

Private house in Estonia. Thermory thermo-ash cladding. Kristo Põlluaas (Studio Aas OÜ), Lembit Tork (Tork Arhitektid) & Sirkeli Mall. Photo: Kristo Põlluaas



Tiny Rebel House, Netherlands. Thermory thermo-pine cladding and roofing. Builder and Photo: VMS Timber.



G House, Israel. Thermory ceiling and soffits thermo radiata pine. Architect: 2ARC- Daniela Tchetchik and Hadas Peer. Developer / Builder: Mogli construction. Distributor: ROSHAR ISR LTD. Photo: Oded Smadar

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Thermally modified boards

Thermory AS

EPD HUB, HUB-4821

Published on 09.01.2026, last updated on 04.03.2026, valid until 08.01.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

THERMORY

MANUFACTURER

Manufacturer	Thermory AS
Address	Lõõtsa tn 1A, 11415 Tallinn, Estonia
Contact details	info@thermory.com
Website	www.thermory.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025 EN 16485 Round and sawn timber
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Mari-Liis Tommula, LCA Support
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Haiha Nguyen, as an authorized verifier acting for EPD Hub Limited

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Thermally modified boards
Place(s) of raw material origin	Estonia, Lithuania, Latvia, United Kingdom, Sweden, Ukraine, Finland, Austria, Germany, France, United States, Czech Republic, Hungary, New Zealand
Place of production	Loo, Estonia; Reola, Estonia
Place(s) of installation and use	Denmark
Period for data	01.01.2023-31.12.2023
Averaging in EPD	Multiple products and multiple factories
Variation in GWP-fossil for A1-A3 (%)	-22 / +7 %
A1-A3 Specific data (%)	68

ENVIRONMENTAL DATA SUMMARY

Declared unit	one cubic meter
Declared unit mass	483 kg
Mass of packaging	4,29 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	258
GWP-total, A1-A3 ($kgCO_2e$)	-617
Secondary material, inputs (%)	0,18
Secondary material, outputs (%)	100
Total energy use, A1-A3 (kWh)	4590
Net freshwater use, A1-A3 (m^3)	0,6

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Thermory AS is a leading manufacturer of thermally modified wood products, specializing in environmentally responsible cladding, decking and interior solutions. Using advanced thermal modification technology, Thermory enhances the durability, stability and aesthetic qualities of hardwood and softwood without the use of chemicals.

PRODUCT DESCRIPTION

Thermory timber boards undergo a thermal modification treatment that involves no chemicals in the process or in the final product. The dark color and enhanced biological durability are achieved by subjecting the timber to elevated temperatures for an extended period. After thermal modification, the timber is cut to size, molded into profiles, and any defects are removed.

The thermal modification of timber enhances its biological durability, making it suitable for both indoor (sauna conditions) and outdoor use, even in contact with weather elements such as rain and sunlight. Decking and cladding as well as sauna paneling are the most common applications.

Thermally modified solid timber cladding and decking boards from various species. Softwood species include Spruce, Pine, Radiata Pine. Hardwood species include Oak, Aspen, Alder, Magnolia, Ash.
Softwoods - heartwood, sapwood and knots may be present in the final product. Hardwoods - mostly Grade A quality with little to no timber defects allowed unless specified otherwise. Colour of thermally modified timber has homogenously turned darker and durability against biological agents has become higher.

Further information can be found at:
www.thermory.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	N/A
Minerals	-	N/A
Fossil materials	-	N/A
Bio-based materials	100	Europe, World

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	241,3
Biogenic carbon content in packaging, kg C	1,63

DECLARED UNIT

Declared unit	one cubic meter
Mass per declared unit	483 kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Cradle to gate with options, A4-A5, and modules C1-C4, D

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
×	×	×	×	×	ND	ND	ND	ND	ND	ND	ND	×	×	×	×	×		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.
Hardwood is dried and thermally modified, while softwood is only thermally modified in thermo-treatment chambers at 160-215°C. Following thermal modification, the timber is planed into profiled finished products such as cladding and decking. Quality control procedures are implemented at every stage of the production process, from the receipt and storage of raw materials through to the completion of the finished products. The final product is packaged and labelled.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is defined according to the most probable scenario - from the place of manufacturing to Denmark. According to the manufacturer, transportation doesn't cause losses as products are packaged properly. The final product is transported 1390 km (990 km by lorry and 400 km by ferry). Vehicle capacity utilization volume factor is assumed to be 1, which means full load. It may vary but as the role of transportation emission in total results is small and so the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trips are used by transportation companies to serve the needs of other clients. The fasteners used during product installation have been excluded as cut-off has been applied. In addition, most of the manufacturers products can be ordered with matched tongue-and-groove ends. Matched tongue-and-groove ends allow boards of different lengths to be installed without the

need to rest them on joists. Material losses during installation were not accounted for.
Based on Eurostat (2024) data for 2023, it is assumed that 72% of plastic packaging waste is incinerated with energy recovery and 28% is recycled. For wood packaging waste, 18% is assumed to be treated through energy recovery and 82% is recycled (Nordic Council of Ministers, 2022).

