ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Orivent 21 SR Smoke Shaft
KeraGroup Oy

EPD HUB, HUB-5719

Published on 13.03.2026, last updated on 13.03.2026, valid until 13.03.2031

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	KeraGroup Oy
Address	Käkeläntie 41,16300, Orimattila, FI
Contact details	info@keragroup.fi
Website	https://www.keragroup.fi/fi/keragroup/

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	Tommi Tuominen
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	Orivent 21 SR Smoke Shaft
Additional labels	-
Product reference	-
Place(s) of raw material origin	Finland, Sweden, Poland, Germany, China
Place of production	Hevostie 6, Orimattila City, Oriville factory, Finland
Place(s) of installation and use	Europe
Period for data	calendar year 2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	-16,27/ +8,47
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	24,3

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of product
Declared unit mass	1 kg
Mass of packaging	0,141359 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,29
GWP-total, A1-A3 ($kgCO_2e$)	2,5
Secondary material, inputs (%)	10,1
Secondary material, outputs (%)	47,5
Total energy use, A1-A3 (kWh)	14,2
Net freshwater use, A1-A3 (m^3)	0,25

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Kera Group Oy is a company based in Orimattila that manufactures plastic products for the construction industry. The company's expertise is focused on various daylight solutions and fire safety-enhancing smoke ventilation systems. The main products include smoke vents, roof domes, and various home and living solutions such as light-transmitting roofing sheets, terraces, and terrace glazing.

PRODUCT DESCRIPTION

KEY FEATURES
- Available with motor operation (m) or gas spring operation (g)
- Suitable for both smoke ventilation and daily ventilation (motor-operated openers)
- Tested and CE marked in accordance with EN 12101-2
- Average thermal transmittance of the structure (U-value): 0.92 W/m²K
- Fire resistance class B30030
- Snow load: SL 500
- Wind load in closed position: WL 1500
- Reliability: Re 50 with gas spring opener, Re 100 with motor opener
- Sound insulation: Rw(C:Ctr) = 34 dB

STRUCTURE AND MATERIALS
- Wooden frame
- Inner surface made of pre-finished sheet metal
- Fast-delivery colours available: RR 20, 21, 22 and 23
- External surface of the base made of birch plywood
- Insulation: mineral wool, thickness 70 mm in the base and 100 mm in the cover
- Cover options: flat cover for pitched roofs and low-ridge cover for horizontal installation
- Delivery includes a fire-resistant junction box

APPLICATION
- Maximum roof pitch 1:3, with gas spring opener 1:4
- Motor-operated openers: roof structures of dry and heated spaces
- Gas spring openers: also suitable for roof structures of unheated spaces
- Can also be installed on a site-built base

SOLID WOOD INSTALLATION BASE (SR)
- Installed on top of a site-built base structure
- Fire resistance class B30030
- Thickness of the solid wood installation frame: 70 mm, height 145 mm
- Insulation thickness in the cover: 100 mm
- Cover options: flat cover for pitched roofs and low-ridge cover for horizontal installation
- Rack-and-pinion opener, operating voltage: 24 VDC or 230 VAC
- Low power consumption: 2.8 A (24 VDC)
- The opener is supplied separately in a cardboard box

Further information can be found at:
https://www.keragroup.fi/fi/keragroup/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	41,64	EU, China
Minerals	5,78	EU
Fossil materials	0,57	EU
Bio-based materials	52,01	EU

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,1674545
Biogenic carbon content in packaging, kg C	0,0099545

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of product
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.
The frame is made of softwood. The lid is made of hot-dip galvanized sheet metal profiles. There are 100 mm of mineral wool in a lid and it can be flat or low-ridge.
The manufacturing process includes cutting, bending, assembly and finally packaging. These processes require electricity and heating. A wooden pallet and metal strap are used as packaging materials for transporting the finished product from 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 building site is assumed as 200 km and the transportation method is assumed to be a lorry. Empty returns are included by assuming a 50% utilization factor. Transportation does not cause losses as product is packed properly. Environmental impacts from installation into the building include waste packaging materials (A5) and release of biogenic carbon dioxide from wooden pallets.

