

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Wash basin cabinets, Noval
Polaria Oy



EPD HUB, HUB-5654
Published on 10.05.2026, last updated on 04.07.2026, valid until 09.05.2031

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	Polaria Oy
Address	4 Yrittäjäntie, 52700, Mäntyharju, Finland
Contact details	myynti@polaria.fi
Website	www.polaria.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	Rami Leppänen, Polaria Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Vera Durão, as an authorised 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	Wash basin cabinets, Noval
Additional labels	Noval 500/600/800
Product reference	V2655, V2658, V2656, V2659, V2657, V2660
Place(s) of raw material origin	EU
Place of production	Mäntyharju, Finland
Place(s) of installation and use	Finland
Period for data	Calendar year 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	-2
GTIN (Global Trade Item Number)	6417292370409, 6417292370430, 6417292370447, 6417292370416, 6417292370423, 6417292370454
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	74,7

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of nanoceramically treated 600 x 450 x 600 mm steel washbasin cabinet
Declared unit mass	1 kg
Mass of packaging	0,083 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,92
GWP-total, A1-A3 ($kgCO_2e$)	3,81
Secondary material, inputs (%)	7,82
Total energy use, A1-A3 (kWh)	19
Net freshwater use, A1-A3 (m^3)	0,02

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Polaria Oy was founded in 1970 in Mäntyharju, Finland. Polaria manufactures high-quality and durable bathroom furniture for the Finnish and Swedish markets. Its main customers are wholesalers, hardware stores and construction companies.

Polaria's durable steel bathroom furnishings are made for living. Polaria is a Finnish company that has been manufacturing and selling steel bathroom furnishings for more than 50 years. Polaria products are made of powder-painted steel with nanoceramic finishing and therefore have excellent water resistance. We have been working for over half a century for a functional and sustainable everyday life.

PRODUCT DESCRIPTION

Results calculated in this declaration are referent to product Noval 500. Declared steel washbasin cabinets dimensions are 500 x 450 x 600 mm. Wash basin cabinet Noval is a stylish and functional cabinet in all kinds of bathrooms. Polaria's wash basin cabinets are manufactured from a powder-coated steel that is subjected to a corrosion-resistant nanoceramic surface treatment – the perfect choice for any wet environments. Noval has two drawers with an integrated soft-close mechanism. The cabinet is available in both traffic white and anthracite grey colour. Bottom plate is perforated to ensure ventilation. Drawers can be detached from the cabinet. Height of wash basin cabinet is 600 mm, depth 450 mm and width depending on the model 500/600/800 mm. EPD does not include the wash basin. Noval wash basin cabinet fits together with the Noval wash basin with the same width.

Further information can be found at:
www.polaria.fi

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	95	EU
Minerals	3	EU
Fossil materials	2	EU
Bio-based materials	-	-

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	0,04

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of nanoceramically treated 600 x 450 x 600 mm steel washbasin cabinet
Mass per declared unit	1 kg
Functional unit	-
Reference service life	50 years

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)

Results calculated in this declaration are referent to product Noval 500.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.

Noval wash basin cabinets are manufactured at the Polaria Oy site in Mäntyharju, Finland. The product process consists of raw materials, cutting and shaping the product and packaging. During manufacturing steel plates are cut and shaped to form a cabinet. Average raw material transportation is 500 km (A2). The transportation method is assumed to be lorry or a ferry if transportation consists of going overseas (A2).

Cutting metal generates manufacturing waste. Metal scrap is sold, and 50 km transportation is taken account for the scrap steel. On the declaration conservative approach is made and scrap metal is modeled as waste. (A3) After forming the cabinet is washed and painted giving its nanoceramic protection. Some of the assembly is automated. Cabinets are packed to cardboard boxes, stacked on wooden pallets and shipped to temporary storage, retailer or construction site.

Production requires electricity, water and heat. Realized forms of energy production (2024) from Veni energy is used in modelling the electricity mix utilized in the factory. Slightly more than 10% of electricity comes from facility's own solar panels. Veni energy's electricity came from multiple sources. Majority (72%) of the electricity came from nuclear energy production followed by hydro electricity production (13,5%). Smaller amounts of electricity production came from peat (5,5%), wind (3,4%) and geothermal (0,2%). Washing water and manufacturing plant is heated by renewable district heat and gas is used to warm the furnace.

A market-based approach is used in modelling the electricity mix utilized in the factory. 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.

