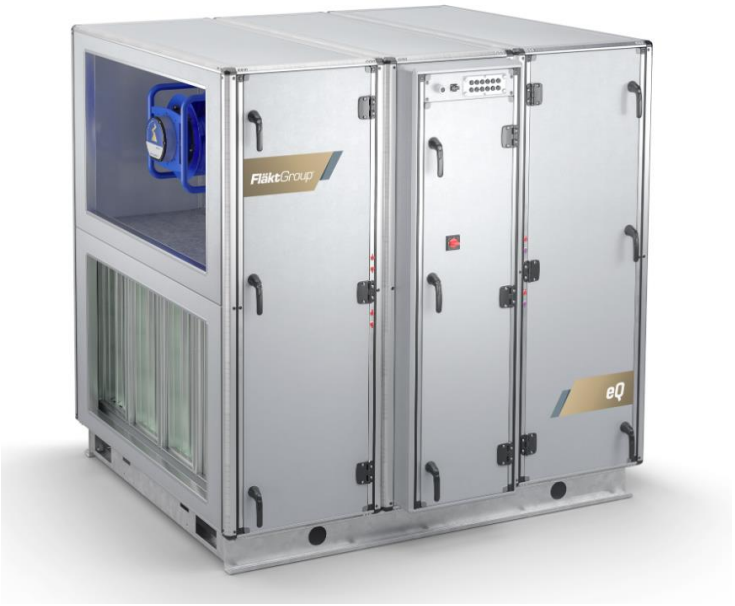
ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

FläktGroup eQ 090 Air Handling Unit
FläktGroup AB



EPD HUB, HUB-5580
Published on 01.03.2026, last updated on 01.03.2026, valid until 01.03.2031

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	FläktGroup
Address	Fläktgatan 1, 553 02, Jönköping, SE
Contact details	info.se@flaktgroup.com
Website	https://www.flaktgroup.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	Zulnasree Binadam FläktGroup
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Imane Uald Lamkaddam 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	FläktGroup eQ 090 Air Handling Unit
Additional labels	eQ 090 Air Handling Unit with rotary heat exchanger
Product reference	-
Place(s) of raw material origin	Europe, Asia
Place of production	Jönköping, Sweden
Place(s) of installation and use	Malmö, Sweden
Period for data	Calendar year 2025
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
A1-A3 Specific data (%)	43

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit of eQ 090 Air handling unit
Declared unit mass	3580 kg
Mass of packaging	126,395 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	21100
GWP-total, A1-A3 ($kgCO_2e$)	21000
Secondary material, inputs (%)	29,3
Secondary material, outputs (%)	75,6
Total energy use, A1-A3 (kWh)	110000
Net freshwater use, A1-A3 (m^3)	247

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

ABOUT FLÄKTGROUP

FläktGroup designs and manufactures ventilation and air treatment products for use in commercial and industrial buildings. The company is headquartered in Germany and operates production facilities in Europe, Asia and the United States.

FOR WELLBEING, SAFETY, AND ENVIRONMENT

Today, we spend more than 90% of our time indoors, and the air we breathe has a big impact on our performance, well-being, and comfort. Our buildings need mechanical ventilation and air treatment to deliver safe and comfortable building spaces. At the same time, buildings account for up to 40% the energy consumption, where ventilation systems play a big part. With this in mind, FläktGroup aims to approach ventilation and air treatment with consideration for indoor environments, energy use, and environmental aspects throughout the building lifecycle.

PRODUCT DESCRIPTION

eQ 090 is one of our standardized range of air handling units in compact casing that are part of the eQ family. The eQ has energy efficient components such as ECBluefin, EC-motors, ReCooler HP and integrated controls - ISYteq 4.0. It offers a fully packaged air handling unit loaded with features needed to be the right choice concerning functionality and giving you low installation and operating costs. Optional heating and cooling coils are placed in a coil block after the supply air fan. Dampers and silencers are also available.

eQ units are Eurovents certified and under relevant directives and standards like Ecodesign, Machine directive, EN13053 and EN1886
An air handling unit (AHU) function is to supply a high indoor environmental quality by controlling the supply of fresh and well/tempered air.

eQ AHU is suitable for many different applications like offices, hotels, restaurants, hospitals, pharmaceutical facilities, industrial applications, and educational buildings.

