ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

CASA W9
Swegon Group AB

EPD HUB, HUB-7279
Published on 20.08.2026, last updated on 20.08.2026, valid until 19.08.2031
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	Swegon Group AB
Address	J A Wettergrens gata 7, 421 30, Västra Frölunda, Sweden
Contact details	info@swegon.se
Website	www.swegon.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-B7, and modules C1-C4, D
EPD author	Sarita Keppola
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour 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	CASA W9
Additional labels	-
Product reference	-
Place(s) of raw material origin	Europe
Place of production	Kaarina, Finland
Place(s) of installation and use	Global
Period for data	Calendar year 2025
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	8,82

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit of CASA W9
Declared unit mass	147,3 kg
Mass of packaging	29,23 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	549
GWP-total, A1-A3 ($kgCO_2e$)	527
Secondary material, inputs (%)	42,5
Total energy use, A1-A3 (kWh)	2310
Net freshwater use, A1-A3 (m^3)	10,5

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

People spend most of their time indoors, which is why we need a sound indoor climate for our health, well-being and happiness. Swegon's ambition is to achieve the world’s best indoor environment with the least possible impact on the external environment. Our business models, services, products and systems are all designed to provide the right solution for each individual project.

PRODUCT DESCRIPTION

The air handling unit is a device, which will provide healthy, dust-free air to buildings with a good energy efficiency. Energy efficiency is created with a good design and optimization between fans, heat exchanger, filtration, control and modular space requirements.
Swegon CASA products are known in the market for their high quality, energy efficiency, silence and ease of use.
Swegon CASA W9 is residential air handling unit (1000 x 597 x 1314 mm, 4 x Ø 200 mm) with plate heat exchanger, that is suitable for ventilation in large apartments, offices or conference rooms under 450 m² (50-238 l/s).
The unit is controlled steplessly with automation functions to guarantee the best indoor environmental quality. The ventilation unit has intelligent demand-controlled humidity automation RH and CO2 as standard. VOC automation is available as accessory. Intelligent anti-frost protection ensures continuous ventilation in cold climate and automatic summer function with passive cooling helps to keep indoor climate comfortable during summer.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	90	Europe
Minerals	0	-
Fossil materials	10	Europe
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	8,907

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit of CASA W9
Mass per declared unit	147,3 kg
Functional unit	The functional unit is defined as providing an average annual heating saved (AHS) of 4539 kWh/a per 100 m² and an annual electricity consumption (AEC) of 268 kWh/a per 100 m², in accordance with EU Regulations 1253/2014 and 1254/2014. Over the 25-year reference service life, this corresponds to 113475 kWh/100 m² of heating saved and 6700 kWh/100 m² of electricity consumed.
Reference service life	25 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	x	ND	x	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 market-based approach is used in modelling the electricity mix utilized in the factory.

The unit is manufactured in Swegon ILTO Oy factory in Kaarina, Finland. The factory is an assembly plant, which doesn't manufacture any components by itself, just assemble units with components manufactured by suppliers. The product stage takes into account the manufacture of raw materials, their transport to the production plant and the stages of the product manufacturing process. The most relevant components were modelled based on primary data from the supplier, while some other components were modelled with proxy data. Transportation of raw material to the manufacturing site is accounted based both on actual distance and mode of transport and on generic datasets. Packaging material (cardboard and wood pallet) is included. The manufacturing mainly refers the assembling configurating and testing of the air handling units from pre-made parts. The assessment covers the electricity and heating use needed during the production process. The manufacturing energy and heat are both based on 100% renewable as proved by a green contract with the local companies. The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