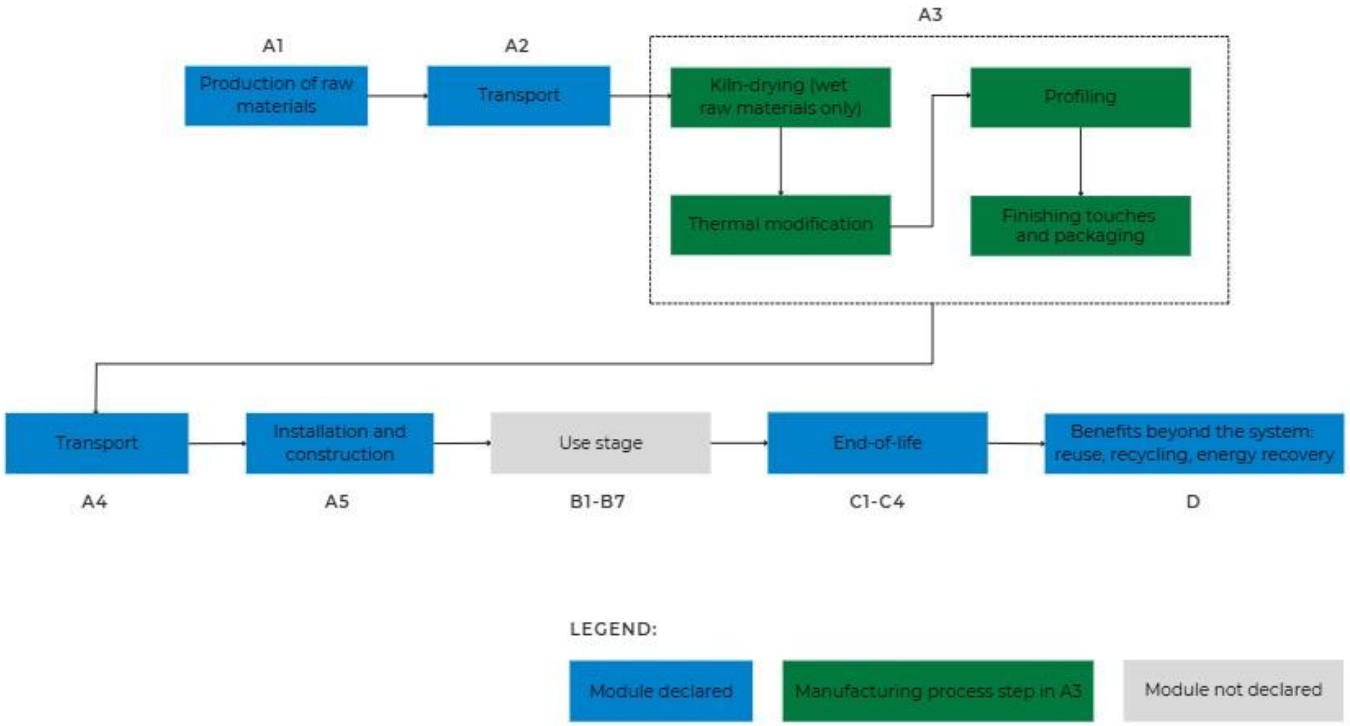
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

End Of Life (EOL) scenarios have been based on data from Denmark. It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed to have the same weight as the declared product. All the end-of-life products are assumed to be sent to the closest facilities for recycling or incineration. Transportation distance to the closest disposal area is estimated as 50 km (C2) and the transportation method is assumed as lorry which is the most common option. At the end-of-life, in the demolition phase, 100% of the product is assumed to be collected as separate wood waste (C1) and is assumed to be sent to the closest facilities where 18% of wood is to be incinerated with energy recovery and 82% is to be recycled (C3). It is assumed that no waste is landfilled (C4) (Nordic Council of Ministers, 2022).