Fläktgroup develops AHUs towards energy efficient, smart and connected solutions.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	88,67	Europe, Asia
Minerals	2,62	Europe
Fossil materials	8,71	Europe
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product’s biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	9,04
Biogenic carbon content in packaging, kg C	52,19

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit of eQ 090 Air handling unit
Mass per declared unit	3580 kg
Functional unit	The functional unit is defined as replacing utilized air in a building by outdoor air with a transfe 30060 m3 air per hour with an filtration efficiency EPM1 60% for 25 years.
Reference service life	25 years

The reference service life of the product is depending on the conditions of use.

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 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 process begins with the delivery of metal coils, transported by truck from the steel manufacturer. These coils enter the Pre-Production Area, where materials for each specific product grade are prepared. Coils are cut to the appropriate lengths, ensuring maximum material utilization and significantly reducing waste compared to using sheet metal. A dedicated laser cutter then processes the material with high precision, enabling the creation of custom-designed parts. Additional processing steps like punching and bending with press brakes follow as required.

Next is the Pre-Assembly of Components. Here, various elements of the final product—such as sound attenuators, fan walls, air rays, droplet separators, and filter frames—are manufactured and assembled. The exact steps vary depending on the component, but they are all built in-house to meet specific design requirements.

The process continues in the Panel Production phase, where format sheets are punched, bent, and then insulated. These panels form the structural elements of the final unit.

Following this is the First Step Assembly, where the top and bottom sections are joined with the load-bearing base that includes the side panels. Additional elements like handles, hinges, and windows are installed depending on the configuration.

The Rotor Group is treated as its own component group. This includes specialized machinery used to wind the rotor material. The Plate Heat Exchanger is also assembled in-house from individual elements into complete units.

While the first step assembly is ongoing, the Control Group simultaneously assembles the control systems. This includes wiring, parametric programming, and function testing, all mounted onto a steel base plate.

The production losses of steel is included, which is approximately 30%, the spill is 100% recycled through a collaboration with our recycling company. We also have approximately 1% spill of wood when creating pallets, which is included. The reference here is our recycling company. The waste is transported to a local recycling company which is 3 km from the production facility.

The Logistics Team then collects all manufactured components and transports them to the Final Assembly area. Here, all parts are assembled into complete units using hand tools.

The process concludes with EOL (End-of-Line) Testing, where the complete Air Handling Unit (AHU) undergoes thorough functionality tests to ensure proper operation.

Throughout all stages, the Quality Department works in parallel to ensure that every component and assembly step meets our standards for performance and reliability.

Final stage is the packaging of the product, where packaging film, wooden pallets, PET bands and styrofoam bricks are used.
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) is calculated to be from Jönköping where the factory is located to Stockholm, Sweden, the transportation method is by truck and the distance is 327 km. It is assumed that a truck that uses diesel is used on site to transport the unit on the manufacturing site. A5 covers the spills of packaging material. The recycling percentages comes from our recycling company. 98% of metal goes to recycling and 2% goes to landfill. 98% of wood goes to incineration and 2% goes to recycling. For plastic 99% is recycled and 1% incinerated. Material loss of the air handling unit during the installation phase is estimated to be zero.