Average distance of transportation from production plant to temporary storage, retailers' site or construction site is 97 km, and the transportation mode is lorry. Vehicle capacity utilization volume factor is assumed to be 1 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. To be conservative, empty returns are included in this study as implemented through an average load factor in the Ecoinvent transport datapoints. Transportation does not cause losses as product is packaged properly.

Environmental impacts from installation into the building include generation of waste packaging materials (A5) and release of biogenic carbon dioxide from cardboard boxes and wooden pallets. Carboard packaging is considered to be mostly (83 %) recycled and rest (9 %) landfilled and 8 % incinerated according to EUROSTAT [1]. According to EUROSTAT [2] 32 % of the pallet is recycled at wooden pallets at the end of life and 30 % is incinerated leaving 38 % to be landfilled.

The impacts of material production, its processing and its disposal as installation waste are also assessed. Cabinets installation won't lead to any other installation losses.

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. Noval washbasin metal cabinet is assumed to be used in bathroom. As a bathroom environment is wet, and this requires furniture to survive in harsh conditions.

Cabinets waterproof corrosion-resistant nanoceramic surface can be maintained with a soft cloth and water. A mild detergent can also be used for maintaining the painted surface

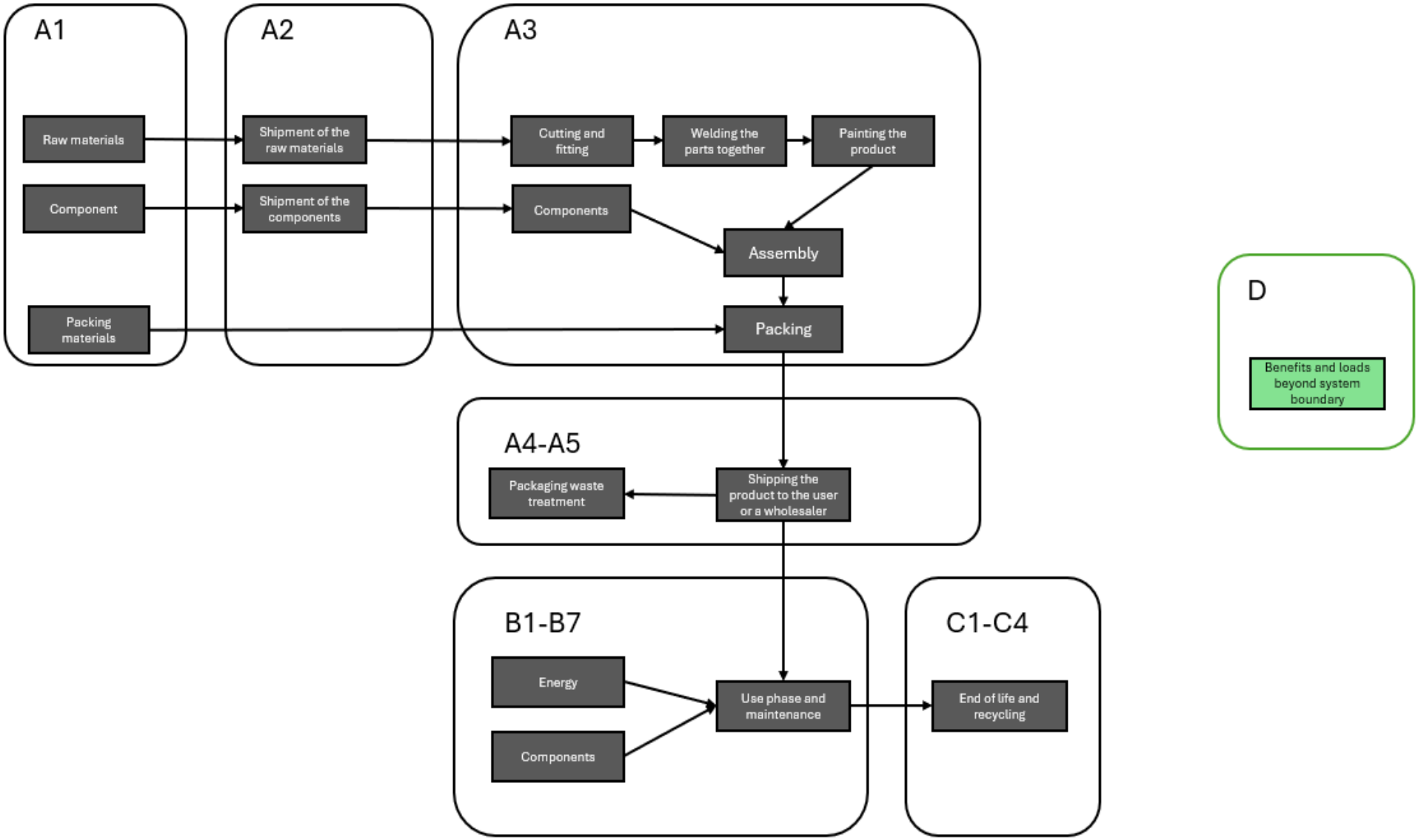
PRODUCT END OF LIFE (C1-C4, D)

