ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

C-press
Melbye As

EPD HUB, HUB-5767
Published on 20.03.2026, last updated on 20.03.2026, valid until 20.03.2031

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	Melbye As
Address	Prost Stabels vei 22, 2019 Skedsmokorset, Norway
Contact details	kontakt@melbye.no
Website	www.melbye.no

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	Manufactured 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	Annika Tuovinen
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly Gonzalez Vazquez 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	C-press
Additional labels	see annex 1
Product reference	-
Place(s) of raw material origin	EU
Place of production	Tuupovaara, Finland
Place(s) of installation and use	Global
Period for data	Calendar year 2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	+/- 27
GTIN (Global Trade Item Number)	6410050403067
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	26,5

ENVIRONMENTAL DATA SUMMARY

Declared unit	0.1 kg of product
Declared unit mass	0,1 kg
Mass of packaging	0,0041 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	0,63
GWP-total, A1-A3 ($kgCO_2e$)	0,64
Secondary material, inputs (%)	60
Secondary material, outputs (%)	70
Total energy use, A1-A3 (kWh)	3,16
Net freshwater use, A1-A3 (m^3)	0,01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Melbye As is one of Norway's oldest family-owned companies, with a history dating all the way back to 1907. We have a proud tradition of technical innovation and trade, and today, we are a leading provider of forward-thinking products and system solutions for critical infrastructure. We have expertise in transmission and utilities, fiber, ducts and chambers and safety.

We serve customers throughout the Nordic region and the United Kingdom, engage with stakeholders across Europe, and collaborate with around 200 partners and suppliers.

While our headquarters are located just outside Oslo, Norway, we also have offices at multiple locations in Norway, Sweden, and the United Kingdom, as well as representatives in Finland, India and China. Together, we are more than 120 co-workers who share the company's core values: Innovation, teamwork, and professionalism.

With advanced expertise spread across our core areas and a dedication to long-term operation and future-oriented development, we stand at the forefront of addressing future challenges. We take pride in contributing to the development of critical infrastructure that will shape tomorrow's society.

Please note: Melbye AS is a distributor of this product and not its original manufacturer.

PRODUCT DESCRIPTION

C-press clamps are intended for connecting, extending and branching of grounding and lightning conductors and other similar conductors..The sleeves are manufactured of 99,9 % pure copper.

C-press clamps have marking of
manufacturer, type of sleeve and the sizes of compatible wires.

The product C6 studied in this EPD weighs 18 grams and is intended for 16-25 mm2 conductors. C-press clamps declared in this EPD are available in different sizes ranging from 10 to 264 grams for varying conductor sizes.

Further information can be found at: www.melbye.no

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	EU
Minerals	0	-
Fossil materials	0	-
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	0,00151

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	0.1 kg of product
Mass per declared unit	0,1 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/	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.

C-press clamps are made of copper. The packaging materials for the product include LD-PE packaging bag and cardboard. Raw material transportation modes and distances were calculated based on supplier locations.

The manufacturing phase includes metal working processes and packing. A residual mix electricity datapoint was used for manufacturing energy use in A3. Manufacturing waste is sent to local recycling and treatment facilities, and the recycling rate for copper (70 %) was considered based on metal recycling statistics published by EuRIC AISBL. Transport distance was estimated as 50 km.

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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 transport module uses sales weighted proportions of product shipped to multiple locations. Sales data is based on calendar year 2024.

For A5 installation, it is assumed that low voltage electric tools with a total energy consumption of 0,0001 kWh is used. Installation does not involve any material loss.

Treatment of packaging waste is considered in A5. It is assumed that 83% of the cardboard packaging is recycled
and 8% is incinerated and of the plastic packaging 40% is recycled and 37% is incinerated. The rest is assumed to be sent to landfill. The recycling rates are modeled based on Eurostat statistics.

PRODUCT USE AND MAINTENANCE (B1-B7)

C-press clamps have no operational use of water or energy and require no repairs.

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

PRODUCT END OF LIFE (C1-C4, D)

End of life scenarios were modeled based on statistics in Europe, where the product was mainly in use in calendar year 2023.