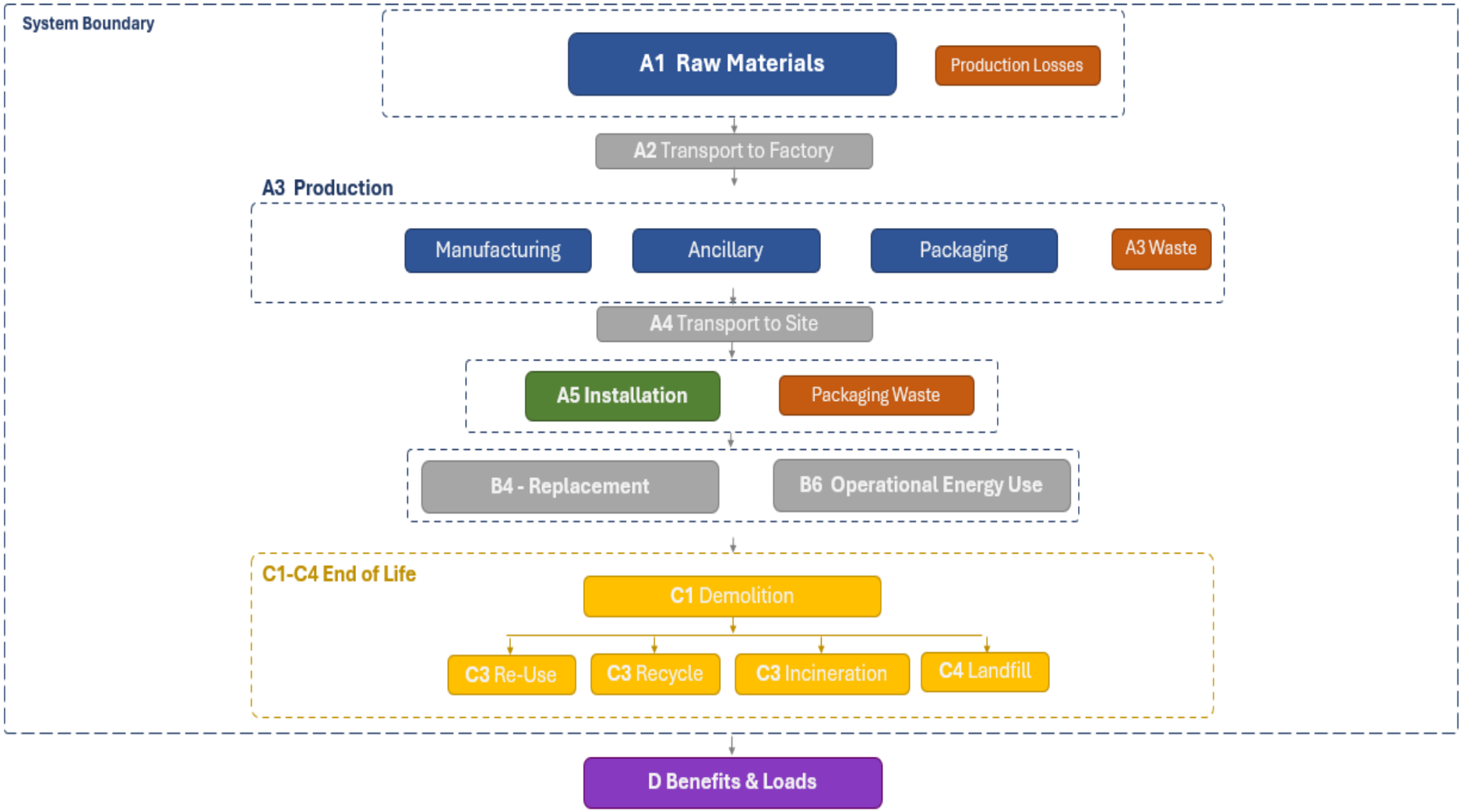
PRODUCT USE AND MAINTENANCE (B1-B7)