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

The transportation (A4) of the final product is calculated to be from factory Kaarina, Finland, to the main market areas of the products in: Helsinki / Finland (68%), Stockholm / Sweden (23,5%) and other EU countries (8,5%). Average distances between the production facility and destinations are used. The transportation methods are by truck and ferry.
The product is sold ready to be installed and no raw material waste is generated from installation (A5). The Installation is done by manual installation work with lift table and hand tools, no machinery needed.
A5 covers packaging material. The recycling percentages of materials are EU scenarios. 83% of paper packaging goes to recycling, 8% is incinerated and 9% is landfilled. For wood packaging 32% is recycled, 38% is landfilled and 30% incinerated. For plastic packaging 40% is recycled, 37% is incinerated and 23% is landfilled. It is assumed that the nearest waste station is about 50 km from the installation site.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD follows additional requirements for products which are permanently installed into the building and using energy in module B6 of the use stage. Electricity consumption during the use phase is calculated over a 25-year period. Energy use refers to the daily estimated electricity consumption of the air handling unit. Average use scenario in Scandinavia and Europe is presented in Scenario documentation. Energy use during the product use phase and the replacement of filters are taken into account. Filters are replaced by assumption once each year during the 25-year life cycle.
Replacement of components or parts is not included. Please note that the environmental impact during the use phase varies according to individual usage patterns and geographic location. The results presented for module B6 in this EPD are scenario-based only. Therefore, the environmental impact from the use phase should be examined separately for individual projects. To accurately determine the environmental impact of this product, it's essential to calculate energy consumption and heat recovery based on these specific factors.
Air, soil, and water impacts during the use phase have not been studied.

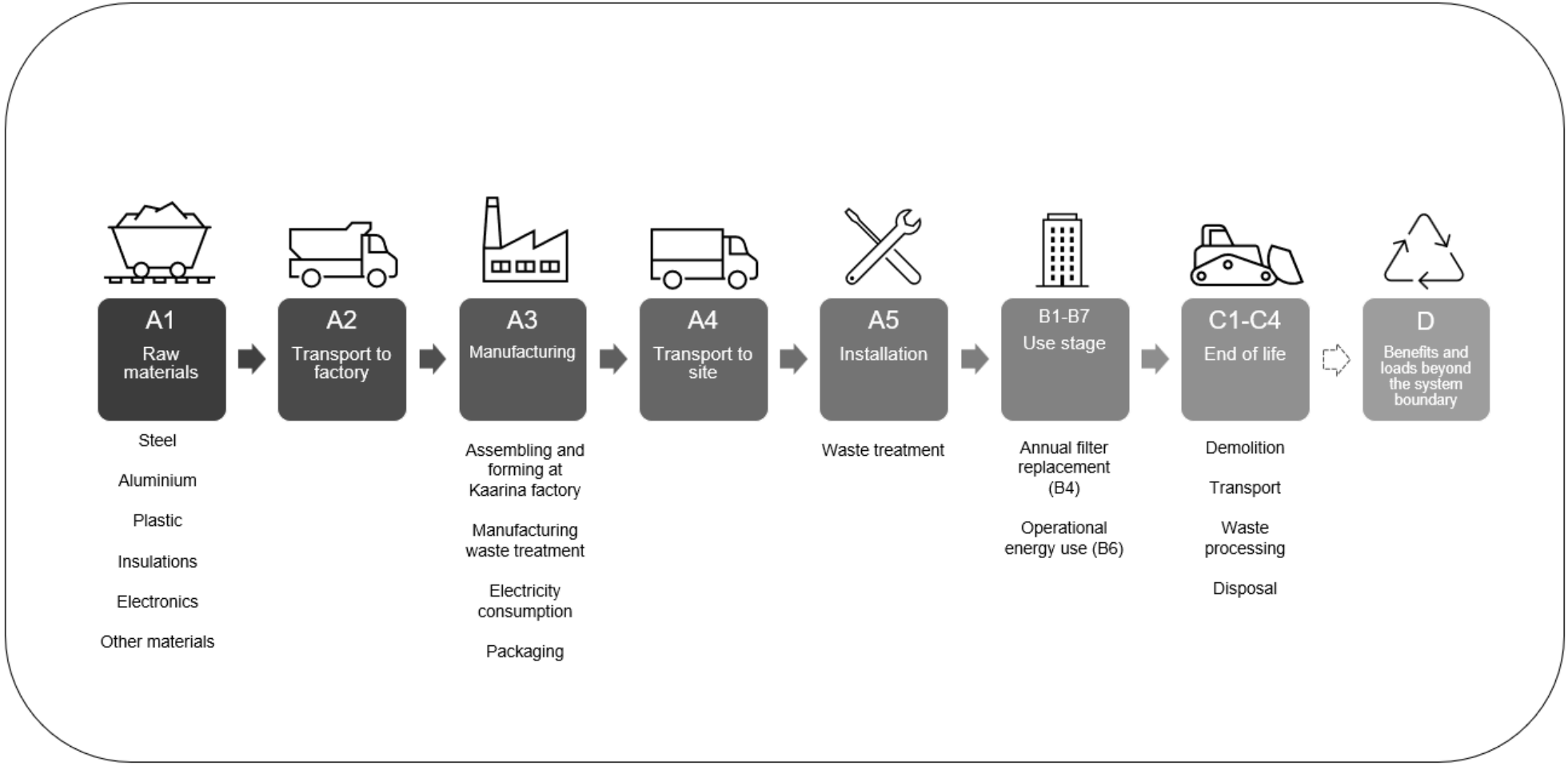
Calculation based on Ecodesign Regulation (EU) No 1253/2014 using the values specified in the standard EN 13141-7:2021, Ventilation for buildings – Performance testing of products for residential ventilation.
These calculations can be performed using our energy calculator *Swegon ProCASA* software. For more information, please visit www.swegon.com.