PRODUCT USE AND MAINTENANCE (B1-B7)

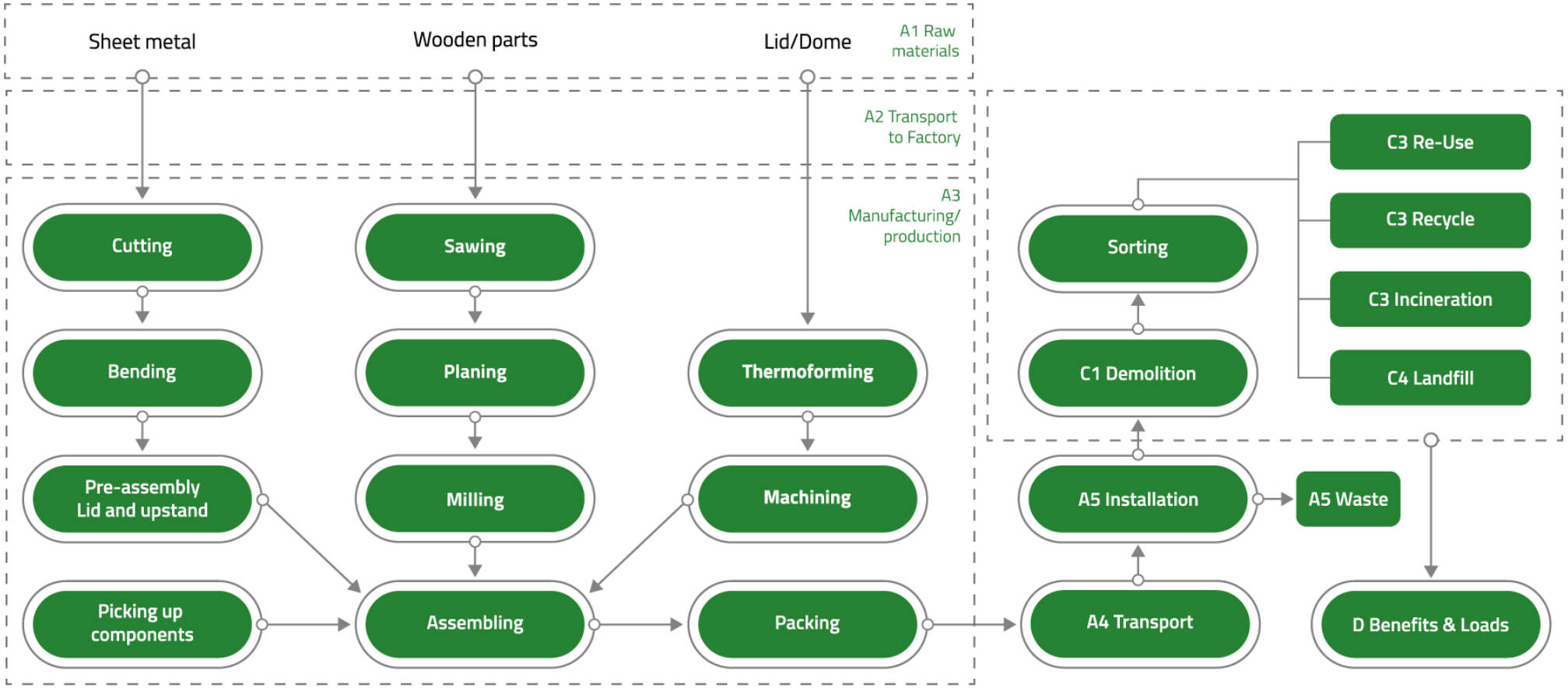
The possible emissions from use stage are negligible. The maintenance inspection is part of the general inspection of the building. Therefore, these modules have been ignored. Sometimes parts are replaced if they are broken.

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

PRODUCT END OF LIFE (C1-C4, D)

C1 – Deconstruction/Demolition: Manual disassembly is assumed with negligible environmental impact.
C2 – Transport: The product is transported by truck to a regional waste treatment facility. The distance reflects a typical regional scenario based on standard LCA assumptions.
C3 – Waste processing: The product consists of 41,64 % steel, 5,78 % minerals, 0,57 % fossil-based materials and bio based 52,01 %. Steel is 85 % recycled.
C4 – Disposal: Residual non-recyclable materials, including mineral wool and fossil-based components, are disposed of through landfill or municipal waste treatment in accordance with regional regulations.
Module D – Benefits and loads beyond the system boundary: Recycled steel, and benefits from plastic and wood-based materials have been accounted for and calculated in Module D.

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.

The LCA includes all industrial processes from raw material acquisition to production, distribution, installation and end-of-life stages. The study includes modules A1-A3, A4, A5, C1-C4 and D modules, and does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. For easier modelling and because of lack of accuracy in available modelling resources many constituents under 1% of product mass are excluded. These include some ancillary materials which are all present in the manufacturing only in very small amounts and have no serious impact on the emissions of the product. The stage-specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	-16,27/ +8,47