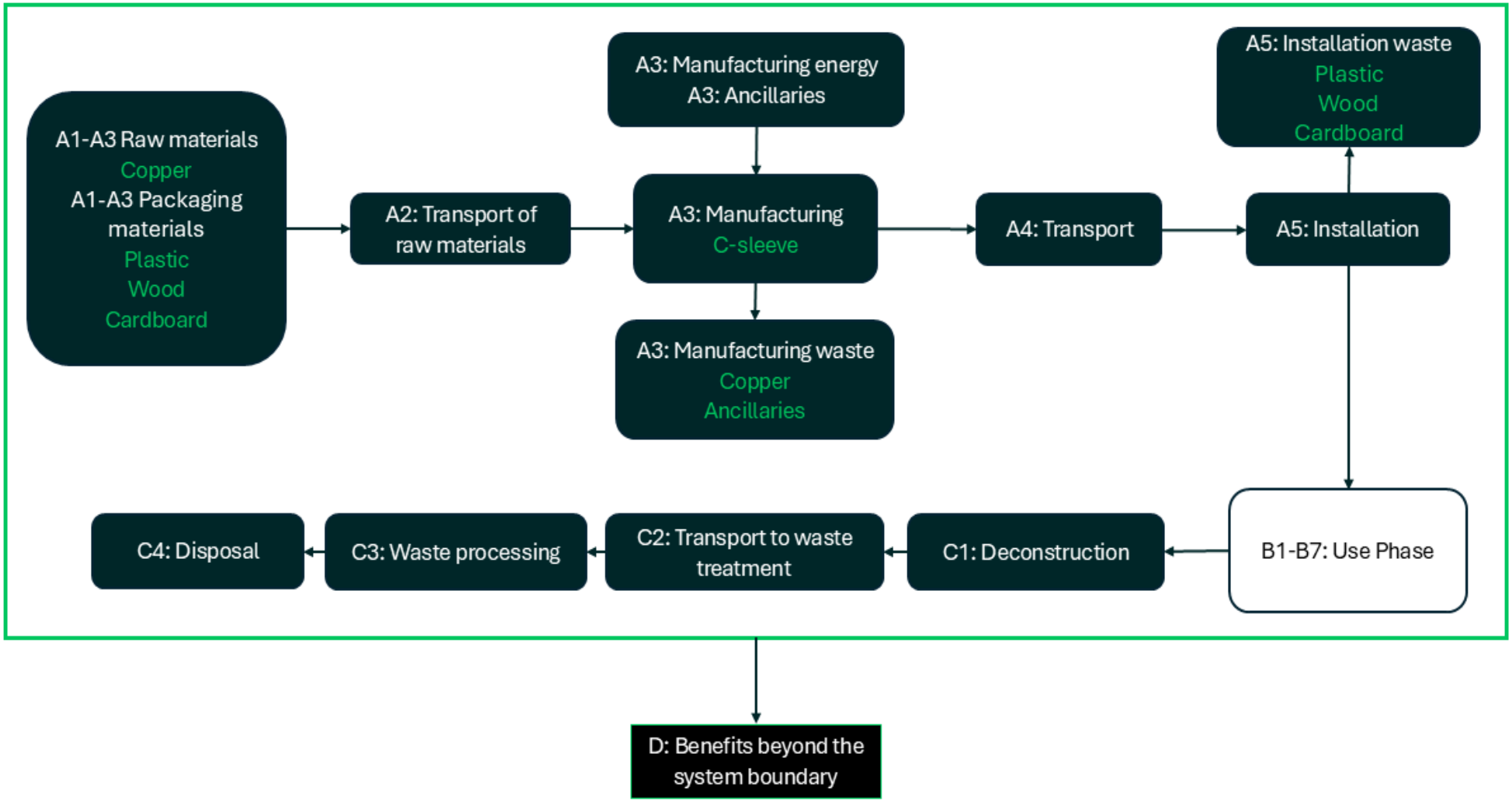
C-press clamps are assumed to be deconstructed with the conductors they are attached to. An average energy consumption of 0,01 kWh/kg for building deconstruction with medium voltage electricity was used.