PRODUCT END OF LIFE (C1-C4, D)

At the end of the product's service life, the air handling unit is assumed to be demolished. The environmental impact of deconstruction (Module C1) is modelled using literature data. Subsequent waste processing (C3) and disposal (C4) are also modelled, with scenarios based on literature values that reflect typical end-of-life treatment routes, including recycling, incineration, and landfilling. End-of-life scenarios representing current practices and technologies in Europe were chosen, since this is Swegon's main market.
Transportation distances associated with the end-of-life treatment (C2) of materials are assumed to be 250 km to recycling facilities, 150 km to incineration plants, and 50 km to landfill sites. All transportation is carried out using a 16-32 metric ton freight lorry compliant with EURO 5 standards. It is assumed that materials intended for recycling are collected separately at the demolition site.
Waste processing (Module C3) and final disposal (Module C4) are modelled using literature-based scenarios representing typical end-of-life treatment routes. The primary materials considered are steel, aluminium, plastic and electronics. For steel, it is assumed that 85% is recycled and 15% is sent to landfill (World Steel Association). For aluminium 95% is recycled and 5% is landfilled (European Aluminium Association). For polymers, the end-of-life treatment varies depending on the type of plastic, but approximately 24% is recycled, 49% is incinerated, and 27% is landfilled (Plastics Europe). For electronics, 20% is assumed to be recycled and 80% ends up in landfill (United Nations Institute for Training and Research).

Due to the material and energy recovery potential of the components included in the product, the end-of-life can be converted into recycled raw materials or energy through incineration. The potential environmental benefits and burdens associated with recycling and energy recovery processes are accounted for in Module D.

LIFE CYCLE FLOW 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	Not applicable
Manufacturing energy and waste	Physical Properties

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
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 v3.2.5. 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‘.