ORIVENT 21 SR Smoke vent hatches are made in various sizes. The sizes presented here are min. 900x900x145 mm, max. 1200x1800x145 mm, and representative 1000x1000x145 mm. The calculations have been made based on the representative size. The process and raw materials are the same regarding the materials, with slight variations depending on the size of the product.
The product weights are 89 kg (min.), 161 kg (max.) and 93 kg (representative). The finished products are packed on a pallet, with one product per pallet.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. 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	2,08E+00	4,10E-02	3,80E-01	2,50E+00	2,46E-02	2,07E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,47E-02	4,90E-01	1,50E-01	-1,25E+00
GWP – fossil	kg CO_2e	2,69E+00	4,10E-02	5,58E-01	3,29E+00	2,46E-02	4,83E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,47E-02	2,41E-02	3,11E-03	-9,72E-01
GWP – biogenic	kg CO_2e	-6,14E-01	8,18E-06	-1,79E-01	-7,93E-01	5,57E-06	2,03E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,53E-06	4,66E-01	1,47E-01	-2,66E-01
GWP – LULUC	kg CO_2e	3,46E-03	2,26E-05	6,00E-04	4,08E-03	1,10E-05	7,32E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,10E-05	1,36E-05	2,86E-06	-9,31E-03
Ozone depletion pot.	kg CFC_{-11}e	4,40E-08	6,02E-10	1,07E-08	5,53E-08	3,63E-10	7,94E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,54E-10	1,67E-10	6,38E-11	-6,41E-09
Acidification potential	mol H^+e	1,88E-02	2,25E-04	1,19E-03	2,02E-02	8,38E-05	2,67E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,32E-05	1,40E-04	1,96E-05	-5,72E-03
EP-freshwater[2)]	kg Pe	3,61E-02	4,13E-06	3,87E-05	3,61E-02	1,91E-06	1,28E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,92E-06	7,52E-06	1,50E-06	-3,89E-04
EP-marine	kg Ne	3,29E-03	6,94E-05	2,94E-04	3,66E-03	2,75E-05	2,84E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,71E-05	4,44E-05	5,12E-05	-9,50E-04
EP-terrestrial	mol Ne	3,65E-02	7,58E-04	3,04E-03	4,03E-02	3,00E-04	1,08E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,95E-04	4,60E-04	7,23E-05	-1,00E-02
POCP ("smog")[3)]	kg NMVOCe	1,31E-02	2,67E-04	1,33E-03	1,47E-02	1,23E-04	3,57E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,19E-04	1,27E-04	2,72E-05	-3,50E-03
ADP-minerals & metals[4)]	kg Sbe	5,66E-04	1,11E-07	1,13E-06	5,67E-04	6,85E-08	1,35E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,62E-08	5,51E-07	1,12E-08	-5,57E-06
ADP-fossil resources	MJ	3,43E+01	5,89E-01	7,81E+00	4,27E+01	3,57E-01	6,87E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,52E-01	1,62E-01	5,96E-02	-9,78E+00
Water use[5)]	m^3e depr.	7,74E-01	3,74E-03	2,63E-03	7,81E-01	1,76E-03	1,83E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,68E-03	1,15E-02	4,29E-04	-4,59E-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	1,49E-07	3,85E-09	2,14E-08	1,74E-07	2,46E-09	4,75E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,17E-09	1,76E-09	3,89E-10	-8,65E-08
Ionizing radiation[6)]	kBq U235e	1,64E-01	1,17E-03	2,34E-02	1,89E-01	3,11E-04	1,81E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,94E-04	1,44E-03	1,38E-04	-5,19E-02
Ecotoxicity (freshwater)	CTUe	4,47E+01	8,72E-02	-5,61E-01	4,42E+01	5,04E-02	2,30E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,32E-02	1,04E-01	9,56E-01	-2,37E+00
Human toxicity, cancer	CTUh	3,93E-09	7,44E-12	-3,39E-10	3,59E-09	4,06E-12	2,36E-12	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,15E-12	1,50E-11	9,14E-13	-6,13E-10
Human tox. non-cancer	CTUh	5,99E-08	3,62E-10	2,24E-09	6,25E-08	2,31E-10	1,29E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,23E-10	9,92E-10	8,24E-11	-8,19E-09
SQP[7)]	-	2,28E+01	5,40E-01	2,54E+01	4,88E+01	3,59E-01	6,47E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,70E-01	2,15E-01	1,13E-01	-3,31E+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	6,59E+00	1,50E-02	3,58E+00	1,02E+01	4,89E-03	-2,06E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,82E-03	-4,43E+00	-2,13E+00	-2,64E+00
Renew. PER as material	MJ	8,67E+00	0,00E+00	1,77E+00	1,04E+01	0,00E+00	-1,77E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-6,59E+00	-2,08E+00	2,10E+00
Total use of renew. PER	MJ	1,53E+01	1,50E-02	5,35E+00	2,06E+01	4,89E-03	-3,83E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,82E-03	-1,10E+01	-4,22E+00	-5,41E-01
Non-re. PER as energy	MJ	3,39E+01	5,89E-01	6,36E+00	4,09E+01	3,57E-01	6,87E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,52E-01	2,74E-02	2,25E-03	-9,78E+00
Non-re. PER as material	MJ	2,95E-01	0,00E+00	1,17E-01	4,12E-01	0,00E+00	-1,17E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-2,22E-01	-7,28E-02	3,90E-02
