ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

MuoviTech Manifold Cabinet Magnelis

MuoviTech AB

EPD HUB, HUB-5476

Published on 20.02.2026, last updated on 20.02.2026, valid until 19.02.2031

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	MuoviTech AB
Address	Tvinnargatan 11, 507 30 Brämhult, Sweden
Contact details	info@muovitech.com
Website	https//www.muovitech.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
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	Kajsa Jansson, MuoviTech AB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Sarah Curpen as an authorized verifier for EPD Hub

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	MuoviTech Manifold Cabinet Magnelis
Additional labels	MuoviTech Manifold Cabinet Magnelis accommodating 2–6 manifold connections
Product reference	-
Place(s) of raw material origin	Europe, Asia
Place of production	Finland, Sweden, United Kingdom
Place(s) of installation and use	World wide
Period for data	20230101 - 20231231
Averaging in EPD	Multiple products and multiple factories
Variation in GWP-fossil for A1-A3 (%)	-2% to +44%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	9,44

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg MuoviTech Manifold Cabinet Magnelis
Declared unit mass	1 kg
Mass of packaging	0,55 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,61
GWP-total, A1-A3 ($kgCO_2e$)	2,81
Secondary material, inputs (%)	14,6
Secondary material, outputs (%)	64,1
Total energy use, A1-A3 (kWh)	17
Net freshwater use, A1-A3 (m^3)	0,07

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

MuoviTech is a leading European manufacturer specializing in innovative solutions for geothermal energy systems. Founded in Sweden, MuoviTech operates globally with production facilities in multiple countries, offering high-quality products such as manifold chambers, collector pipes, and geoenergy accessories. The company is committed to sustainability, delivering energy-efficient solutions that reduce environmental impact and support the transition to renewable energy. With a focus on innovation, reliability, and customer service, MuoviTech continues to set the standard in the geoenergy industry.

PRODUCT DESCRIPTION

The manifold cabinet is an above-ground distribution and manifold cabinet for closed-loop geothermal heat pump systems. It is installed above ground, typically against a building facade or on a concrete base and serves as the distribution point for connecting and distributing collector circuits in geoenergy installations.

The cabinet protects pipes, valves and manifold components while providing easy access for installation, balancing, commissioning and maintenance. It is manufactured from Magnelis® steel sheet, offering significantly higher corrosion resistance than conventional galvanized steel and meeting corrosivity class C5 requirements.

The product includes a removable front door with a lock and is supplied with two main pipes, one for supply and one for return. Each cabinet accommodates 2–6 manifold connections depending on configuration, and multiple cabinets can be connected in series without practical limitations, enabling installations with a large number of geothermal circuits.

Further information can be found at:
https//www.muovitech.com/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	69	Europe, Asia
Minerals	0	
Fossil materials	31	Europe, Asia
Bio-based materials	0	

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,2236

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg MuoviTech Manifold Cabinet Magnelis
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		
x	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
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 location-based approach is used in modelling the electricity mix utilized in the factory.

MuoviTech's Magnelsi Manifold Cabinet consists of two main components, a Magnelis steel cabinet and a manifold set (supply & return). The manifold is primarily made of HDPE, sourced either as virgin or recycled material, and iron. The raw materials are transported by truck to the manufacturing facility, where the manifolds are produced in various configurations with different diameters for main pipes, outlets, and a wide range of valves. The manifold set is installed in the cabinet. Measures are taken to optimize energy use and minimize emissions during production. The finished products are typically packaged with protective cardboard, secured with plastic straps, and placed on EPAL wooden pallets, with efforts to reduce material usage and waste. The origin referenced in this model refers to the locations where the components are manufactured.

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 average transport distance from the production plant to the construction site is assumed to be 275 km, and the transport method is assumed to be a lorry. Transport does not cause losses, because products are packed properly. During transportation there is no product or packing loss.

For installation (A5), the cabinets are produced according to customer orders and are therefore custom-made in the correct dimensions and number of connections, which means no material waste occurs during installation. Placement of cabinets is carried out manually, and a small amount of energy is consumed for heat welding to connect the pipes with other system components. No additional materials are required for installation.

The packaging waste is disposed of at the installation stage and, in this EPD, is modeled using predefined datasets with generic data representing the average EU scenario for each material type, from the installation site to its treatment at the waste facility.