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	5,35E+02	3,08E+00	-1,15E+01	5,27E+02	9,38E+00	3,36E+01	ND	ND	ND	7,13E+01	ND	7,16E+03	ND	0,00E+00	3,71E+00	2,17E+01	4,59E-01	-3,02E+02
GWP – fossil	kg CO_2e	5,30E+02	3,02E+00	1,56E+01	5,49E+02	8,95E+00	9,02E-01	ND	ND	ND	7,09E+01	ND	6,92E+03	ND	0,00E+00	3,64E+00	2,17E+01	4,58E-01	-2,88E+02
GWP – biogenic	kg CO_2e	9,92E-01	2,04E-02	-2,73E+01	-2,63E+01	1,39E-01	3,26E+01	ND	ND	ND	3,68E-01	ND	6,82E+01	ND	0,00E+00	1,96E-02	-7,82E-03	2,89E-04	-1,07E+01
GWP – LULUC	kg CO_2e	4,09E+00	4,60E-02	1,87E-01	4,32E+00	2,96E-01	8,94E-03	ND	ND	ND	5,14E-02	ND	1,65E+02	ND	0,00E+00	4,15E-02	8,26E-03	1,05E-04	-3,26E+00
Ozone depletion pot.	kg CFC-$_{11}$e	5,36E-05	7,10E-08	4,99E-07	5,41E-05	3,20E-07	1,73E-08	ND	ND	ND	1,14E-06	ND	1,41E-04	ND	0,00E+00	7,95E-08	6,03E-08	4,36E-09	-2,86E-06
Acidification potential	mol H^+e	1,03E+01	1,38E-02	1,07E-01	1,04E+01	6,36E-02	5,14E-03	ND	ND	ND	2,17E-01	ND	3,86E+01	ND	0,00E+00	1,22E-02	4,16E-02	1,13E-03	-1,48E+00
EP-freshwater[2)]	kg Pe	1,42E-01	2,96E-04	5,08E-03	1,47E-01	6,56E-04	2,73E-04	ND	ND	ND	5,46E-03	ND	3,30E+00	ND	0,00E+00	2,87E-04	2,72E-03	1,61E-05	-1,43E-01
EP-marine	kg Ne	7,77E-01	5,31E-03	2,40E-02	8,06E-01	2,09E-02	5,64E-03	ND	ND	ND	5,09E-02	ND	6,65E+00	ND	0,00E+00	4,41E-03	1,08E-02	7,79E-03	-2,56E-01
EP-terrestrial	mol Ne	3,50E+01	5,37E-02	3,18E-01	3,54E+01	2,03E-01	2,05E-02	ND	ND	ND	4,94E-01	ND	6,97E+01	ND	0,00E+00	4,43E-02	1,08E-01	4,71E-03	-2,59E+00
POCP ("smog")[3)]	kg NMVOCe	3,00E+00	1,86E-02	7,58E-02	3,09E+00	6,63E-02	6,74E-03	ND	ND	ND	1,60E-01	ND	2,05E+01	ND	0,00E+00	1,81E-02	3,15E-02	1,75E-03	-9,81E-01
ADP-minerals & metals[4)]	kg Sbe	1,05E+00	1,09E-05	6,45E-05	1,05E+00	3,09E-05	3,16E-06	ND	ND	ND	1,46E-04	ND	2,32E-01	ND	0,00E+00	1,13E-05	1,98E-04	2,75E-07	-1,79E-03
ADP-fossil resources	MJ	7,08E+03	4,21E+01	1,97E+02	7,32E+03	1,25E+02	1,24E+01	ND	ND	ND	4,89E+02	ND	3,40E+05	ND	0,00E+00	5,27E+01	6,01E+01	3,79E+00	-3,49E+03
Water use[5)]	m^3e depr.	3,25E+02	2,51E-01	1,07E+01	3,36E+02	8,36E-01	4,66E-01	ND	ND	ND	3,30E+02	ND	1,21E+04	ND	0,00E+00	2,95E-01	2,90E+00	1,67E-01	-2,91E+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	8,17E-05	2,74E-07	1,17E-06	8,31E-05	7,65E-07	1,07E-07	ND	ND	ND	2,22E-06	ND	2,64E-04	ND	0,00E+00	3,60E-07	4,87E-07	2,56E-08	-2,01E-05
Ionizing radiation[6]	kBq U235e	3,15E+01	3,43E-02	1,05E+00	3,26E+01	9,79E-02	3,32E-02	ND	ND	ND	3,85E+00	ND	2,00E+04	ND	0,00E+00	4,54E-02	7,70E-01	2,78E-03	-2,94E+01
Ecotoxicity (freshwater)	CTUe	1,78E+04	1,24E+01	1,56E+03	1,93E+04	4,28E+01	6,58E+01	ND	ND	ND	5,16E+02	ND	5,02E+04	ND	0,00E+00	1,10E+01	2,05E+02	1,03E+04	-3,87E+03
Human toxicity, cancer	CTUh	2,26E-06	7,74E-10	3,67E-08	2,29E-06	1,95E-09	5,98E-10	ND	ND	ND	2,13E-08	ND	4,31E-06	ND	0,00E+00	6,59E-10	4,38E-09	5,14E-11	-2,57E-07
Human tox. non-cancer	CTUh	2,77E-05	2,99E-08	1,53E-07	2,78E-05	8,49E-08	3,07E-08	ND	ND	ND	3,37E-07	ND	2,24E-04	ND	0,00E+00	3,55E-08	2,27E-07	6,35E-09	-2,83E-06
SQP[7]	-	1,37E+03	3,16E+01	2,88E+03	4,28E+03	1,17E+02	1,30E+01	ND	ND	ND	5,02E+01	ND	1,06E+05	ND	0,00E+00	5,38E+01	7,48E+01	7,79E+00	-6,28E+02