It is assumed that the product is disassembled into parts by hand and different waste types are collected separately and transported to the waste treatment facility. The energy from the recycling process of the product group has been considered in the calculation. The modelling of landfill impacts includes all environmental effects associated with these processes. The recycling process is modelled up to the end-of-waste state. The benefits of material recycling are reported in Module D. This product is intended for the Finnish market, and its end of life occurs in Finland. Recycled materials are assumed to replace virgin materials, such as steel. The handling of waste streams at the end of their life cycle takes place in Finland and the waste scenarios are based on EU statistical data.

Steel that forms the majority of mass is considered to be (85%) recycled, and rest (15%) ends up to landfills (Source: World Stainless 2024; ICDA 2023). According to EN 50693 aluminium is mostly (70%) recycled rest (30%) ending up on a landfill. Plastic is mostly (50%) incinerated with energy recovery, 23% is recycled and 27% is being landfilled according to Plastics Europe 2020. According to Copper Alliances annual report 2021 copper is assumed to be 60% recycled and 40% to be landfilled.

Transportation distance is assumed to be 50 km to inert landfill, to waste treatment plant 150 km and to recycling plant 250 km. The transportation method is assumed to be lorry (C2). Recycled materials like steel, aluminium, copper and plastic reduce the need for virgin materials. Incineration with energy recovery will substitute other means of heat and energy production. Module C3 accounts for the recycling of the materials and incineration with energy recovery, and the landfilled materials and incineration without energy recovery are accounted in module C4.

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 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 made according to 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

All estimations and assumptions regarding the cut off criteria and the allocation are declared in the part "Cut-off Criteria except the estimations/assumptions below:
Proxy data is used for certain materials due to their unavailability in the database.
- Module A2, A4 & C2: 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, the variety in load is assumed to be negligible. To be conservative, empty returns are included in this study as implemented through an average load factor in the Ecoinvent transport datapoints.
- Module A4: Transportation does not cause losses as products are packaged properly. Also, volume capacity utilization factor is assumed to be 1 for the nested packaged products. Additionally, transportation distances are assumed based on a particular scenario of delivery to Polaria Oy temporary storage facility in Lahti and a lorry is the assumed vehicle type used.

- Module A5: Packaging waste is declared as installation waste.
- Module C2: Transportation distance to waste handling facility is estimated as 50 - 150 km and the transportation method is assumed as lorry.
- Module C3, C4, D: The product is considered to be collected separately. The end-of-life scenario considers incineration and landfill. Ash from incineration processes is assumed negligible. The incinerated end-of-life materials are assumed to displace electricity and heat production.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	−2

Primary data represents the manufacturing of products Noval 500. The data was used to calculate impacts for the representative product. Representative product was chosen to be the most sold unit. The variability of the primary data or the emissions between the products did not amount to more than -2 % of the relevant data (the highest compared to the lowest). The primary data was averaged by calculating a weighted average of the products' consumption of energy and production wastes. The production amount mass shares per each product was used in the weighing.

Difference in modules A1-A3 GWP fossil compared to the worst-case results are:

Model	GWP fossil (A1-A3)	Difference in GWP, %
Noval 500	3,92	0
Noval 600	3,83	-2
Noval 800	3,85	-2

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CA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD System Verification 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'.