PRODUCT USE AND MAINTENANCE (B1-B7)

Module not declared.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

C1 – Deconstruction/Dismantling

At the end of its life, the manifold cabinet is assumed to be manually disassembled without the use of additional energy or fuel. The components are separated by material type to enable appropriate waste treatment. This reflects a realistic scenario where dismantling is performed by hand and does not require heavy machinery or significant energy input.

C2–C4 – Transport, Waste Processing, and Disposal

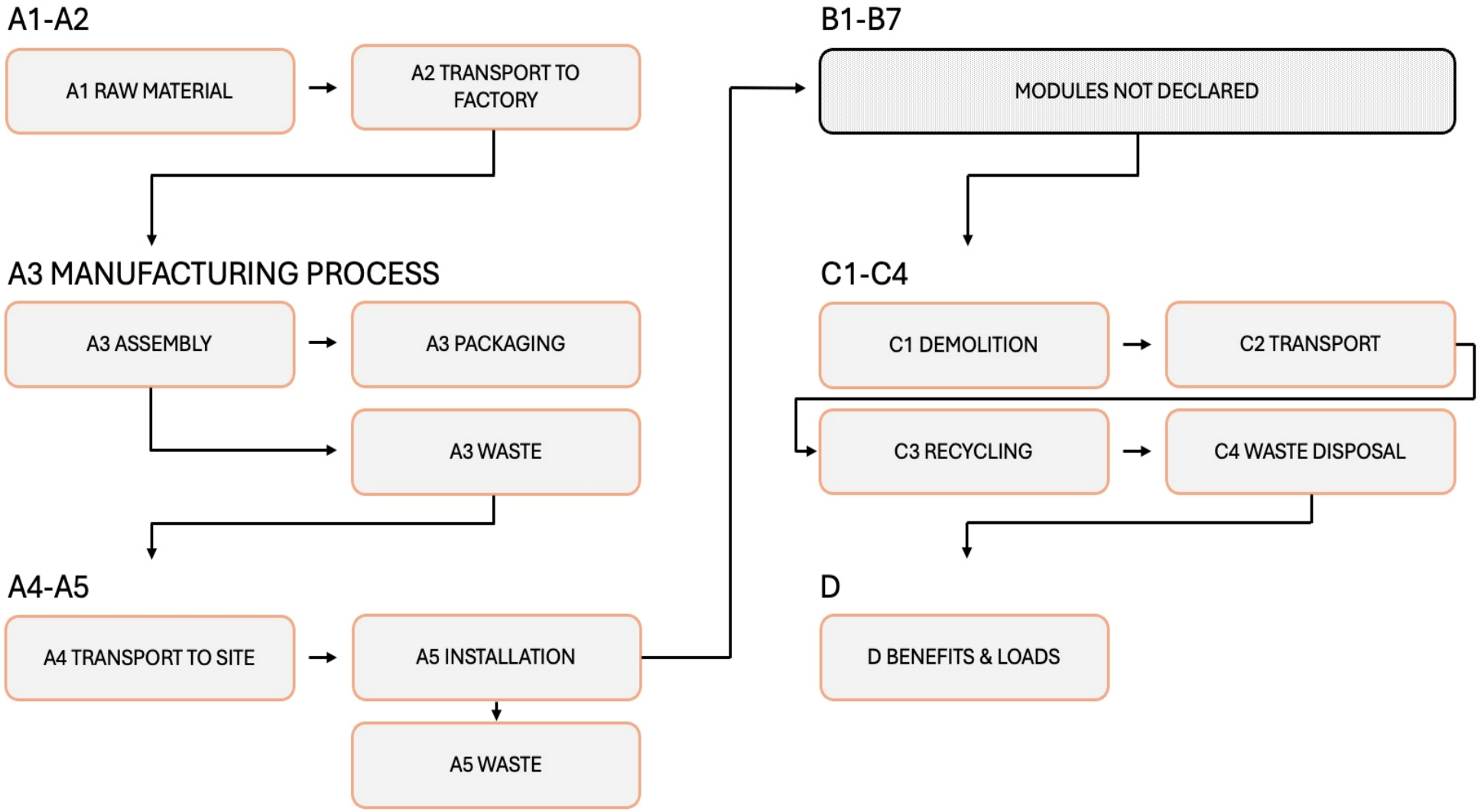
After dismantling, the separated components are transported by lorry to a nearby waste treatment facility. Transport, waste processing, and disposal are modeled using predefined datasets with generic EU assumptions for each material type. This includes sorting and preparation for recycling, incineration with energy recovery, incineration without energy recovery, and landfill for non-recyclable fractions.