A recycling rate of 70 % was considered at product EoL based on metal recycling statistics in Europe published by Euric AISBL.

Benefits and loads from recycling and recovery are included in module D. The recycling and recovery of the product in modules C3-C4 is assumed to lead to avoided virgin material production. Packaging materials in module A5 lead to avoided virgin raw material production from recycling and energy from primary sources from incineration. Recycled raw material content has been subtracted from benefits and loads to avoid double counting.

Module D was modeled by selecting predefined datasets with generic EU scenarios for each material type.

MANUFACTURING PROCESS



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

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	+/- 27

Representative product C6 studied in this EPD weighs 18 grams and is intended for 16-25 mm2 conductors. C-press clamps covered by this EPD weigh 10 to 264 grams and are intended for connections from 10 to 150 mm2.

This EPD represents all declared C-press variants, as they consist of the same materials, have the same manufacturing processes and are intended for the same purpose. All products are manufactured in the same factory. Variation in GWP-fossil between different product variations is declared in this EPD.

Results are representative for the product group. Some variance exists in regards to product specific production losses and manufacturing energy use. The range of products comply with the allowed averaging and aggregation for EPDs requirements defined on GPI and Annex 1.

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‘.

Metal Recycling Factsheet by EuRIC
https://circulareconomy.europa.eu/platform/en/knowledge/metal-recycling-factsheet-euric