MANUFACTURING PROCESS AND SYSTEM BOUNDARY



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

Bio-, glass, paper and cardboard waste is excluded by cut-off. The mass of these is less than 1% of the total mass of the product.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by production volume
Ancillary materials	Allocated by production volume
Manufacturing energy and waste	Allocated by production volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products and multiple factories
Grouping method	Based on average results of product group - by total volume
Variation in GWP-fossil for A1-A3, %	-22 / +7 %

This EPD represents the product group average based on production volume of thermally modified hardwood and softwood boards and is the average of two manufacturing facilities. The reported GWP-fossil values have a variation range of -22% (Reola, softwood) and +7% (Loo, hardwood) primarily due to the differences between softwood and hardwood production environmental impacts and the types of fuels used in the factories. Loo factory uses more fossil-based fuels that increase the GWP-fossil values.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	-1,08E+03	5,92E+01	4,06E+02	-6,17E+02	7,52E+01	8,29E+00	ND	ND	ND	ND	ND	ND	ND	1,91E-01	2,60E+00	8,91E+02	0,00E+00	-1,79E+02
GWP – fossil	kg CO_2e	7,75E+01	5,92E+01	1,21E+02	2,58E+02	7,52E+01	2,01E+00	ND	ND	ND	ND	ND	ND	ND	1,91E-01	2,60E+00	2,06E+01	0,00E+00	-1,79E+02
GWP – biogenic	kg CO_2e	-1,16E+03	1,31E-02	2,84E+02	-8,76E+02	1,51E-02	6,28E+00	ND	ND	ND	ND	ND	ND	ND	1,95E-05	0,00E+00	8,70E+02	0,00E+00	-2,20E-02
GWP – LULUC	kg CO_2e	1,11E+00	2,66E-02	5,20E-02	1,19E+00	3,46E-02	4,36E-04	ND	ND	ND	ND	ND	ND	ND	1,96E-05	1,16E-03	5,62E-02	0,00E+00	-1,94E-01
Ozone depletion pot.	kg $CFC\text{-}_{11}e$	1,27E-06	8,72E-07	3,01E-06	5,15E-06	1,10E-06	2,66E-09	ND	ND	ND	ND	ND	ND	ND	2,93E-09	3,84E-08	2,61E-07	0,00E+00	-2,90E-06
Acidification potential	mol H^+e	5,15E-01	3,11E-01	3,99E-01	1,22E+00	8,67E-01	1,19E-03	ND	ND	ND	ND	ND	ND	ND	1,73E-03	8,86E-03	1,15E-01	0,00E+00	-3,88E-01
EP-freshwater[2)]	kg Pe	3,63E-02	4,40E-03	5,69E-03	4,64E-02	4,71E-03	3,99E-05	ND	ND	ND	ND	ND	ND	ND	5,52E-06	2,02E-04	5,06E-03	0,00E+00	-4,22E-02
EP-marine	kg Ne	1,94E-01	9,28E-02	1,52E-01	4,39E-01	2,32E-01	4,69E-04	ND	ND	ND	ND	ND	ND	ND	8,01E-04	2,91E-03	4,13E-02	0,00E+00	-9,05E-02
EP-terrestrial	mol Ne	2,06E+00	1,02E+00	1,81E+00	4,89E+00	2,57E+00	4,73E-03	ND	ND	ND	ND	ND	ND	ND	8,77E-03	3,17E-02	4,33E-01	0,00E+00	-9,12E-01
POCP ("smog")[3)]	kg NMVOCe	9,01E-01	3,70E-01	5,71E-01	1,84E+00	7,83E-01	1,43E-03	ND	ND	ND	ND	ND	ND	ND	2,61E-03	1,31E-02	1,35E-01	0,00E+00	-4,25E-01
ADP-minerals & metals[4)]	kg Sbe	2,10E-04	1,57E-04	8,81E-05	4,55E-04	1,65E-04	6,30E-07	ND	ND	ND	ND	ND	ND	ND	6,86E-08	7,25E-06	5,63E-05	0,00E+00	-2,23E-04
ADP-fossil resources	MJ	1,18E+03	8,49E+02	1,77E+03	3,79E+03	1,04E+03	2,63E+00	ND	ND	ND	ND	ND	ND	ND	2,50E+00	3,77E+01	2,81E+02	0,00E+00	-2,66E+03
Water use[5)]	m^3e depr.	3,37E+01	4,08E+00	8,34E+00	4,61E+01	4,46E+00	8,79E-02	ND	ND	ND	ND	ND	ND	ND	6,25E-03	1,86E-01	5,76E+00	0,00E+00	-1,30E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	2,58E-05	5,63E-06	7,46E-06	3,89E-05	5,87E-06	1,77E-08	ND	ND	ND	ND	ND	ND	ND	4,91E-08	2,60E-07	1,87E-06	0,00E+00	-1,85E-06
Ionizing radiation[6)]	kBq U235e	1,07E+01	7,16E-01	1,27E+00	1,27E+01	7,71E-01	1,00E-02	ND	ND	ND	ND	ND	ND	ND	1,11E-03	3,29E-02	1,19E+00	0,00E+00	-1,50E+01
Ecotoxicity (freshwater)	CTUe	6,94E+02	1,17E+02	1,77E+03	2,58E+03	1,27E+02	1,17E+00	ND	ND	ND	ND	ND	ND	ND	1,38E-01	5,34E+00	4,20E+02	0,00E+00	-3,79E+02
Human toxicity, cancer	CTUh	5,35E-08	9,94E-09	2,27E-08	8,61E-08	1,34E-08	1,36E-10	ND	ND	ND	ND	ND	ND	ND	1,97E-11	4,29E-10	8,62E-09	0,00E+00	-2,76E-08
Human tox. non-cancer	CTUh	8,92E-07	5,29E-07	5,54E-07	1,97E-06	5,55E-07	5,55E-09	ND	ND	ND	ND	ND	ND	ND	3,11E-10	2,44E-08	3,39E-07	0,00E+00	-9,92E-07
SQP[7)]	-	1,18E+05	8,08E+02	4,33E+03	1,23E+05	7,80E+02	1,87E+00	ND	ND	ND	ND	ND	ND	ND	1,75E-01	3,80E+01	1,79E+02	0,00E+00	-4,54E+03

