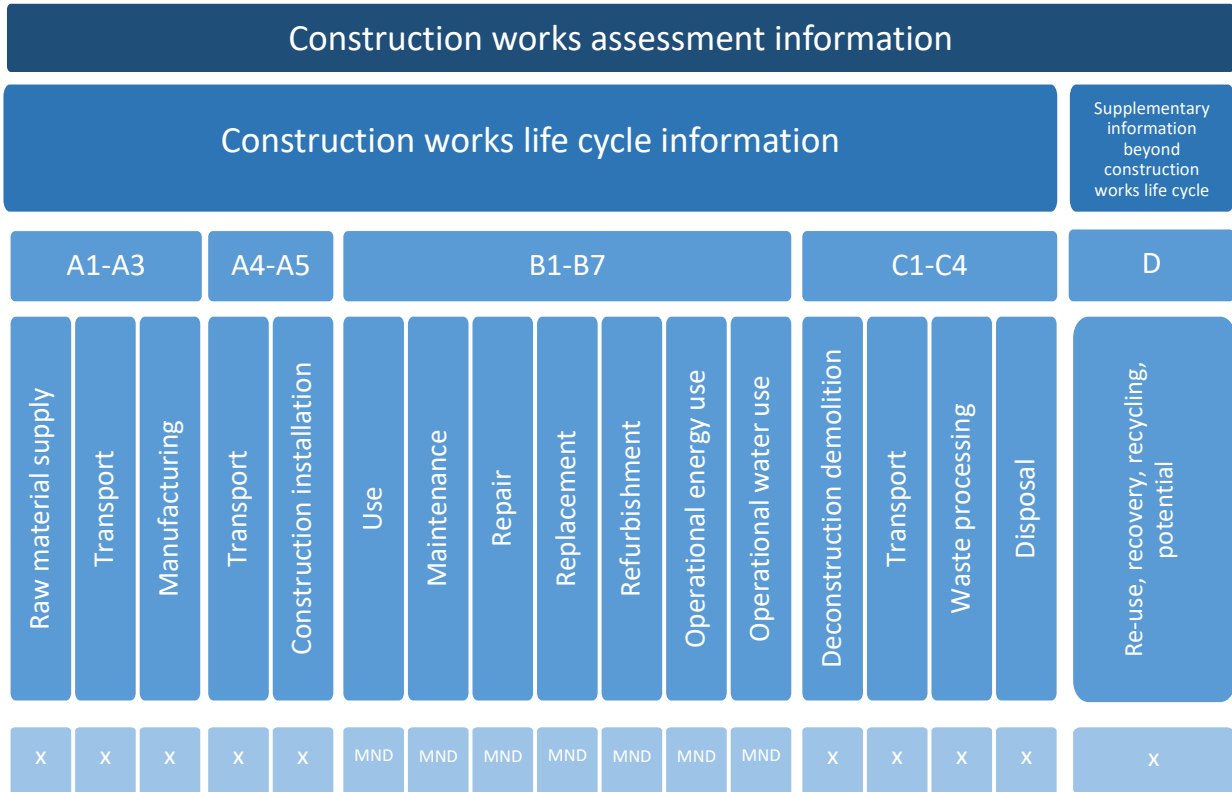


Figure 1. Modules in life cycle assessment of construction works. Modules included on this EPD are marked with x and MND = Module not included.