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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	3,35E+00	2,68E-02	4,32E-01	3,81E+00	1,13E-02	1,37E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,44E-02	1,39E-01	1,61E-03	-1,30E+00
GWP – fossil	kg CO_2e	3,33E+00	2,68E-02	5,59E-01	3,92E+00	1,13E-02	3,17E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,44E-02	1,39E-01	1,61E-03	-1,29E+00
GWP – biogenic	kg CO_2e	2,04E-02	5,25E-06	-1,31E-01	-1,11E-01	2,37E-06	1,34E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,78E-06	-2,58E-04	1,02E-08	0,00E+00
GWP – LULUC	kg CO_2e	2,10E-03	1,05E-05	4,51E-03	6,62E-03	4,24E-06	1,84E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,09E-05	2,31E-05	5,52E-07	-4,36E-04
Ozone depletion pot.	kg CFC_{-11}e	3,95E-08	5,08E-10	3,09E-08	7,09E-08	2,27E-10	3,29E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,67E-10	2,58E-10	2,65E-11	-5,13E-09
Acidification potential	mol H^+e	9,29E-03	9,54E-05	4,92E-03	1,43E-02	3,64E-05	1,30E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,30E-05	2,27E-04	6,69E-06	-6,43E-03
EP-freshwater[2)]	kg Pe	7,66E-04	1,85E-06	1,01E-04	8,68E-04	7,60E-07	7,17E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,98E-06	1,78E-05	8,46E-08	-1,01E-03
EP-marine	kg Ne	2,06E-03	3,14E-05	1,51E-03	3,60E-03	1,24E-05	2,08E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,68E-05	5,32E-05	3,97E-06	-1,21E-03
EP-terrestrial	mol Ne	2,41E-02	3,42E-04	2,13E-02	4,57E-02	1,34E-04	4,18E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,92E-04	5,97E-04	2,80E-05	-1,34E-02
POCP ("smog")[3)]	kg NMVOCe	6,25E-03	1,45E-04	4,21E-03	1,06E-02	5,93E-05	1,58E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,21E-04	1,73E-04	1,02E-05	-4,55E-03
ADP-minerals & metals[4)]	kg Sbe	7,36E-05	7,35E-08	2,81E-06	7,65E-05	3,11E-08	2,00E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,04E-08	1,28E-06	1,47E-09	-3,06E-05
ADP-fossil resources	MJ	2,47E+01	3,87E-01	2,38E+01	4,88E+01	1,63E-01	2,97E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,51E-01	2,57E-01	2,32E-02	-1,24E+01
Water use[5)]	m^3e depr.	6,66E-01	1,96E-03	3,72E-01	1,04E+00	8,36E-04	8,29E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,80E-03	6,76E-03	9,49E-04	-3,09E-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	1,65E-08	2,64E-09	6,37E-08	8,28E-08	1,12E-09	1,78E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,36E-09	3,32E-09	1,54E-10	-9,65E-08
Ionizing radiation[6)]	kBq U235e	5,08E-02	4,37E-04	1,37E+00	1,42E+00	1,97E-04	1,87E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,22E-04	2,13E-03	1,45E-05	3,97E-02
Ecotoxicity (freshwater)	CTUe	2,78E+00	4,73E-02	4,23E+01	4,52E+01	1,92E-02	1,01E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,35E-02	1,20E+00	1,66E-02	-5,93E+01
Human toxicity, cancer	CTUh	6,09E-10	4,42E-12	4,09E-10	1,02E-09	1,86E-12	2,27E-12	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,44E-12	2,51E-11	1,96E-13	-3,26E-10
Human tox. non-cancer	CTUh	3,90E-08	2,50E-10	1,37E-08	5,30E-08	1,06E-10	1,21E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,28E-10	1,24E-09	1,05E-11	-2,14E-08
SQP[7)]	-	2,11E+00	3,86E-01	6,87E+01	7,12E+01	1,64E-01	2,25E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,38E-01	4,73E-01	4,62E-02	-4,45E+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	3,19E+00	6,07E-03	1,79E+01	2,11E+01	2,66E-03	-1,40E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,11E-03	4,52E-02	2,26E-04	-1,17E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,14E+00	1,14E+00	0,00E+00	-1,14E+00	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 renew. PER	MJ	3,19E+00	6,07E-03	1,91E+01	2,23E+01	2,66E-03	-2,55E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,11E-03	4,52E-02	2,26E-04	-1,17E+00
Non-re. PER as energy	MJ	2,31E+01	3,87E-01	2,38E+01	4,73E+01	1,63E-01	2,97E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,51E-01	-1,55E+00	-2,12E-01	-1,25E+01
Non-re. PER as material	MJ	1,12E+00	0,00E+00	7,54E-03	1,13E+00	0,00E+00	-7,54E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-8,19E-01	-3,03E-01	1,97E-01
Total use of non-re. PER	MJ	2,42E+01	3,87E-01	2,38E+01	4,84E+01	1,63E-01	2,21E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,51E-01	-2,37E+00	-5,15E-01	-1,23E+01
Secondary materials	kg	7,82E-02	1,67E-04	8,63E-02	1,65E-01	7,06E-05	4,70E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,61E-04	3,44E-04	5,95E-06	7,16E-01
Renew. secondary fuels	MJ	6,89E-04	2,09E-06	9,92E-03	1,06E-02	8,91E-07	2,72E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,94E-06	1,40E-05	1,23E-07	-1,18E-04
Non-ren. secondary fuels	MJ	2,76E-03	0,00E+00	0,00E+00	2,76E-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	1,02E-02	5,69E-05	6,30E-03	1,65E-02	2,41E-05	-2,26E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,31E-05	1,43E-04	2,86E-07	-5,48E-03