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	4,48E-01	1,23E-02	1,80E-01	6,41E-01	1,69E-02	6,47E-03	ND	ND	ND	ND	ND	ND	ND	3,25E-05	3,71E-03	1,90E-03	1,87E-04	-5,58E-02
GWP – fossil	kg CO_2e	4,35E-01	1,22E-02	1,86E-01	6,33E-01	1,69E-02	9,24E-04	ND	ND	ND	ND	ND	ND	ND	3,24E-05	3,71E-03	1,90E-03	1,87E-04	-5,55E-02
GWP – biogenic	kg CO_2e	1,07E-02	2,43E-06	-5,54E-03	5,12E-03	3,35E-06	5,55E-03	ND	ND	ND	ND	ND	ND	ND	7,32E-08	8,10E-07	-5,68E-06	-5,96E-08	-2,16E-04
GWP – LULUC	kg CO_2e	2,78E-03	4,33E-06	2,48E-04	3,03E-03	6,01E-06	9,18E-08	ND	ND	ND	ND	ND	ND	ND	1,00E-07	1,64E-06	2,24E-06	1,07E-07	-8,70E-05
Ozone depletion pot.	kg CFC-$_{11}$e	3,24E-09	2,44E-10	3,95E-09	7,44E-09	3,36E-10	1,60E-12	ND	ND	ND	ND	ND	ND	ND	5,61E-13	5,19E-11	2,05E-11	5,42E-12	-5,28E-10
Acidification potential	mol H^+e	5,01E-03	3,83E-05	1,43E-03	6,48E-03	5,76E-05	1,09E-06	ND	ND	ND	ND	ND	ND	ND	1,65E-07	1,24E-05	2,04E-05	1,33E-06	-1,63E-03
EP-freshwater[2)]	kg Pe	2,07E-03	8,12E-07	1,07E-04	2,18E-03	1,12E-06	2,06E-07	ND	ND	ND	ND	ND	ND	ND	2,89E-08	2,89E-07	1,03E-06	1,54E-08	-1,18E-03
EP-marine	kg Ne	3,61E-03	1,29E-05	1,73E-04	3,79E-03	1,90E-05	1,03E-06	ND	ND	ND	ND	ND	ND	ND	2,86E-08	4,01E-06	4,52E-06	5,06E-07	-4,74E-04
EP-terrestrial	mol Ne	3,20E-03	1,40E-04	1,75E-03	5,10E-03	2,07E-04	3,10E-06	ND	ND	ND	ND	ND	ND	ND	2,49E-07	4,36E-05	5,10E-05	5,53E-06	-6,97E-03
POCP ("smog")[3)]	kg NMVOCe	1,85E-03	6,00E-05	5,30E-04	2,44E-03	8,60E-05	1,04E-06	ND	ND	ND	ND	ND	ND	ND	8,24E-08	1,72E-05	1,50E-05	1,98E-06	-1,35E-03
ADP-minerals & metals[4)]	kg Sbe	1,32E-04	4,00E-08	1,18E-05	1,44E-04	5,49E-08	9,94E-10	ND	ND	ND	ND	ND	ND	ND	7,22E-11	1,22E-08	1,12E-07	2,98E-10	-2,18E-05
ADP-fossil resources	MJ	5,77E+00	1,72E-01	2,77E+00	8,72E+00	2,37E-01	5,27E-03	ND	ND	ND	ND	ND	ND	ND	7,65E-04	5,21E-02	2,25E-02	4,60E-03	-6,47E-01
Water use[5)]	m^3e depr.	1,99E-01	8,45E-04	3,62E-02	2,36E-01	1,16E-03	4,86E-05	ND	ND	ND	ND	ND	ND	ND	1,98E-05	2,41E-04	3,55E-04	1,33E-05	-2,25E-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	1,38E-08	9,63E-10	4,40E-09	1,91E-08	1,32E-09	1,22E-11	ND	ND	ND	ND	ND	ND	ND	5,76E-13	2,94E-10	2,84E-10	3,02E-11	-1,33E-08
Ionizing radiation[6]	kBq U235e	3,52E-02	2,19E-04	4,43E-02	7,97E-02	3,01E-04	8,90E-06	ND	ND	ND	ND	ND	ND	ND	2,14E-05	4,21E-05	8,07E-05	2,89E-06	-4,15E-03
Ecotoxicity (freshwater)	CTUe	2,25E+01	2,26E-02	1,21E+00	2,37E+01	3,10E-02	4,54E-03	ND	ND	ND	ND	ND	ND	ND	8,07E-05	8,23E-03	1,30E-02	3,86E-04	-1,41E+01
Human toxicity, cancer	CTUh	5,02E-01	2,09E-12	1,56E-10	5,02E-01	2,89E-12	1,26E-13	ND	ND	ND	ND	ND	ND	ND	6,72E-15	6,31E-13	1,52E-12	3,45E-14	-3,08E-11
Human tox. non-cancer	CTUh	1,32E+00	1,08E-10	1,31E-08	1,32E+00	1,48E-10	6,18E-12	ND	ND	ND	ND	ND	ND	ND	2,89E-13	3,26E-11	9,73E-11	7,93E-13	-1,75E-09
SQP[7]	-	1,67E+00	1,02E-01	1,13E+00	2,90E+00	1,40E-01	1,15E-03	ND	ND	ND	ND	ND	ND	ND	1,30E-04	3,11E-02	4,25E-02	9,05E-03	-1,25E+00