#### Declared unit

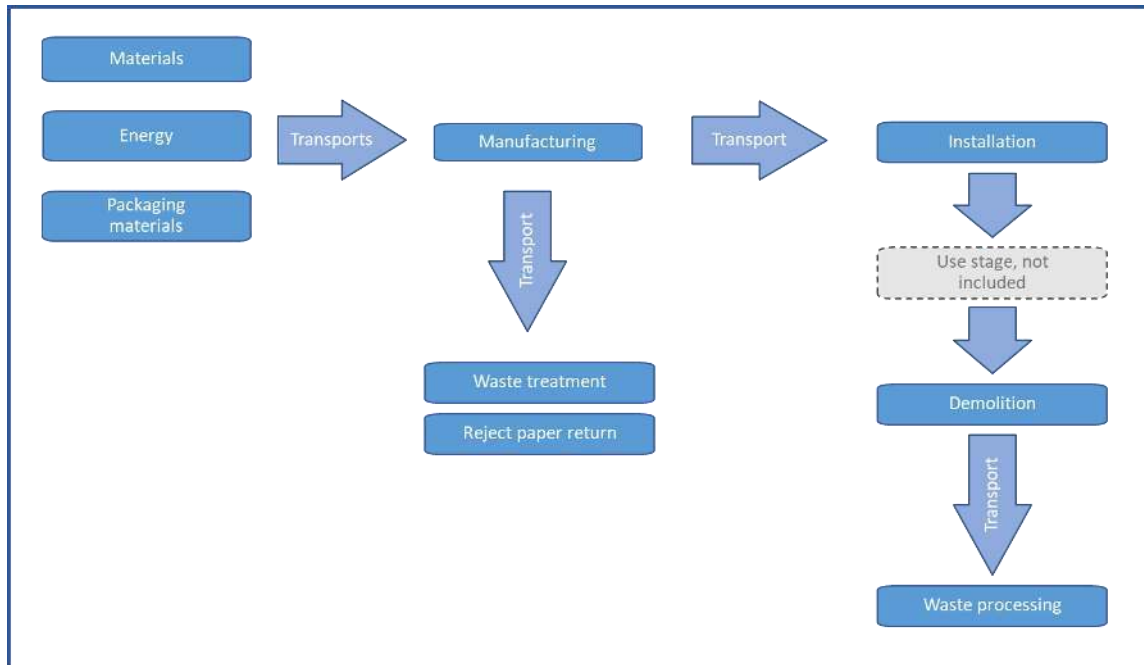
Indicators are reported per 1kg thermal insulation.

#### Cut-off criteria

Data for A1-A5 and C1-C4 and additional information on scenarios in Module D have been collected. Modules A1 to A3 include all the raw materials used, energy production (electricity, heat and fuels), including primary production and processing of raw materials and fuels and transports. In modules C1-C4 final disposal or processing of products is covered. The main component is recycled paper, which is considered waste and doesn't carry the loads of paper production. The maculature from printing houses is also used (about 13% of the paper). As the share of maculature of the printing house revenue is under 1%, the maculature does not carry any loads of the printing or paper production according to the EN 15804:2012 + A2:2019 standard. The loads are all calculated for the printing product.

Module B is not included as the insulation material will not need maintenance during building's life span.

The production of production equipment and means of transport, as well as the machinery, equipment and premises (production goods) needed for production and in production are excluded from the scope of the assessment, as are the commuting of workers. The calculation of Module D is based on an assumption that all insulation material is incinerated to produce district heat energy. The district heating energy is calculated based on the average emissions of district heat at the time of calculation in Finland.



## Allocation

In the factory in Saarijärvi, also asphalt fiber is produced and some allocations were needed. Allocation of energy for the insulation material and asphalt fiber production was made according to estimation by the producer. The waste treatment was allocated based on the production amounts of asphalt fiber and insulation fiber.