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	1,67E+03	7,31E-01	5,18E+02	2,19E+03	2,48E+00	-4,34E+02	ND	ND	ND	3,16E+01	ND	1,46E+05	ND	0,00E+00	8,41E-01	1,22E+01	4,41E-02	-8,71E+02
Renew. PER as material	MJ	1,25E+00	0,00E+00	3,63E+02	3,64E+02	0,00E+00	-3,63E+02	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	-1,06E+00	-1,90E-01	1,06E+02
Total use of renew. PER	MJ	1,67E+03	7,31E-01	8,81E+02	2,56E+03	2,48E+00	-7,96E+02	ND	ND	ND	3,16E+01	ND	1,46E+05	ND	0,00E+00	8,41E-01	1,11E+01	-1,46E-01	-7,65E+02
Non-re. PER as energy	MJ	5,91E+03	4,24E+01	1,61E+02	6,11E+03	1,27E+02	1,25E+01	ND	ND	ND	3,03E+01	ND	3,40E+05	ND	0,00E+00	5,30E+01	-2,32E+02	-1,09E+02	-3,49E+03
Non-re. PER as material	MJ	6,16E+01	0,00E+00	1,36E+01	7,52E+01	0,00E+00	-2,09E+01	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	-4,12E+01	-1,31E+01	6,78E+00
Total use of non-re. PER	MJ	5,97E+03	4,24E+01	1,75E+02	6,19E+03	1,27E+02	-8,44E+00	ND	ND	ND	3,03E+01	ND	3,40E+05	ND	0,00E+00	5,30E+01	-2,73E+02	-1,22E+02	-3,48E+03
Secondary materials	kg	6,26E+01	1,89E-02	4,99E+00	6,76E+01	5,86E-02	9,80E-03	ND	ND	ND	1,19E+01	ND	5,78E+01	ND	0,00E+00	2,31E-02	5,01E-02	1,07E-03	1,09E+02
Renew. secondary fuels	MJ	6,58E-02	2,40E-04	1,10E+01	1,10E+01	6,98E-04	9,25E-05	ND	ND	ND	6,68E-04	ND	2,51E-01	ND	0,00E+00	2,98E-04	2,21E-03	2,16E-05	-2,10E-02
Non-ren. secondary fuels	MJ	4,03E-03	0,00E+00	0,00E+00	4,03E-03	0,00E+00	0,00E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	1,04E+01	7,50E-03	1,42E-01	1,05E+01	2,90E-02	-3,25E-02	ND	ND	ND	3,30E-01	ND	3,43E+02	ND	0,00E+00	9,40E-03	5,99E-02	-1,52E-02	-6,07E+00

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	5,19E+02	2,92E-01	1,21E+00	5,20E+02	8,18E-01	1,17E-01	ND	ND	ND	4,65E+00	ND	7,03E+02	ND	0,00E+00	1,73E-01	1,05E+00	9,11E-03	-8,02E+01
Non-hazardous waste	kg	1,54E+03	3,94E+00	2,69E+01	1,57E+03	1,15E+01	3,54E+01	ND	ND	ND	5,88E+01	ND	1,67E+04	ND	0,00E+00	2,73E+00	2,30E+01	1,30E+01	-7,56E+02
Radioactive waste	kg	2,14E-02	8,22E-06	3,53E-04	2,18E-02	2,35E-05	8,24E-06	ND	ND	ND	9,60E-04	ND	4,30E+00	ND	0,00E+00	1,11E-05	1,95E-04	6,74E-07	-7,83E-03