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	1,19E+04	1,13E+01	9,21E+02	1,28E+04	1,23E+01	-3,91E+01	ND	ND	ND	ND	ND	ND	ND	1,58E-02	5,17E-01	-5,41E+03	0,00E+00	2,34E+03
Renew. PER as material	MJ	1,03E+04	0,00E+00	-2,52E+03	7,79E+03	0,00E+00	-5,58E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-7,73E+03	0,00E+00	0,00E+00
Total use of renew. PER	MJ	2,22E+04	1,13E+01	-1,60E+03	2,06E+04	1,23E+01	-9,49E+01	ND	ND	ND	ND	ND	ND	ND	1,58E-02	5,17E-01	-1,31E+04	0,00E+00	2,34E+03
Non-re. PER as energy	MJ	1,18E+03	8,49E+02	1,69E+03	3,72E+03	1,04E+03	-2,94E+01	ND	ND	ND	ND	ND	ND	ND	2,50E+00	3,77E+01	2,81E+02	0,00E+00	-2,66E+03
Non-re. PER as material	MJ	0,00E+00	0,00E+00	3,41E+01	3,41E+01	0,00E+00	-3,41E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,18E+03	8,49E+02	1,72E+03	3,75E+03	1,04E+03	-6,35E+01	ND	ND	ND	ND	ND	ND	ND	2,50E+00	3,77E+01	2,81E+02	0,00E+00	-2,66E+03
Secondary materials	kg	8,56E-01	3,62E-01	4,09E-01	1,63E+00	4,45E-01	2,51E-03	ND	ND	ND	ND	ND	ND	ND	1,04E-03	1,61E-02	1,89E-01	0,00E+00	-3,71E-01
Renew. secondary fuels	MJ	2,78E-02	4,37E-03	2,97E-02	6,18E-02	4,35E-03	2,39E-05	ND	ND	ND	ND	ND	ND	ND	2,72E-06	2,04E-04	2,12E-03	0,00E+00	-2,13E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	5,31E-01	1,21E-01	-5,41E-02	5,98E-01	1,29E-01	1,11E-03	ND	ND	ND	ND	ND	ND	ND	1,65E-04	5,58E-03	8,46E-02	0,00E+00	-2,21E+00

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,92E+00	1,41E+00	1,94E+00	7,27E+00	1,62E+00	2,85E-02	ND	ND	ND	ND	ND	ND	ND	2,78E-03	6,39E-02	1,62E+00	0,00E+00	-1,12E+01
Non-hazardous waste	kg	1,33E+02	2,59E+01	2,47E+02	4,06E+02	2,83E+01	1,55E+00	ND	ND	ND	ND	ND	ND	ND	3,80E-02	1,18E+00	1,21E+02	0,00E+00	-2,13E+02
Radioactive waste	kg	2,73E-03	1,75E-04	3,13E-04	3,22E-03	1,89E-04	2,51E-06	ND	ND	ND	ND	ND	ND	ND	2,72E-07	8,04E-06	2,97E-04	0,00E+00	-3,70E-03