## 4. SCOPE OF THE LIFE-CYCLE ASSESSMENT

### Core environmental impacts

Indicators	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Climate change - total	kg CO <sub>2</sub> eq.	-1.31E+00	2.20E-02	3.11E-03	-1.28E+00	5.61E-03	5.09E-03	2.35E-03	1.61E-03	1.61E-00	0.00E+00	-8.89E-01
Climate change - fossil	kg CO <sub>2</sub> eq.	8.10E-02	2.10E-02	2.69E-03	1.05E-01	4.97E-03	4.88E-03	2.14E-03	1.42E-03	3.33E-02	0.00E+00	-8.88E-01
Climate change - biogenic	kg CO <sub>2</sub> eq.	-1.39E+00	1.88E-03	4.26E-04	-1.39E+00	6.40E-04	2.06E-04	2.17E-04	1.81E-04	1.58E-00	0.00E+00	-1.71E-03
Climate change - LULUC	kg CO <sub>2</sub> eq.	9.77E-05	1.12E-06	1.35E-06	1.00E-04	0.00E+00	1.77E-06	4.72E-07	0.00E+00	7.06E-06	0.00E+00	-3.35E-04
Ozone depletion	kg CFC-11 eq.	1.49E-08	6.57E-09	1.33E-10	2.16E-08	0.00E+00	3.13E-10	1.16E-10	0.00E+00	3.14E-09	0.00E+00	-2.23E-08
Acidification	mol H <sup>+</sup> eq.	1.14E-03	7.92E-05	1.01E-05	1.23E-03	1.05E-06	2.34E-05	1.54E-05	5.69E-07	2.79E-04	0.00E+00	-3.73E-03
Eutrophication, freshwater	kg PO <sub>4</sub> eq.	4.16E-05	4.32E-07	8.68E-07	4.29E-05	0.00E+00	2.93E-06	2.53E-06	0.00E+00	3.87E-06	0.00E+00	-6.60E-05
Eutrophication marine	kg N eq.	1.43E-04	2.03E-05	2.66E-06	1.66E-04	5.41E-07	5.18E-06	2.25E-06	2.95E-07	1.41E-04	0.00E+00	-6.56E-04
Eutrophication, terrestrial	mol N eq.	1.74E-03	2.23E-04	2.57E-05	1.99E-03	5.93E-06	4.51E-05	2.09E-05	3.24E-06	1.24E-03	0.00E+00	-8.53E-03
Photochemical ozone formation	kg NMVOC eq.	4.93E-04	6.33E-05	8.04E-06	5.65E-04	1.42E-06	1.29E-05	5.35E-06	7.75E-07	3.04E-04	0.00E+00	-1.92E-03
Abiotic depletion, minerals & metals	kg Sb eq.	2.68E-07	1.15E-09	2.42E-09	2.71E-07	0.00E+00	6.15E-09	2.21E-10	0.00E+00	3.37E-08	0.00E+00	-7.30E-08
Abiotic depletion of fossil resources	MJ, net calorific value	2.05E+00	3.92E-01	2.26E-02	2.47E+00	0.00E+00	6.14E-02	3.56E-02	0.00E+00	2.45E-01	0.00E+00	-1.19E+01
Water use	m <sup>3</sup> world eq. Deprived	4.83E-02	1.03E-04	4.23E-05	4.85E-02	0.00E+00	1.81E-02	1.81E-02	0.00E+00	2.35E-03	0.00E+00	-1.41E-02





## 5. OTHER INDICATORS

### Biogenic carbon content

Biogenic carbon content	Unit	A3
Biogenic carbon content in product	kg C	0,37
Biogenic carbon content in packaging	kg	0

### Wastes

Waste categories	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.64E-04	0.00E+00	8.81E-10	8.81E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non hazardous waste disposed	kg	2.01E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.12E-03	0.00E+00	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	1.02E-07	1.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00

### Other environmental indicators

Other environmental indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	7,44E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1,00E0	0.00E+00	0.00E+00
Exported energy (heat)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15.84E+00

## 6. SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

### Energy in manufacturing phase

Parameter	Finland	Poland
Electricity data source and quality	Ecoinvent database 3.7, Electricity production, hydro, run-of-river, FI, reference year 1945-2020	Ecoinvent database 3.7, electricity production, wind, <1MW turbine, onshore, PL, reference year 2000-2020
GWP per 1kWh electricity	0.003844 kg CO <sub>2</sub> -Eq	0.01379 kg CO <sub>2</sub> -Eq

## Additional technical information, transport to the building site, A3

Scenario information	Quantity	Data quality
Full trailer 80% / semi trailer 20%, diesel	50,4 l/100km / 37 l/100km	Lipasto/Ecoinvent
Average distance	300km	
Capacity utilisation % (including empty returns)	80%	
Bulk density of transported products kg/m <sup>3</sup>	26-60 kg/m <sup>3</sup>	
Volume capacity utilisation factor	40%	

## End-of-life process description, module C

Process flow	Value	Data quality
Collection process -	Collected separately	1kg
	Collected with mixed waste	-
Recovery system -	for re-use	-
	for recycling	-
	for energy recovery	1kg
Disposal specified by type	for final deposition	-
Assumptions for scenario development, e.g. transportation	units as appropriate	

## Additional information

### Emissions to indoor air

The information is not available

### Emissions to soil

The information is not available

### Emissions to water

The information is not available

## 7. REFERENCES

EN15804:2019 Sustainability of construction works. Environmental Product Declarations. Core rules for the product category of construction products

ISO 14025:2011-10 Environmental labels and declarations. Type III environmental declarations. Principles and procedures

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