Module D – Reuse, Recovery, and Recycling Potential

Module D accounts for the potential benefits of recycling and energy recovery at the end of life. Both the materials in the manifold and any packaging materials are modeled using predefined datasets with generic EU scenarios. This includes recycling of metals and plastics as well as energy recovery from

incineration of combustible materials. The approach ensures that the declared benefits align with the assumptions used in Modules C2–C4.

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 that is 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	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products and multiple factories
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	-2% to +44%

This average EPD represents the manufacturing of MuoviTech's Magnelis Manifold Cabinets, produced at MuoviTech's production facilities in Finland, Sweden, and the UK. This EPD is an average EPD covering multiple products and multiple factories. The primary data represents the manufacturing of MuoviTech's Magnelis Manifold Cabinets accommodating 2–6 manifold connections produced at the facilities in Finland, Sweden, and the UK.

Three different versions of the product are modeled in this EPD: Magnelis Manifold Cabinets accommodating 2, 4, and 6 manifold connections. A total of nine models are included in this EPD since each product was modeled for each facility. The three versions represent the smallest, most sold, and largest variants of a single manifold cabinet, although multiple cabinets can be connected in series without practical limitations, enabling installations with a large number of geothermal circuits. The manufacturing process and components are largely consistent across all product variants, dimensions, and production facilities, as outlined in this EPD. Differences primarily relate to the number of connections each cabinet accommodates and valve options. To ensure accurate representation of the different valve alternatives, a weighted average was calculated for each option. The weighting was determined by the production volume and mass share of each valve type.

The products are manufactured at MuoviTech facilities in Sweden, Finland, and the UK. In 2023, the Swedish facility had the highest production of Magnelis Manifold Cabinets, followed by Finland and the UK. The most sold Magnelis Manifold Cabinet was one for 4 connections and the Finnish version of the product was chosen as representative product for this EPD. Meaning the results presented are based on a Magnelis Manifold Cabinet with four connections manufactured at MuoviTech's facility in Finland. This representative product represents all nine modeles in the EPD.

This EPD covers products produced and distributed in the countries mentioned above, as well as other European countries and regions worldwide, for example Australia.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.3. 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‘. Waste treatment of packaging material according to the average EU scenario, the modelling includes recycling and incineration rates based on EUROSTAT data.