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	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	3,08E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,96E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,21E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,69E+01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	2,71E+01	2,71E+01	0,00E+00	3,39E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,56E+03	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,13E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	5,22E+02	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	2,71E+01	2,71E+01	0,00E+00	2,26E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,04E+03	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	7,83E+01	5,89E+01	1,21E+02	2,58E+02	7,48E+01	2,00E+00	ND	ND	ND	ND	ND	ND	ND	1,90E-01	2,59E+00	2,06E+01	0,00E+00	-1,78E+02
Ozone depletion Pot.	kg CFC_{-11}e	1,03E-06	6,96E-07	2,44E-06	4,16E-06	8,77E-07	2,16E-09	ND	ND	ND	ND	ND	ND	ND	2,32E-09	3,06E-08	2,13E-07	0,00E+00	-2,33E-06
Acidification	kg SO_2e	3,82E-01	2,42E-01	2,80E-01	9,03E-01	6,85E-01	8,84E-04	ND	ND	ND	ND	ND	ND	ND	1,21E-03	6,77E-03	8,69E-02	0,00E+00	-3,15E-01
Eutrophication	kg PO_4^3e	1,67E-01	4,58E-02	1,07E-01	3,20E-01	9,41E-02	2,35E-04	ND	ND	ND	ND	ND	ND	ND	2,84E-04	1,65E-03	2,24E-02	0,00E+00	-5,34E-02
POCP (“smog”)	kg C_2H_4e	8,60E-02	1,76E-02	2,69E-02	1,31E-01	3,93E-02	6,66E-05	ND	ND	ND	ND	ND	ND	ND	9,10E-05	6,03E-04	6,46E-03	0,00E+00	-3,18E-02
ADP-elements	kg Sbe	2,06E-04	1,53E-04	8,04E-05	4,40E-04	1,62E-04	6,04E-07	ND	ND	ND	ND	ND	ND	ND	6,67E-08	7,07E-06	5,44E-05	0,00E+00	-2,17E-04
ADP-fossil	MJ	9,92E+02	8,38E+02	1,75E+03	3,58E+03	1,03E+03	2,46E+00	ND	ND	ND	ND	ND	ND	ND	2,48E+00	3,72E+01	2,61E+02	0,00E+00	-2,41E+03

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	7,86E+01	5,92E+01	1,21E+02	2,59E+02	7,52E+01	2,01E+00	ND	ND	ND	ND	ND	ND	ND	1,91E-01	2,60E+00	2,07E+01	0,00E+00	-1,79E+02

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, wood, future (Reference product: electricity, high voltage, ecoinvent 3.10.1, world); Electricity production, photovoltaic, 3kWp flat-roof installation, multi-Si, world; Electricity, Estonia, 2023, Estonia, One Click LCA
Electricity CO2e / kWh	0,0411
District heating data source and quality	Heat production, natural gas, at industrial furnace >100kW (Reference product: heat, district or industrial, natural gas, Ecoinvent 3.10.1, Unit: MJ, Europe)
District heating CO2e / kWh	0,0773

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	0,10
Average transport distance, km	1390
Capacity utilization (including empty return) %	100
Bulk density of transported products	487,3
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m³	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	3,49 wood packaging, 0,8 plastic packaging
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	Wood packaging: 3.49 kg total (2.86 kg recycled, 0.63 kg incinerated with energy recovery)
	Plastic packaging: 0.8 kg total (0.22 kg recycled, 0.58 kg incinerated with energy recovery)
Direct emissions to ambient air, soil and water / kg	0

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	483
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	396,1
Recovery process – kg for energy recovery	86,9
Disposal (total) – kg for final deposition	0
Scenario assumptions e.g. transportation	Transport to treatment or landfill is assumed to be 50 km.

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited

09.01.2026





REFERENCES

Standards and PCR

ISO 14025:2010. Environmental labels and declarations – Type III environmental declarations – Principles and procedures.
ISO 14040:2006. Environmental management – Life cycle assessment – Principles and framework.
ISO 14044:2006. Environmental management – Life cycle assessment – Requirements and guidelines.
EN 15804:2012+A2:2019/AC:2021. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.
EN 16485: Round and sawn timber – Environmental requirements.

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European Environment Agency (EEA) (2022). Early warning assessment related to the 2025 targets for municipal waste and packaging waste. Available at: https://www.eea.europa.eu/publications/many-eu-member-states/denmark [Accessed: 12 September 2025].

Nordic Council of Ministers (2022). LCA for treatment of wood waste in the Nordics. TemaNord 2022:539. Nordic Council of Ministers, Copenhagen. Available at: https://pub.norden.org/temanord2022-539/#114576 [Accessed: 29 August 2025].

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