Replacement (B4) is calculated with a filter change of twice a year which is assumed to be manually installed. The transportation of the filters is assumed to be directly from supplier to customer which is calculated from the supplier to Stockholm, Sweden. The used filters is assumed to be disposed according to Swedish disposing standards and is assumed to be transported 50km to the local recycling station. The operational energy use (B6) is calculated based on the scenario of Sweden, Malmö. With a yearly average temperature of 9.1 degrees celcius and moisture of 83.8%. The operational use is also based on 5 days a week, 12 hours a day with a 65% air flow.It is calculated with Supply air fan + Exhaust air fan * 25 .Which comes out to 430925 kWh during its lifetime. This is calculated using the RSL of 25 years using the c-PCR for ventilation units recommendation from Eurovent.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The air handling unit is assumed to be dismantled with electrical tools, and these are then transported 50km to the local recycling site by truck (C2). 50km is used because the real-life scenario is unknown and very dependent on which city that the unit is placed in. At the recycling site the product is dismantled into different categories where each raw material is divided into each category such as different kinds of metals and plastics, depending on material the average recovery of material differs. (C3). The remaining that is not recycled is then taken to landfill for disposal (C4). The recycling percentages come from different sources where for steel 85% goes to recycling and 15% goes to landfill. The source used for this is https://worldsteel.org/wp-content/uploads/Life-cycle-inventory-LCI-study-2020-data-release.pdf). The aluminium used in the product has a 90% recycling rate and 10% goes to landfill. For the PVC used in the product, 34% goes to recycling, 41% goes to incineration and 25% goes to landfills. For the copper used 60% goes to recycling and 40% goes to landfills. For plastic for instance HDPE 24% goes to recycling, 49% incineration and 27% goes to landfill. The recycled materials are then credited in module D. This is the most likely scenario for the handling of the product at its end of life.

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	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

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 v3.2.3. 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‘.

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	2,05E+04	3,74E+02	1,06E+02	2,10E+04	2,90E+02	2,21E+02	ND	ND	ND	6,41E+03	ND	1,42E+05	ND	0,00E+00	4,29E+01	3,03E+02	2,57E+02	-6,10E+03
GWP – fossil	kg CO_2e	2,05E+04	3,74E+02	2,88E+02	2,11E+04	2,90E+02	2,96E+01	ND	ND	ND	6,93E+03	ND	1,41E+05	ND	0,00E+00	4,28E+01	3,03E+02	2,57E+02	-6,04E+03
GWP – biogenic	kg CO_2e	3,32E+01	7,26E-02	-1,84E+02	-1,51E+02	5,63E-02	1,92E+02	ND	ND	ND	-5,24E+02	ND	3,16E+02	ND	0,00E+00	8,32E-03	-1,61E-01	3,17E-02	-3,98E+00
GWP – LULUC	kg CO_2e	2,04E+01	1,29E-01	1,45E+00	2,20E+01	9,74E-02	2,87E-03	ND	ND	ND	7,11E+00	ND	4,33E+02	ND	0,00E+00	1,44E-02	7,90E-02	1,36E-02	-5,58E+01
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	8,20E-04	7,42E-06	1,21E-05	8,39E-04	5,80E-06	3,11E-07	ND	ND	ND	9,06E-05	ND	2,60E-03	ND	0,00E+00	8,57E-07	9,13E-07	3,32E-07	-3,56E-05
Acidification potential	mol H^+e	4,36E+03	8,74E-01	2,63E+00	4,37E+03	5,69E-01	8,34E-02	ND	ND	ND	2,02E+01	ND	8,29E+02	ND	0,00E+00	8,41E-02	7,88E-01	1,27E-01	-4,02E+01
EP-freshwater[2)]	kg Pe	1,31E+02	2,45E-02	1,38E-01	1,31E+02	1,89E-02	-1,72E-02	ND	ND	ND	1,04E-01	ND	1,31E+02	ND	0,00E+00	2,80E-03	4,03E-02	3,02E-03	-5,05E+00
EP-marine	kg Ne	4,47E+02	2,09E-01	6,53E-01	4,48E+02	1,34E-01	3,67E-02	ND	ND	ND	4,83E+00	ND	1,30E+02	ND	0,00E+00	1,98E-02	1,93E-01	1,57E-01	-6,87E+00
EP-terrestrial	mol Ne	4,89E+03	2,27E+00	6,12E+00	4,90E+03	1,45E+00	3,82E-01	ND	ND	ND	8,27E+01	ND	1,17E+03	ND	0,00E+00	2,14E-01	2,09E+00	5,20E-01	-7,75E+01
POCP ("smog")[3)]	kg NMVOCe	1,80E+03	1,34E+00	1,62E+00	1,81E+03	9,62E-01	1,27E-01	ND	ND	ND	1,82E+01	ND	3,84E+02	ND	0,00E+00	1,42E-01	6,08E-01	1,57E-01	-2,46E+01
ADP-minerals & metals[4)]	kg Sbe	2,95E+00	1,23E-03	1,70E-02	2,97E+00	9,52E-04	1,71E-05	ND	ND	ND	1,81E-03	ND	1,90E+00	ND	0,00E+00	1,41E-04	4,35E-03	5,86E-05	-2,86E-01
ADP-fossil resources	MJ	2,55E+05	5,22E+03	3,95E+04	2,99E+05	4,05E+03	2,58E+02	ND	ND	ND	1,18E+05	ND	3,28E+06	ND	0,00E+00	5,99E+02	8,74E+02	2,60E+02	-5,75E+04
Water use[5)]	m^3e depr.	5,71E+04	2,55E+01	4,83E+02	5,76E+04	1,97E+01	4,71E+00	ND	ND	ND	9,94E+02	ND	8,95E+04	ND	0,00E+00	2,91E+00	3,23E+01	1,77E+01	-2,97E+03

