ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Normathane 50 FD

Nor-Maali Oy

EPD HUB, HUB-6420
Published on 22.05.2026, last updated on 22.05.2026, valid until 21.05.2031

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

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Nor-Maali Oy
Address	Vanhatie 20, 15240 Lahti, Finland
Contact details	sds@nor-maali.fi
Website	www.nor-maali.fi

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
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Elina Syrjä, Nor-Maali Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Elma Avdyli, as 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	Normathane 50 FD
Additional labels	-
Product reference	-
Place(s) of raw material origin	Finland, EU, China, Mexico
Place of production	Lahti, Finland
Place(s) of installation and use	Finland
Period for data	calendar year 2025
Averaging in EPD	no averaging
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	8,16

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
Mass of packaging	0,082 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	5,39
GWP-total, A1-A3 ($kgCO_2e$)	5,49
Secondary material, inputs (%)	0,19
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	25,1
Net freshwater use, A1-A3 (m^3)	4,19

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Nor-Maali provides a reliable range of industrial coatings for professional use. The product portfolio includes anti-corrosion protective coatings for metal surfaces, available in both water-based and high-solid solvent-based formulations. In addition, Nor-Maali manufactures CE-certified concrete floor products.

PRODUCT DESCRIPTION

Normathane 50 FD is a two component chemically curing aliphatic acrylic polyurethane coating. Product is very fast drying, and it provides a semi-gloss finish with excellent hardness. It is a high solids product. Product contains no solvents on the Hazardous Air Pollutants (HAPs) list. Minor amounts of such solvents may come in through tinting of some colors. The product has been emission tested as part of a coating system in accordance with BREEAM International New Construction v7 and BREEAM NOR v6.1.1. To be used as topcoat in atmospheric environments from C2 to C5 on various primers. The paint dries quickly and provides excellent surface hardness early in the curing process. This enables fast throughput in the production and stacking of the painted products. Can be used for industrial coating of steel structures in projects subject to BREEAM classification.

PRODUCT APPLICATION

The surface should be dry and clean when applied. Applied with an airless spray or brush. The paint must be thoroughly mixed before application.

TECHNICAL INFORMATION

Spreading rate (typical):	7,6 – 12,2 m²/L
Dry film thickness:	50 - 80 µm
Finish:	Semi-gloss

PHYSICAL PROPERTIES OF THE PRODUCT

Volume of solids:	61 ± 2%
Mass of solids:	960 g/L
VOC-value:	370 g/L
Density:	1,33 kg/L

Further information can be found at: www.nor-maali.fi

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	39	EU, CN, MX
Fossil materials	60	EU, CN
Bio-based materials	< 1	EU

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,00164
Biogenic carbon content in packaging, kg C	0,00009

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

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.

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

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

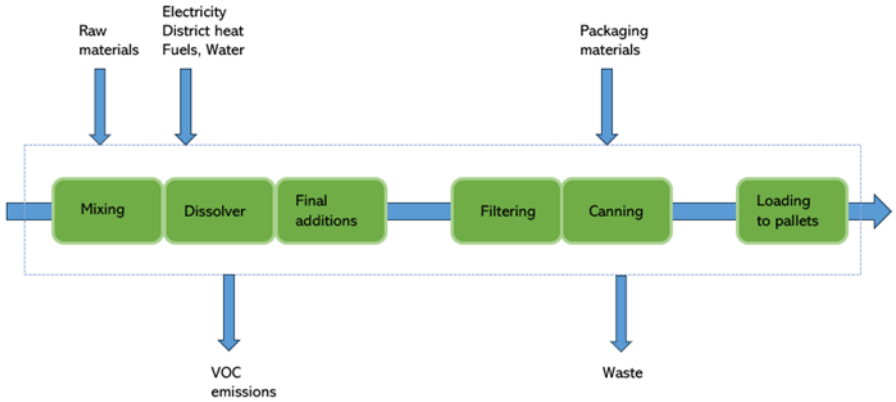
The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities 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.

A1: Raw materials are mainly sourced from Europe, and CEPE database v4.0 has been used for the modelling. Losses and direct emission are conducted.

A2: Transport distances from suppliers to the factory are based on actual data.

A3: The manufacturing and packaging process (A3) is illustrated in the Process Flow Diagram.