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	1,09E+00	2,97E-03	2,02E-01	1,29E+00	4,08E-03	-5,87E-02	ND	ND	ND	ND	ND	ND	ND	1,79E-04	7,14E-04	3,49E-03	4,44E-05	-3,12E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	4,74E-02	4,74E-02	0,00E+00	-4,74E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,10E-04
Total use of renew. PER	MJ	1,09E+00	2,97E-03	2,50E-01	1,34E+00	4,08E-03	-1,06E-01	ND	ND	ND	ND	ND	ND	ND	1,79E-04	7,14E-04	3,49E-03	4,44E-05	-3,12E-01
Non-re. PER as energy	MJ	7,18E+00	1,72E-01	2,71E+00	1,01E+01	2,37E-01	-1,12E-02	ND	ND	ND	ND	ND	ND	ND	7,65E-04	5,21E-02	2,25E-02	4,60E-03	-6,48E-01
Non-re. PER as material	MJ	0,00E+00	0,00E+00	1,52E-02	1,52E-02	0,00E+00	-1,52E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,80E-03
Total use of non-re. PER	MJ	7,18E+00	1,72E-01	2,72E+00	1,01E+01	2,37E-01	-2,64E-02	ND	ND	ND	ND	ND	ND	ND	7,65E-04	5,21E-02	2,25E-02	4,60E-03	-6,41E-01
Secondary materials	kg	1,05E-01	7,88E-05	1,60E-02	1,21E-01	1,09E-04	3,23E-06	ND	ND	ND	ND	ND	ND	ND	8,22E-08	2,34E-05	2,60E-05	1,16E-06	6,65E-03
Renew. secondary fuels	MJ	8,14E-04	9,94E-07	3,61E-04	1,18E-03	1,36E-06	1,91E-08	ND	ND	ND	ND	ND	ND	ND	3,38E-10	2,98E-07	1,18E-06	2,39E-08	-3,33E-05
Non-ren. secondary fuels	MJ	2,15E-03	0,00E+00	0,00E+00	2,15E-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
Use of net fresh water	m^3	4,44E-03	2,31E-05	3,49E-03	7,95E-03	3,18E-05	-8,61E-07	ND	ND	ND	ND	ND	ND	ND	6,36E-07	6,90E-06	9,81E-06	4,78E-06	-9,43E-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	6,94E-02	2,47E-04	2,56E-02	9,53E-02	3,40E-04	4,41E-05	ND	ND	ND	ND	ND	ND	ND	1,74E-06	9,08E-05	1,75E-04	5,08E-06	-1,17E-02
Non-hazardous waste	kg	2,31E+00	5,21E-03	1,38E+00	3,70E+00	7,16E-03	3,00E-03	ND	ND	ND	ND	ND	ND	ND	1,42E-04	1,70E-03	4,93E-03	1,16E-04	9,89E-03
Radioactive waste	kg	7,10E-05	5,45E-08	1,04E-05	8,14E-05	7,47E-08	7,35E-09	ND	ND	ND	ND	ND	ND	ND	5,49E-09	1,03E-08	1,98E-08	7,04E-10	-1,02E-06

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	1,40E-03	0,00E+00	7,69E-01	7,71E-01	0,00E+00	3,26E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,00E-02	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	2,62E-03	2,62E-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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,84E-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	1,59E-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	2,25E-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	5,46E-01	1,22E-02	1,85E-01	7,43E-01	1,68E-02	1,28E-03	ND	ND	ND	ND	ND	ND	ND	3,24E-05	3,69E-03	1,90E-03	1,86E-04	-5,53E-02
Ozone depletion Pot.	kg CFC_{-11}e	3,00E-09	1,94E-10	3,05E-09	6,24E-09	2,67E-10	1,31E-12	ND	ND	ND	ND	ND	ND	ND	4,60E-13	4,15E-11	1,69E-11	4,31E-12	-4,45E-10
Acidification	kg SO_2e	4,37E-03	2,91E-05	1,22E-03	5,62E-03	4,40E-05	8,37E-07	ND	ND	ND	ND	ND	ND	ND	1,40E-07	9,47E-06	1,64E-05	9,83E-07	-1,10E-03
Eutrophication	kg PO_4^3e	3,57E-04	7,40E-06	1,29E-04	4,93E-04	1,06E-05	6,67E-07	ND	ND	ND	ND	ND	ND	ND	1,90E-08	2,30E-06	2,33E-06	3,12E-07	-3,99E-04
POCP (“smog”)	kg C_2H_4e	2,42E-04	2,77E-06	6,11E-05	3,06E-04	4,00E-06	1,45E-07	ND	ND	ND	ND	ND	ND	ND	7,87E-09	8,49E-07	9,69E-07	9,29E-08	-5,27E-05
ADP-elements	kg Sbe	1,32E-04	3,91E-08	1,17E-05	1,44E-04	5,37E-08	9,75E-10	ND	ND	ND	ND	ND	ND	ND	7,16E-11	1,19E-08	1,12E-07	2,92E-10	-2,17E-05
ADP-fossil	MJ	6,24E+00	1,68E-01	2,08E+00	8,49E+00	2,32E-01	3,77E-03	ND	ND	ND	ND	ND	ND	ND	3,88E-04	5,14E-02	2,12E-02	4,55E-03	-5,81E-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	4,38E-01	1,22E-02	1,86E-01	6,36E-01	1,69E-02	9,24E-04	ND	ND	ND	ND	ND	ND	ND	3,25E-05	3,71E-03	1,90E-03	1,87E-04	-5,56E-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