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	3,17E+00	2,01E-01	-5,64E-01	2,81E+00	4,41E-02	8,39E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,38E-02	4,43E-01	1,58E-02	-1,67E+00
GWP – fossil	kg CO_2e	3,16E+00	2,01E-01	2,48E-01	3,61E+00	4,41E-02	2,34E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,38E-02	4,43E-01	1,58E-02	-1,52E+00
GWP – biogenic	kg CO_2e	6,38E-03	3,82E-05	-8,15E-01	-8,08E-01	9,63E-06	8,16E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,41E-06	-7,16E-05	-6,37E-06	-1,52E-01
GWP – LULUC	kg CO_2e	4,51E-03	7,71E-05	2,57E-03	7,16E-03	1,72E-05	3,86E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,50E-05	2,64E-05	1,17E-06	-2,35E-03
Ozone depletion pot.	kg CFC_{-11}e	2,68E-07	3,79E-09	9,78E-09	2,82E-07	9,21E-10	3,15E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,77E-10	3,59E-10	5,11E-11	-2,05E-08
Acidification potential	mol H^+e	5,88E-02	1,37E-03	1,09E-03	6,13E-02	1,04E-04	1,05E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,13E-04	2,39E-04	1,40E-05	-2,30E-02
EP-freshwater[2)]	kg Pe	6,59E-03	1,23E-05	6,75E-05	6,67E-03	3,08E-06	5,07E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,63E-06	1,10E-05	1,88E-07	-3,82E-03
EP-marine	kg Ne	5,66E-03	3,50E-04	3,36E-04	6,34E-03	2,73E-05	1,11E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,67E-05	7,53E-05	5,73E-05	-2,66E-03
EP-terrestrial	mol Ne	2,27E-01	3,85E-03	3,50E-03	2,34E-01	2,95E-04	4,23E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,99E-04	7,47E-04	5,82E-05	-3,42E-02
POCP ("smog")[3)]	kg NMVOCe	1,79E-02	1,37E-03	1,41E-03	2,07E-02	1,81E-04	1,39E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-04	2,10E-04	2,25E-05	-9,60E-03
ADP-minerals & metals[4)]	kg Sbe	6,33E-03	5,83E-07	1,24E-06	6,33E-03	1,26E-07	5,54E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,09E-07	9,91E-07	3,90E-09	-2,95E-04
ADP-fossil resources	MJ	5,39E+01	2,77E+00	5,89E+00	6,26E+01	6,63E-01	2,88E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,76E-01	2,82E-01	4,32E-02	-1,98E+01
Water use[5)]	m^3e depr.	1,62E+00	1,28E-02	1,83E-01	1,81E+00	3,39E-03	7,84E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,23E-03	4,08E-02	4,53E-04	-5,65E-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	4,85E-07	1,36E-08	1,71E-08	5,16E-07	4,30E-09	1,83E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,78E-09	2,77E-09	2,99E-10	-1,26E-07
Ionizing radiation[6)]	kBq U235e	3,15E-01	3,17E-03	4,94E-01	8,12E-01	7,99E-04	2,09E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,91E-04	1,88E-03	3,69E-05	-7,23E-02
Ecotoxicity (freshwater)	CTUe	1,35E+02	3,43E-01	8,60E+00	1,44E+02	7,81E-02	1,03E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,41E-02	1,35E+00	9,50E-02	-6,25E+01
Human toxicity, cancer	CTUh	1,02E-08	3,51E-11	9,66E-10	1,12E-08	7,35E-12	9,52E-12	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,72E-12	3,52E-11	1,14E-12	-2,14E-09
Human tox. non-cancer	CTUh	1,42E-07	1,59E-09	2,43E-09	1,46E-07	4,28E-10	5,16E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,00E-10	1,54E-09	1,41E-10	-1,68E-07
SQP[7)]	-	1,33E+01	1,48E+00	7,15E+01	8,63E+01	6,67E-01	2,52E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,12E-01	4,32E-01	9,19E-02	-1,11E+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	5,35E+00	4,37E-02	6,33E+00	1,17E+01	1,08E-02	-7,96E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,54E-03	4,08E-02	5,86E-04	-1,97E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	8,23E+00	8,23E+00	0,00E+00	-8,23E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,33E+00
Total use of renew. PER	MJ	5,35E+00	4,37E-02	1,46E+01	2,00E+01	1,08E-02	-1,62E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,54E-03	4,08E-02	5,86E-04	-6,39E-01
Non-re. PER as energy	MJ	4,17E+01	2,77E+00	4,70E+00	4,91E+01	6,63E-01	1,47E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,76E-01	-7,97E+00	-3,62E+00	-1,98E+01
Non-re. PER as material	MJ	5,91E+00	0,00E+00	6,84E-01	6,59E+00	0,00E+00	-6,84E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-4,33E+00	-1,59E+00	2,97E+00
Total use of non-re. PER	MJ	4,76E+01	2,77E+00	5,38E+00	5,57E+01	6,63E-01	-5,37E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,76E-01	-1,23E+01	-5,21E+00	-1,69E+01
Secondary materials	kg	1,46E-01	1,27E-03	4,20E-02	1,89E-01	2,87E-04	1,86E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,12E-04	5,19E-04	1,40E-05	5,82E-01
Renew. secondary fuels	MJ	4,61E-03	1,42E-05	2,74E-01	2,78E-01	3,61E-06	1,82E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,70E-06	1,54E-05	2,82E-07	-1,94E-04
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	6,06E-02	3,48E-04	4,90E-03	6,59E-02	9,78E-05	-6,50E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,41E-05	8,15E-04	-3,19E-04	-1,66E-02

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	4,58E-01	3,94E-03	1,56E-02	4,78E-01	9,59E-04	1,78E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,26E-04	1,15E-02	1,36E-04	-4,04E-01
Non-hazardous waste	kg	1,37E+01	7,90E-02	5,92E-01	1,44E+01	1,92E-02	1,19E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,55E-02	2,24E-01	4,65E-01	-7,73E+00
Radioactive waste	kg	1,59E-04	7,86E-07	4,14E-05	2,01E-04	1,98E-07	4,73E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,58E-08	4,79E-07	9,04E-09	-1,85E-05