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	6,75E+00	2,44E-05	2,88E-05	6,75E+00	1,80E-05	1,56E-06	ND	ND	ND	2,51E-06	ND	2,96E-03	ND	0,00E+00	2,66E-06	1,03E-05	1,44E-06	-5,42E-04
Ionizing radiation[6]	kBq U235e	4,53E+04	7,51E+00	2,73E+03	4,81E+04	6,19E+00	1,63E-01	ND	ND	ND	8,62E-01	ND	9,07E+04	ND	0,00E+00	9,14E-01	6,62E+00	5,95E-01	-1,21E+02
Ecotoxicity (freshwater)	CTUe	2,54E+05	7,30E+02	2,68E+03	2,57E+05	5,81E+02	3,17E+01	ND	ND	ND	8,09E+01	ND	5,00E+05	ND	0,00E+00	8,59E+01	1,04E+03	6,75E+03	-9,96E+04
Human toxicity, cancer	CTUh	2,40E+01	5,99E-08	3,04E-07	2,40E+01	4,51E-08	1,19E-08	ND	ND	ND	6,28E-09	ND	4,77E-05	ND	0,00E+00	6,66E-09	7,36E-08	5,33E-08	-4,90E-06
Human tox. non-cancer	CTUh	2,98E+01	3,12E-06	1,59E-05	2,98E+01	2,37E-06	2,97E-07	ND	ND	ND	3,30E-07	ND	2,47E-03	ND	0,00E+00	3,50E-07	4,34E-06	2,31E-06	-8,60E-05
SQP[7]	-	4,60E+04	2,82E+03	1,35E+04	6,24E+04	2,09E+03	3,38E+01	ND	ND	ND	2,91E+02	ND	7,30E+05	ND	0,00E+00	3,09E+02	1,62E+03	2,83E+02	-2,01E+04

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	7,88E+04	9,81E+01	1,01E+04	8,91E+04	7,93E+01	-1,99E+03	ND	ND	ND	1,99E+04	ND	9,00E+05	ND	0,00E+00	1,17E+01	1,53E+02	1,01E+01	-2,38E+04
Renew. PER as material	MJ	1,15E+02	0,00E+00	1,67E+03	1,79E+03	0,00E+00	-1,67E+03	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	-8,63E+01	-2,88E+01	2,97E+01
Total use of renew. PER	MJ	7,89E+04	9,81E+01	1,18E+04	9,08E+04	7,93E+01	-3,66E+03	ND	ND	ND	1,99E+04	ND	9,00E+05	ND	0,00E+00	1,17E+01	6,68E+01	-1,87E+01	-2,38E+04
Non-re. PER as energy	MJ	2,62E+05	5,22E+03	3,94E+04	3,07E+05	4,05E+03	3,99E+01	ND	ND	ND	5,21E+04	ND	3,28E+06	ND	0,00E+00	5,99E+02	-2,66E+03	-3,17E+03	-5,75E+04
Non-re. PER as material	MJ	2,38E+03	0,00E+00	1,88E+02	2,57E+03	0,00E+00	-1,88E+02	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	-1,77E+03	-6,08E+02	3,05E+02
Total use of non-re. PER	MJ	2,64E+05	5,22E+03	3,96E+04	3,09E+05	4,05E+03	-1,48E+02	ND	ND	ND	5,21E+04	ND	3,28E+06	ND	0,00E+00	5,99E+02	-4,43E+03	-3,78E+03	-5,72E+04
Secondary materials	kg	1,05E+03	2,34E+00	4,84E+00	1,06E+03	1,78E+00	1,41E-01	ND	ND	ND	1,83E+03	ND	5,43E+02	ND	0,00E+00	2,63E-01	1,05E+00	9,77E-02	2,25E+03
Renew. secondary fuels	MJ	6,93E+00	2,56E-02	7,01E-02	7,02E+00	1,80E-02	4,56E-04	ND	ND	ND	2,51E-03	ND	4,33E+00	ND	0,00E+00	2,67E-03	4,81E-02	5,24E-03	-4,87E-01
Non-ren. secondary fuels	MJ	3,41E-01	0,00E+00	0,00E+00	3,41E-01	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	2,31E+02	7,12E-01	1,48E+01	2,47E+02	5,56E-01	3,79E-02	ND	ND	ND	3,88E+01	ND	2,84E+03	ND	0,00E+00	8,21E-02	7,48E-01	1,38E-01	-6,20E+01