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	4,76E-02	0,00E+00	2,93E+00	2,98E+00	0,00E+00	1,15E+01	ND	ND	ND	8,24E-09	ND	0,00E+00	ND	0,00E+00	0,00E+00	1,20E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	3,42E-04	0,00E+00	1,34E+00	1,34E+00	0,00E+00	7,84E+00	ND	ND	ND	1,25E+01	ND	0,00E+00	ND	0,00E+00	0,00E+00	6,37E+00	0,00E+00	0,00E+00
Exported energy	MJ	4,10E-04	0,00E+00	0,00E+00	4,10E-04	0,00E+00	4,14E+01	ND	ND	ND	0,00E+00	ND	0,00E+00	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	1,74E+01	ND	ND	ND	0,00E+00	ND	0,00E+00	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	2,40E+01	ND	ND	ND	0,00E+00	ND	0,00E+00	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	4,82E+02	3,05E+00	1,61E+01	5,01E+02	9,20E+00	1,93E+00	ND	ND	ND	7,22E+01	ND	7,07E+03	ND	0,00E+00	3,67E+00	2,17E+01	4,43E-01	-2,91E+02
Ozone depletion Pot.	kg $CFC_{-11}e$	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Acidification	kg SO_2e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Eutrophication	kg PO_4^3e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
POCP (“smog”)	kg C_2H_4e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADP-elements	kg Sbe	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-fossil	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Radioactive waste, high	kg	1,30E-03	2,41E-06	6,12E-05	1,36E-03	6,81E-06	2,24E-06	ND	ND	ND	5,38E-04	ND	7,68E-01	ND	0,00E+00	3,23E-06	4,57E-05	1,94E-07	-2,38E-03
Radioactive waste, int/low	kg	1,68E-02	5,81E-06	2,92E-04	1,71E-02	1,67E-05	5,99E-06	ND	ND	ND	1,09E-03	ND	3,53E+00	ND	0,00E+00	7,83E-06	1,49E-04	4,81E-07	-5,45E-03

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	5,34E+02	3,06E+00	1,58E+01	5,53E+02	9,24E+00	9,11E-01	ND	ND	ND	7,10E+01	ND	7,09E+03	ND	0,00E+00	3,69E+00	2,17E+01	4,58E-01	-2,92E+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

Scenario parameter	Value
Electricity data source and quality	Electricity production, hydro, run-of-river, Finland, Ecoinvent
Electricity kg CO2e / kWh	0,0044 kgCO2e/kWh
District heating data source and quality	District Heat, Finland, 2022, Finland, One Click LCA
District heating kg CO2e / kWh	0,18 kgCO2e/kWh

Transport scenario documentation (A4)

Scenario parameter	Value
Fuel and vehicle type	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 5 and Transport, freight, sea, ferry
Average transport distance (Finland), km	161 km
Average transport distance (Sweden), km	88 km and 235 km
Average transport distance (Norway), km	537 km and 235 km
Average transport distance (Switzerland), km	2470 km and 85 km
Average transport distance (Germany), km	1694 km and 85 km
Average transport distance (Belgium), km	2420 km and 85 km
Capacity utilization (including empty return) %	50
Bulk density of transported products	126
Volume capacity utilization factor	<1

Installation at the building site (A5) - Scenario documentation

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)	Wood pallet: 25 kg Carboard packaging: 3,76 kg Paper packaging: 0,47 kg
Waste materials: output routes	Wood pallet: Recycled 32%, Incinerated 30% and Landfilled 38%. Cardboard and paper packaging: Recycled 83%, Incinerated 8% and Landfilled 9%.
Direct emissions (kg)	0

Use stages scenario documentation - B4 Replacement

Scenario information	Value
Replacement cycle / Number per RSL or year	1/year
Exchange of worn parts, mass (kg)	0,5 kg

Use stages scenario documentation - B6-B7 Use of energy and use of water

Scenario information	Value
Type of energy, consumption (kWh)	Electricity consumed at reference point (70% of max air volume and 50 Pa pressure): 2277 kWh/year
Freshwater consumption (m3)	-
Performance characteristics, average use scenario: 90 l/s @ 110 Pa	Scandinavia: 964 kWh with DVC (CO_2) Europe: 883 kWh with DVC (CO_2)

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	119,76 kg
Collection process: Mixed waste (kg)	27,53 kg
Recovery: re-use (kg)	0 kg
Recovery: recycling (kg)	120 kg
Recovery: energy recovery (kg)	6,37 kg
Disposal (kg)	21,4 kg
Scenario assumptions e.g. transportation (mode, km) & other	Truck, 16-32 tonnes, diesel, EURO5 Landfill: 50 km Recycling: 250 km Incineration: 150 km

THIRD-PARTY VERIFICATION STATEMENT

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

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

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

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

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

Verified tools

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

Yazan Badour as an authorized verifier for EPD Hub Limited 20.08.2026

VERIFIED ISO 14025