The manufacturing process of paint consists of two main steps: paint production and product packaging. Production begins with mixing, in which solvents, powders (pigments, fillers, and thickeners), additives, and sometimes binders are dispersed in a dissolver to form a smooth paint paste. This is followed by finishing, where binders, solvents, additives, including any tinting pastes, are added to produce a ready-to-use paint. Packaging includes the canning of the paint and loading the cans onto pallets. The paint is filled into cans of various sizes using filling machines, after which the pallets are transferred to a warehouse within the site. During the manufacturing and packaging stage (A3), small quantities of waste are generated, including hazardous waste, metal waste, plastic waste, paper and cardboard waste, and intermediate bulk containers (IBCs). All waste streams are sorted at source and directed to appropriate treatment routes. Hazardous waste and paper/cardboard waste are primarily sent to energy

recovery. Metal waste is directed to material recycling, while plastic waste is also collected and recycled. IBC containers are reused where possible.

The Process Flow Diagram is used to support the definition of the system boundaries and the completeness of data for module A3 and is consistent with the manufacturing description provided in Section Manufacturing and Packaging (A1–A3).

Guarantee of Origin: Electricity purchased by Nor-Maali Oy is fossil-free, produced from nuclear and hydropower (certified by Fortum Oy)

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.

A4: Nor-Maali Oy purchases the entire transport services from a long-standing partner with whom an agreement has been made on the use of BIO fuel.

The transportation distance is defined according to average distance. Average distance of transportation from production plant to building site is assumed as 300 km and the transportation method is assumed to be lorry. Vehicle capacity utilization volume factor is assumed to be 100 % which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients.

A5: Installation waste considered in module A5 consists of packaging materials, including metal containers, wooden pallets, and plastic film. In addition, installation-related losses include overspray (assumed 5% of the applied product) and emissions of volatile organic compounds (VOC) during application.

Packaging waste is collected on-site and transported to the nearest waste treatment facility, with an assumed transport distance of 50 km, representing typical conditions in the EU. Overspray is treated as hazardous waste and directed to energy recovery. VOC emissions are released to air during application.

Waste treatment assumptions:

- Wood packaging (pallets): 32% recycled, 30% incinerated with energy recovery, 38% landfilled
- Metal packaging (containers): 81% recycled, 19% landfilled
- Plastic film: 40% recycled, 37% incinerated with energy recovery, 23% landfilled

Waste management of packaging materials is based on European statistical data (Eurostat). Transport distances are based on typical European conditions.

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)

During the use phase, volatile organic compounds (VOC) evaporate from the paint, and therefore the remaining solid mass at the end of life is less than 1 kg.

C1: Deconstruction and demolition
The impacts of deconstruction are assumed to be negligible, as the energy and resource use required for removing the paint from the substrate are considered insignificant.

C2: Transport
The paint is assumed to remain attached to the metal substrate and follow it to waste treatment at the end of life. The transport distance from the construction site to the nearest waste treatment facility is assumed to be 50 km, representing typical European conditions.

C3–C4: Waste processing and disposal
As part of the metal waste treatment process, the paint layer is assumed to be degraded during thermal treatment (incineration) of the metal scrap. The incineration of the paint does not include energy recovery, and no material recycling is assumed for the paint fraction. The resulting residues are treated and disposed of according to standard waste management practices.

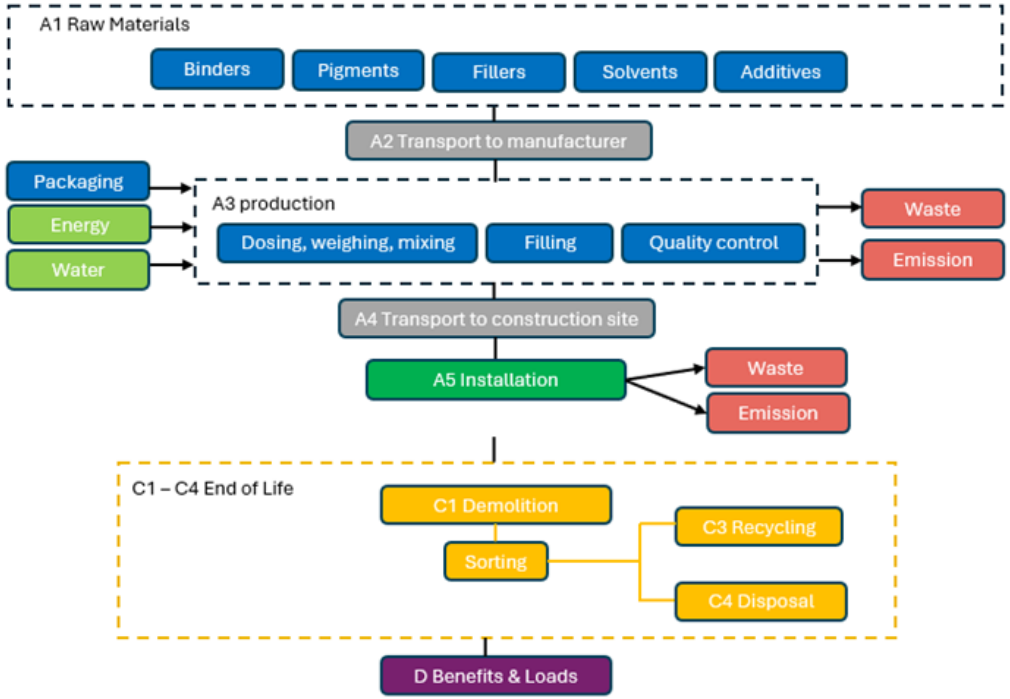
Module D: Benefits and loads beyond the system boundary
No benefits or loads beyond the system boundary are generated for the paint itself, as no energy recovery or material recycling is considered.