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	1,76E+03	7,08E+00	2,64E+01	1,80E+03	5,28E+00	1,11E+00	ND	ND	ND	7,42E-01	ND	8,30E+03	ND	0,00E+00	7,80E-01	1,03E+01	1,54E+01	-1,89E+03
Non-hazardous waste	kg	9,40E+04	1,60E+02	5,34E+03	9,95E+04	1,24E+02	1,36E+02	ND	ND	ND	1,01E+02	ND	6,42E+05	ND	0,00E+00	1,83E+01	3,03E+02	5,18E+02	-1,19E+04
Radioactive waste	kg	3,85E+00	1,87E-03	5,95E-01	4,44E+00	1,55E-03	4,05E-05	ND	ND	ND	3,85E+00	ND	2,33E+01	ND	0,00E+00	2,29E-04	1,69E-03	1,47E-04	-2,31E-02

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	1,14E+02	0,00E+00	0,00E+00	1,14E+02	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	4,06E+03	0,00E+00	5,18E+02	4,58E+03	0,00E+00	8,72E+00	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	2,71E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	2,38E+00	0,00E+00	4,91E-01	2,87E+00	0,00E+00	0,00E+00	ND	ND	ND	1,73E+01	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	2,70E+00	0,00E+00	2,82E+01	3,09E+01	0,00E+00	2,19E+03	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	1,12E+03	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	1,86E+01	1,86E+01	0,00E+00	3,30E+02	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,70E+02	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	3,30E+00	3,30E+00	0,00E+00	1,86E+03	ND	ND	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	6,47E+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	2,05E+04	3,74E+02	2,90E+02	2,11E+04	2,90E+02	2,96E+01	ND	ND	ND	6,94E+03	ND	1,41E+05	ND	0,00E+00	4,29E+01	3,03E+02	2,57E+02	-6,09E+03

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. District heat, Jönköping, Sweden, 2023, Sweden, One Click LCA, 0.0236 kgCO2e/kWh
2. Electricity, low voltage, residual mix, Sweden, Ecoinvent, 0.0648 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry 7.5-16 metric ton, EURO6, 327 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	0,00E+00
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation resources)

1. Machine operation, diesel, >= 18.64 kW and < 74.57 kW, high load factor, Ecoinvent, 0.5 h

Installation scenario documentation - A5 (Installation waste)

1. Wood chipping, industrial residual wood, stationary electric chipper, Ecoinvent, Materials for recycling, 2.4 kg
2. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 117.6 kg
3. Exported Energy: Thermal, Ecoinvent, 1859.256 MJ
4. Exported Energy: Thermal, Ecoinvent, 1.36791623 MJ
5. Exported Energy: Electricity, Ecoinvent, 329.868 MJ
6. Exported Energy: Electricity, Ecoinvent, 0.242694815 MJ
7. Market for waste polyethylene/polypropylene product, Ecoinvent, Materials for recycling, 5.14305 kg
8. PE (Polyethylene) waste incineration with electricity, Ecoinvent, 0.05195 kg
9. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.024 kg
10. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 1.176 kg