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	1,14E-01	5,79E-04	2,01E-02	1,35E-01	2,36E-04	4,83E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,39E-04	2,69E-03	2,73E-05	-4,25E-01
Non-hazardous waste	kg	2,69E+00	1,14E-02	5,29E-01	3,23E+00	4,73E-03	5,97E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,16E-02	7,84E-02	3,04E-02	-5,48E+00
Radioactive waste	kg	2,22E-02	1,08E-07	2,84E-04	2,25E-02	4,87E-08	4,75E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,88E-08	5,45E-07	3,53E-09	1,02E-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	1,82E-04	0,00E+00	0,00E+00	1,82E-04	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	3,13E+00	0,00E+00	0,00E+00	3,13E+00	0,00E+00	7,10E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,02E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	5,76E-03	0,00E+00	0,00E+00	5,76E-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	1,53E-03	0,00E+00	0,00E+00	1,53E-03	0,00E+00	4,00E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,49E-01	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	1,70E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,30E-02	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	2,30E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,60E-02	0,00E+00	0,00E+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	3,33E+00	2,68E-02	5,63E-01	3,92E+00	1,13E-02	3,18E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,44E-02	1,39E-01	1,61E-03	-1,30E+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 characterization 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 characterization factor for biogenic CO2 is set to zero

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, photovoltaic, 3kWp flat-roof installation, multi-Si, World, Ecoinvent
Electricity CO2e / kWh	0.0735
Electricity data source and quality	Electricity production, nuclear, boiling water reactor, Finland, Ecoinvent
Electricity CO2e / kWh	0.0077
Electricity data source and quality	Electricity production, peat, Finland, Ecoinvent
Electricity CO2e / kWh	1.04
Electricity data source and quality	Electricity production, deep geothermal, World, Ecoinvent
Electricity CO2e / kWh	0.0718
Electricity data source and quality	Electricity production, hydro, run-of-river, Finland, Ecoinvent
Electricity CO2e / kWh	0.0044
Electricity data source and quality	Electricity production, wind, >3MW turbine, onshore, Finland, Ecoinvent
Electricity CO2e / kWh	0.0318
Electricity data source and quality	Heat production, natural gas, at boiler modulating <100kW, Finland, Ecoinvent
Electricity CO2e / kWh	0.0769
District heating data source and quality	District Heat, Finland, 2022, Finland, One Click LCA
District heating CO2e / kWh	0.021

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO5, 97 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	100
Bulk density of transported products	4,92E+00
Volume capacity utilization factor	1

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	-
Water use (m^3)	-
Ancillary materials: type and mass (kg)	-
Waste materials: type and mass (kg)	0.084 kg of cardboard packing and 0.004 kg of wood packing per functional unit (kg)
Waste materials: output routes	83% of cardboard packaging is considered to be recycled, 8% to be incinerated and 9% landfilled at the end of life. 32% of wood packaging is considered to be recycled, 30 % to be incinerated and 38% landfilled at the end of life.
Direct emissions (kg)	-

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	1
Collection process: Mixed waste (kg)	0
Recovery: re-use (kg)	0
Recovery: recycling (kg)	0,812
Recovery: energy recovery (kg)	0,006
Disposal (kg)	1
Scenario assumptions e.g. transportation (mode, km) & other	50-150 km, Transport, freight, lorry >32 metric ton, EURO5 - Europe

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

Vera Durão, as an authorised verifier acting for EPD Hub Limited

04-07-2026