However, benefits and loads are reported for packaging materials. Wood packaging is generated in module A5 only, while plastic and steel packaging are generated in both modules A3 and A5. These benefits arise from material recycling and energy recovery processes.

Recycled materials are assumed to replace virgin materials, such as primary steel and polyethylene. For wood and plastic fractions sent to incineration with energy recovery, the recovered energy is assumed to substitute conventional energy production (electricity and heat), based on average European conditions.

The modelling of recycling and energy recovery processes is performed up to the end-of-waste state, and the associated benefits and loads are reported in Module D in accordance with EN 15804.

SYSTEM DIAGRAM



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.

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 1 and 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	No allocation
Ancillary materials	No allocation
Manufacturing energy and waste	Allocated by mass or volume

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.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	-
Variation in GWP-fossil for A1-A3, %	-

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

The distance of waste transport is estimated to be typical in the EU. Waste management of packaging materials is based on EU statistical data (https://ec.europa.eu).
Exported electric energy for the wooden pallet. Averaged from "Debunking Efficient Recovery: The Performance of EU Incineration Facilities, 2023" https://zerowasteeurope.eu/wp-content/uploads/2023/01/Debunking-Efficient-Recovery-Full-Report-EN.docx.pdf
Exported thermal energy for the wooden pallet. Averaged from "Debunking Efficient Recovery: The Performance of EU Incineration Facilities, 2023" https://zerowasteeurope.eu/wp-content/uploads/2023/01/Debunking-Efficient-Recovery-Full-Report-EN.docx.pdf
Wooden pallet waste management of packaging materials is based on EU statistical data: https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519174/default/table?lang=en
Steel packaging waste management of packaging materials is based on EU statistical data: https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_13967225/default/table?lang=en
Exported electric energy for the packaging film. Averaged from "Debunking Efficient Recovery: The Performance of EU Incineration Facilities, 2023" https://zerowasteeurope.eu/wp-content/uploads/2023/01/Debunking-Efficient-Recovery-Full-Report-EN.docx.pdf
Exported thermal energy for the packaging film. Averaged from "Debunking Efficient Recovery: The Performance of EU Incineration Facilities, 2023" https://zerowasteeurope.eu/wp-content/uploads/2023/01/Debunking-Efficient-Recovery-Full-Report-EN.docx.pdf
Plastic packaging waste management of packaging materials is based on EU statistical data: https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519242/default/table?lang=en

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	4,73E+00	4,33E-01	3,31E-01	5,49E+00	4,36E-04	3,95E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,46E-03	0,00E+00	2,64E+00	-1,01E-01
GWP – fossil	kg CO_2e	4,63E+00	4,32E-01	3,23E-01	5,39E+00	5,67E-04	3,93E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,46E-03	0,00E+00	2,63E+00	-1,01E-01
GWP – biogenic	kg CO_2e	9,04E-02	7,85E-05	7,80E-03	9,83E-02	-1,55E-04	2,16E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,13E-06	0,00E+00	5,00E-04	-8,10E-05
GWP – LULUC	kg CO_2e	3,00E-03	2,03E-04	2,58E-04	3,46E-03	2,38E-05	1,95E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,90E-06	0,00E+00	9,29E-05	-1,61E-05
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	2,17E-06	6,30E-09	4,33E-09	2,18E-06	1,66E-11	1,10E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,20E-10	0,00E+00	2,00E-08	-3,53E-10
Acidification potential	mol H^+e	2,52E-02	7,54E-03	1,25E-03	3,40E-02	3,34E-06	1,84E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,51E-05	0,00E+00	1,89E-03	-4,09E-04
EP-freshwater[2)]	kg Pe	7,85E-04	2,23E-05	1,77E-04	9,84E-04	3,73E-08	8,55E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,86E-07	0,00E+00	2,69E-05	-7,28E-05
EP-marine	kg Ne	3,50E-03	1,96E-03	3,12E-04	5,77E-03	2,53E-06	3,28E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,84E-06	0,00E+00	3,25E-04	-9,09E-05
EP-terrestrial	mol Ne	3,79E-02	2,17E-02	2,96E-03	6,25E-02	1,33E-05	3,47E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-04	0,00E+00	3,57E-03	-9,90E-04
POCP ("smog")[3)]	kg NMVOCe	1,70E-02	6,20E-03	9,07E-03	3,22E-02	1,72E-06	2,76E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,77E-05	0,00E+00	2,32E-03	-3,38E-04
ADP-minerals & metals[4)]	kg Sbe	1,69E-05	7,66E-07	2,33E-06	1,99E-05	6,46E-10	1,38E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,83E-08	0,00E+00	9,63E-07	-1,10E-06
ADP-fossil resources	MJ	8,19E+01	5,75E+00	5,41E+00	9,31E+01	7,47E-03	5,25E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,88E-02	0,00E+00	1,19E+01	-9,42E-01
Water use[5)]	m^3e depr.	2,38E-01	2,17E-02	1,27E-01	3,87E-01	1,93E-04	2,77E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,36E-04	0,00E+00	4,77E-02	-2,28E-02