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	6,12E-03	0,00E+00	0,00E+00	6,12E-03	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	1,01E-03	0,00E+00	1,22E-02	1,32E-02	0,00E+00	1,81E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,41E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	2,34E-03	0,00E+00	5,32E-03	7,66E-03	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
Exported energy	MJ	4,46E-02	0,00E+00	0,00E+00	4,46E-02	0,00E+00	8,75E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,15E+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	3,70E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	9,04E-01	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	5,05E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,24E+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	3,15E+00	2,00E-01	2,50E-01	3,60E+00	4,38E-02	3,61E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,36E-02	4,43E-01	1,53E-02	-1,51E+00
Ozone depletion Pot.	kg CFC_{-11}e	2,90E-07	3,01E-09	7,43E-09	3,01E-07	7,32E-10	2,54E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,81E-10	3,10E-10	4,09E-11	-1,89E-08
Acidification	kg SO_2e	3,60E-02	1,09E-03	8,36E-04	3,80E-02	8,26E-05	7,82E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,65E-05	1,86E-04	1,04E-05	-1,92E-02
Eutrophication	kg PO_4^3e	1,09E-02	1,64E-04	6,91E-03	1,80E-02	2,06E-05	2,94E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,10E-05	3,56E-05	6,24E-06	-4,99E-03
POCP (“smog”)	kg C_2H_4e	1,44E-03	7,03E-05	1,29E-04	1,64E-03	8,42E-06	9,05E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,74E-06	1,22E-05	2,43E-06	-1,17E-03
ADP-elements	kg Sbe	6,33E-03	5,70E-07	1,22E-06	6,33E-03	1,23E-07	5,34E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,06E-07	9,75E-07	3,71E-09	-2,94E-04
ADP-fossil	MJ	5,12E+01	2,71E+00	3,16E+00	5,71E+01	6,49E-01	2,56E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,70E-01	2,50E-01	4,26E-02	-1,86E+01

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	3,16E+00	2,01E-01	2,51E-01	3,62E+00	4,41E-02	2,35E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,38E-02	4,43E-01	1,58E-02	-1,52E+00

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. Market for electricity, medium voltage, Finland, Ecoinvent, 0.15 kgCO2e/kWh
2. Market for electricity, medium voltage, Sweden, Ecoinvent, 0.0254 kgCO2e/kWh
3. Market for electricity, medium voltage, United Kingdom, Ecoinvent, 0.25 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Transport, freight, lorry >32 metric ton, EURO6, 275.4 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	4,97E+00
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation resources)

1. Market for electricity, medium voltage, Ecoinvent, 0.00371 kWh

Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.17 kg
2. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.16 kg
3. Exported Energy: Electricity, Ecoinvent, 0.36 MJ
4. Exported Energy: Electricity, Ecoinvent, 0.0019 MJ
5. Exported Energy: Electricity, Ecoinvent, 0.0085 MJ
6. Exported Energy: Thermal, Ecoinvent, 0.49 MJ
7. Exported Energy: Thermal, Ecoinvent, 0.0027 MJ
8. Exported Energy: Thermal, Ecoinvent, 0.012 MJ
9. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.2 kg
10. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0097 kg
11. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 9.4E-4 kg
12. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 0.0011 kg
13. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0014 kg
14. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 0.0013 kg
15. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 7.8E-4 kg

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

1. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.506 kg
2. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.0893 kg
3. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0626 kg
4. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 0.128 kg
5. Exported Energy: Electricity, Ecoinvent, 0.869 MJ
6. Exported Energy: Thermal, Ecoinvent, 1.195 MJ
7. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.0705 kg
8. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.0349 kg
9. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.0232 kg
10. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.0181 kg
11. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.0121 kg
12. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.00847 kg
13. Treatment of waste polyvinylchloride, municipal incineration, Ecoinvent, 0.0102 kg
14. Exported Energy: Electricity, Ecoinvent, 0.0351 MJ
15. Exported Energy: Thermal, Ecoinvent, 0.0483 MJ
16. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.00623 kg
17. Treatment of waste plastic, mixture, municipal incineration, Ecoinvent, 0.00181 kg
18. Treatment of waste plastic, mixture, sanitary landfill, Ecoinvent, 0.0163 kg
19. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.0105 kg
20. Treatment of scrap steel, inert material landfill, Ecoinvent, 5.5E-4 kg

Scenario information	Value
Scenario assumptions e.g. transportation	Modules C2–C4 are modeled using predefined datasets with generic data representing the average scenario in the EU for each material. Transport to waste facility is assumed to be lorry.

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

Sarah Curpen as an authorized verifier for EPD Hub Limited 20.02.2026

EPD Hub
VERIFIED ISO 14025