Use stages scenario documentation - B4 (Replacement data source)

1. Filter used in HVAC applications, Ecoinvent, 1760.0 kg
2. Filter used in HVAC applications, Ecoinvent, 520.0 kg

Use stages scenario documentation - B4 Replacement

Scenario information	Value
Replacement cycle / Number per RSL or year	Filte replacement 2 times per year

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

1. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 2384.0 kg
2. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 9.8686 kg
3. Treatment of scrap steel, inert material landfill, Ecoinvent, 420.705 kg
4. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.52 kg
5. Treatment of scrap steel, inert material landfill, Ecoinvent, 14.77 kg
6. Treatment of scrap steel, inert material landfill, Ecoinvent, 4.71 kg
7. Treatment of electronics scrap from control units, Ecoinvent, 116.8778 kg
8. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 269.1 kg
9. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 22.15 kg
10. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 18.83 kg
11. Treatment of waste aluminium, sanitary landfill, Ecoinvent, 29.9 kg
12. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.83 kg
13. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.87 kg
14. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.34 kg
15. Treatment of waste polyvinylchloride, municipal incineration, Ecoinvent, 1.0 kg
16. Exported Energy: Electricity, Ecoinvent, 3.43 MJ

17. Exported Energy: Electricity, Ecoinvent, 12.028 MJ
18. Exported Energy: Electricity, Ecoinvent, 3.8576 MJ
19. Exported Energy: Electricity, Ecoinvent, 407.012 MJ
20. Exported Energy: Electricity, Ecoinvent, 42.115 MJ
21. Exported Energy: Electricity, Ecoinvent, 3.35 MJ
22. Exported Energy: Electricity, Ecoinvent, 1.83 MJ
23. Exported Energy: Thermal, Ecoinvent, 4.72 MJ
24. Exported Energy: Thermal, Ecoinvent, 16.54 MJ
25. Exported Energy: Thermal, Ecoinvent, 5.306 MJ
26. Exported Energy: Thermal, Ecoinvent, 560.88 MJ
27. Exported Energy: Thermal, Ecoinvent, 57.883 MJ
28. Exported Energy: Thermal, Ecoinvent, 4.6 MJ
29. Exported Energy: Thermal, Ecoinvent, 2.515 MJ
30. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.61 kg
31. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.98 kg
32. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.4 kg
33. Market for waste mineral wool, for final disposal, Ecoinvent, 93.6 kg
34. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 1.7699 kg
35. Treatment of waste polypropylene, municipal incineration, Ecoinvent, 0.74 kg
36. Treatment of waste plastic, mixture, municipal incineration, Ecoinvent, 82.73 kg
37. Treatment of waste plastic, mixture, municipal incineration, Ecoinvent, 41.36 kg
38. Treatment of waste plastic, mixture, municipal incineration, Ecoinvent, 0.59 kg
39. Treatment of waste plastic, mixture, municipal incineration, Ecoinvent, 0.29 kg
40. Treatment of waste plastic, mixture, sanitary landfill, Ecoinvent, 41.36 kg
41. Treatment of waste plastic, mixture, sanitary landfill, Ecoinvent, 4.99 kg
42. Treatment of waste plastic, mixture, sanitary landfill, Ecoinvent, 0.29 kg
43. Treatment of waste rubber, unspecified, municipal incineration, Ecoinvent, 9.98 kg
44. Treatment of waste rubber, unspecified, municipal incineration, Ecoinvent, 4.99 kg
45. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.29 kg
46. Treatment of waste polyurethane seal, sorting plant, Ecoinvent, Materials for recycling, 0.043 kg
47. Treatment of waste polyurethane, municipal incineration, Ecoinvent, 0.37 kg
48. Treatment of waste polyurethane, sanitary landfill, Ecoinvent, 0.15 kg

Scenario information	Value
Scenario assumptions e.g. transportation	50 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

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
27.03.2026