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity, medium voltage, residual mix, Finland, Ecoinvent, 0.66 kgCO2e/kWh
2. Electricity, medium voltage, residual mix, Finland, Ecoinvent, 0.66 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Transport, freight, lorry 16-32 metric ton, EURO5, 1129 km
2. Transport, freight, sea, container ship, 303 km
3. Transport, freight, lorry 16-32 metric ton, EURO5, 458 km
4. Transport, freight, lorry 16-32 metric ton, EURO5, 472 km
5. Transport, freight, lorry 16-32 metric ton, EURO5, 409 km
6. Transport, freight, sea, container ship, 199 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	100
Bulk density of transported products	2,60E+04
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation resources)

1. .Electricity Low Voltage, domestic use General, Ecoinvent, 5.29E-4 kWh

Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0031 kg
2. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 3.0E-4 kg
3. Exported Energy: Thermal, Ecoinvent, 8.5E-4 MJ
4. Exported Energy: Thermal, Ecoinvent, 0.0014 MJ
5. Exported Energy: Electricity, Ecoinvent, 5.9E-4 MJ
6. Exported Energy: Electricity, Ecoinvent, 0.001 MJ
7. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 3.3E-4 kg
8. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 1.6E-4 kg
9. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 1.5E-4 kg
10. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 9.2E-5 kg

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

1. Market group for electricity, medium voltage, Ecoinvent, 1.0E-4 kWh
2. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.07 kg
3. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.03 kg

Scenario information	Value
Scenario assumptions e.g. transportation	Transport, freight, lorry 16-32 metric ton 50 km transport to landfill, 250 km transport to recycling

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

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
20.03.2026

ANNEX 1

Scaling table: A1-A3 GWP- total & GWP-fossil, kg CO2e

Product Name	Mass (g)	kg CO2e per 0,1 kg of product		kg CO2e per product	
		A1-A3 GWP-total	A1-A3 GWP-fossil	A1-A3 GWP-total	A1-A3 GWP-fossil
C5	10	8,15E-01	8,07E-01	8,32E-02	8,23E-02
C6	18	6,41E-01	6,33E-01	1,21E-01	1,20E-01
C6-3	19	6,57E-01	6,49E-01	1,22E-01	1,20E-01
C9	51	5,25E-01	5,19E-01	2,69E-01	2,66E-01
C9-8	56	5,24E-01	5,17E-01	2,96E-01	2,92E-01
C8	58	5,19E-01	5,12E-01	3,04E-01	2,99E-01
C9-6	58	5,21E-01	5,14E-01	3,03E-01	2,99E-01
C11	59	5,23E-01	5,16E-01	2,92E-01	2,88E-01
C8-6	60	5,21E-01	5,13E-01	3,16E-01	3,11E-01
C11-9	60	5,21E-01	5,13E-01	3,14E-01	3,09E-01
C11-8	63	5,16E-01	5,09E-01	3,27E-01	3,22E-01
C13	74	5,06E-01	5,00E-01	3,72E-01	3,68E-01
C13-11	82	5,05E-01	4,98E-01	4,14E-01	4,08E-01
C13-9	87	5,01E-01	4,93E-01	4,36E-01	4,29E-01
C13-8	89	5,02E-01	4,94E-01	4,48E-01	4,41E-01
C15	123	4,77E-01	4,70E-01	6,04E-01	5,95E-01
C15-13	136	4,82E-01	4,77E-01	6,51E-01	6,45E-01
C15-11	144	4,81E-01	4,75E-01	6,97E-01	6,88E-01
C15-9	149	4,81E-01	4,75E-01	7,18E-01	7,09E-01
C15-8	152	4,80E-01	4,73E-01	7,27E-01	7,17E-01
C16	232	4,68E-01	4,61E-01	1,09E+00	1,07E+00
C16-9	264	4,65E-01	4,59E-01	1,22E+00	1,21E+00