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	2,29E-07	2,68E-08	2,04E-08	2,77E-07	2,37E-11	1,55E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,39E-10	0,00E+00	2,07E-08	-7,44E-09
Ionizing radiation[6)]	kBq U235e	3,75E-01	3,69E-03	1,54E-01	5,32E-01	6,27E-06	2,98E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,74E-05	0,00E+00	8,26E-03	3,68E-03
Ecotoxicity (freshwater)	CTUe	5,99E+01	6,13E-01	1,27E+01	7,32E+01	6,81E-03	8,71E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,70E-02	0,00E+00	9,51E+00	-4,62E+00
Human toxicity, cancer	CTUh	1,81E-09	8,09E-11	3,60E-10	2,25E-09	1,21E-13	2,50E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,40E-12	0,00E+00	4,98E-09	-1,50E-11
Human tox. non-cancer	CTUh	9,26E-08	2,56E-09	3,87E-09	9,90E-08	1,09E-11	2,24E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,50E-11	0,00E+00	7,91E-09	-6,94E-10
SQP[7)]	-	7,31E+00	3,15E+00	2,66E+00	1,31E+01	1,18E-02	8,16E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,88E-02	0,00E+00	7,22E-01	-3,19E-01

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	2,37E+00	5,95E-02	8,44E-01	3,28E+00	5,89E-04	1,94E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,31E-03	0,00E+00	9,58E-02	-8,10E-02
Renew. PER as material	MJ	1,02E-02	0,00E+00	2,94E-03	1,31E-02	0,00E+00	-3,14E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-1,00E-02	8,00E-04
Total use of renew. PER	MJ	2,38E+00	5,95E-02	8,47E-01	3,29E+00	5,89E-04	1,91E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,31E-03	0,00E+00	8,58E-02	-8,02E-02
Non-re. PER as energy	MJ	7,61E+01	5,75E+00	5,06E+00	8,69E+01	2,42E-03	4,08E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,88E-02	0,00E+00	-2,43E+00	-9,42E-01
Non-re. PER as material	MJ	6,01E+00	0,00E+00	-1,02E-01	5,91E+00	0,00E+00	-1,63E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-5,89E+00	6,85E-03
Total use of non-re. PER	MJ	8,21E+01	5,75E+00	4,96E+00	9,28E+01	2,42E-03	4,06E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,88E-02	0,00E+00	-8,32E+00	-9,35E-01
Secondary materials	kg	1,87E-03	2,48E-03	4,11E-02	4,55E-02	1,13E-06	2,47E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,49E-05	0,00E+00	4,64E-03	5,69E-02
Renew. secondary fuels	MJ	6,75E-05	1,85E-05	2,93E-04	3,79E-04	1,32E-08	2,37E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,45E-07	0,00E+00	7,20E-06	-9,08E-06
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	1,38E-04	1,38E-04	0,00E+00	6,89E-06	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	4,19E+00	6,11E-04	2,46E-03	4,19E+00	4,45E-06	2,10E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,01E-05	0,00E+00	1,06E-03	-3,69E-04

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	1,91E-01	8,38E-03	9,36E-02	2,93E-01	1,35E-05	3,52E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,14E-04	0,00E+00	5,00E-02	-3,35E-02
Non-hazardous waste	kg	4,88E+00	1,38E-01	2,14E+00	7,16E+00	1,16E-04	4,36E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,44E-03	0,00E+00	1,65E-01	-4,06E-01
Radioactive waste	kg	2,47E-05	9,00E-07	3,35E-05	5,91E-05	1,50E-09	3,80E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,40E-08	0,00E+00	2,08E-06	9,47E-07

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	1,81E-03	1,81E-03	0,00E+00	9,05E-05	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	2,38E-03	2,38E-03	0,00E+00	6,83E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	1,50E-02	1,50E-02	0,00E+00	5,07E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,40E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	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	1,03E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	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	1,37E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	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	4,61E+00	4,30E-01	3,25E-01	5,36E+00	5,87E-04	3,92E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,43E-03	0,00E+00	2,63E+00	-1,00E-01
Ozone depletion Pot.	kg $CFC_{-11}e$	2,85E-06	5,01E-09	3,79E-09	2,86E-06	1,41E-11	1,44E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,57E-11	0,00E+00	1,59E-08	-3,91E-10
Acidification	kg SO_2e	2,14E-02	5,99E-03	1,00E-03	2,84E-02	2,06E-06	1,54E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,85E-05	0,00E+00	1,58E-03	-3,30E-04
Eutrophication	kg PO_4^3e	1,25E-02	7,36E-04	2,58E-04	1,35E-02	6,59E-06	7,04E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,78E-06	0,00E+00	1,72E-04	-7,08E-05
POCP (“smog”)	kg C_2H_4e	2,01E-03	3,18E-04	1,09E-04	2,44E-03	1,01E-07	1,31E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,57E-06	0,00E+00	1,27E-04	-5,14E-05
ADP-elements	kg Sbe	8,79E-06	7,49E-07	2,25E-06	1,18E-05	7,00E-10	7,88E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,78E-08	0,00E+00	8,64E-07	-1,10E-06
ADP-fossil	MJ	7,69E+01	5,69E+00	3,40E+00	8,60E+01	7,37E-03	4,84E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,72E-02	0,00E+00	1,17E+01	-1,01E+00

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	4,64E+00	4,32E-01	3,23E-01	5,39E+00	5,91E-04	3,93E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,46E-03	0,00E+00	2,63E+00	-1,01E-01

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

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity production, nuclear, boiling water reactor, Finland, Ecoinvent, 0.0075 kgCO2e/kWh
2. Electricity production, hydro, run-of-river, Finland, Ecoinvent, 0.0044 kgCO2e/kWh
3. Heat and power co-generation, wood chips, 6667 kW, state-of-the-art 2014, Finland, Ecoinvent, 0.0026 kgCO2e/MJ
4. Heat, from municipal waste incineration to generic market for heat, district or industrial, other than natural gas, Finland, Ecoinvent
5. Heat production, natural gas, at industrial furnace >100kW, Finland, Ecoinvent, 0.0754 kgCO2e/MJ
6. Heat production, at heat pump 30kW, allocation exergy, Finland, Ecoinvent, 0.0221 kgCO2e/MJ
7. Diesel combusted in building machine, World, One Click LCA, 3.38 kgCO2e/l

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	HVO renewable diesel truck
Average transport distance, km	300
Capacity utilization (including empty return) %	100
Bulk density of transported products	1080
Volume capacity utilization factor	<1

Installation scenario documentation - A5 (Installation waste)

1. Treatment of hazardous waste, hazardous waste incineration, Ecoinvent, Materials for energy recovery, 0.05 kg
2. Direct emission to air: NMVOC, non-methane volatile organic compounds, One Click LCA, 0.27411 kg
3. Exported Energy: Electricity, Ecoinvent, 1.3E-4 MJ
4. Exported Energy: Electricity, Ecoinvent, 9.0E-4 MJ
5. Exported Energy: Thermal, Ecoinvent, 1.7E-4 MJ
6. Exported Energy: Thermal, Ecoinvent, 0.0012 MJ
7. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 6.1E-5 kg
8. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 5.7E-5 kg
9. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 7.2E-5 kg
10. Treatment of metal scrap, mixed, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.068 kg
11. Treatment of waste steel, inert material landfill, Ecoinvent, 0.016 kg
12. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 1.3E-4 kg
13. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 8.3E-5 kg
14. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 1.4E-4 kg

End-of-life scenario documentation - C1-C4 (Data source)

1. Treatment of waste paint, hazardous waste incineration, Ecoinvent, 0.72589 kg

Scenario information	Value
Scenario assumptions e.g. transportation	50 km, Market for transport, freight, lorry, unspecified (Reference product: transport, freight, lorry, unspecified)

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

Elma Avdyli, as authorized verifier acting for EPD HUB Limited 22.05.2026