Total use of non-re. PER	MJ	3,42E+01	5,89E-01	6,47E+00	4,13E+01	3,57E-01	-4,83E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,52E-01	-1,95E-01	-7,06E-02	-9,74E+00
Secondary materials	kg	1,01E-01	3,16E-04	8,44E-02	1,86E-01	1,52E-04	4,58E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,55E-04	2,22E-04	1,90E-05	3,25E-01
Renew. secondary fuels	MJ	3,13E-04	2,93E-06	9,18E-02	9,21E-02	1,93E-06	4,91E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,97E-06	6,05E-06	7,18E-07	-5,54E-05
Non-ren. secondary fuels	MJ	1,30E-03	0,00E+00	0,00E+00	1,30E-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	4,00E-02	1,09E-04	2,14E-01	2,54E-01	5,27E-05	-1,77E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,88E-05	1,32E-04	-4,70E-04	-9,53E-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	4,08E-01	1,19E-03	1,30E-02	4,23E-01	6,04E-04	4,33E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,06E-04	2,74E-03	1,55E-04	-3,02E-01
Non-hazardous waste	kg	9,69E+00	2,38E-02	5,17E-01	1,02E+01	1,12E-02	3,10E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,13E-02	3,02E-01	6,65E-01	-2,06E+00
Radioactive waste	kg	1,74E-04	2,93E-07	2,60E-06	1,77E-04	7,60E-08	4,51E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,19E-08	3,67E-07	3,37E-08	-1,19E-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	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	4,19E-04	0,00E+00	1,32E-01	1,33E-01	0,00E+00	9,93E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	4,75E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	4,63E-04	0,00E+00	7,33E-02	7,38E-02	0,00E+00	4,20E-02	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	1,99E+07	0,00E+00	0,00E+00	1,99E+07	0,00E+00	2,24E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,32E+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	9,40E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	5,54E-01	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,30E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,64E-01	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	2,51E+00	4,07E-02	5,57E-01	3,10E+00	2,44E-02	7,87E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,46E-02	2,41E-02	1,03E-02	-9,72E-01
Ozone depletion Pot.	kg $CFC_{-11}e$	3,64E-08	4,81E-10	8,70E-09	4,56E-08	2,89E-10	6,39E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,82E-10	1,37E-10	5,12E-11	-6,06E-09
Acidification	kg SO_2e	1,48E-02	1,73E-04	9,59E-04	1,59E-02	6,40E-05	1,98E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,36E-05	1,09E-04	1,48E-05	-4,79E-03
Eutrophication	kg PO_4^3e	6,74E-03	3,34E-05	2,72E-03	9,50E-03	1,56E-05	7,16E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,55E-05	2,29E-05	7,89E-06	-5,32E-04
POCP (“smog”)	kg C_2H_4e	1,82E-03	1,27E-05	1,38E-04	1,97E-03	5,70E-06	2,26E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,69E-06	7,04E-06	2,76E-06	-5,41E-04
ADP-elements	kg Sbe	5,64E-04	1,08E-07	1,09E-06	5,66E-04	6,68E-08	1,29E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,44E-08	5,48E-07	1,11E-08	-5,45E-06
ADP-fossil	MJ	2,84E+01	5,69E-01	1,62E+03	1,64E+03	3,52E-01	6,57E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,47E-01	1,38E-01	5,74E-02	-9,00E+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	2,69E+00	4,10E-02	5,58E-01	3,29E+00	2,46E-02	4,84E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,47E-02	2,42E-02	3,12E-03	-9,82E-01

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. Heat production, natural gas, at boiler modulating >100kW, Albania, Ecoinvent, 0.0766 kgCO2e/MJ
2. Heat production, natural gas, at boiler modulating >100kW, Albania, Ecoinvent, 0.0766 kgCO2e/MJ
3. Electricity production, wind, 1-3MW turbine, onshore, Finland, Ecoinvent, 0.0195 kgCO2e/kWh
4. Electricity production, wind, 1-3MW turbine, onshore, Finland, Ecoinvent, 0.0195 kgCO2e/kWh
5. Electricity production, hydro, run-of-river, Finland, Ecoinvent, 0.0044 kgCO2e/kWh
6. Electricity production, hydro, run-of-river, Finland, Ecoinvent, 0.0044 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO5, 200 km
2. Market for transport, freight, lorry >32 metric ton, EURO5, 200 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	9,51E-01
Volume capacity utilization factor	<1

Installation scenario documentation - A5 (Installation waste)

1. Treatment of metal scrap, mixed, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0013 kg
2. Treatment of scrap steel, inert material landfill, Ecoinvent, 3.0E-4 kg
3. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.045 kg
4. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, Materials for energy recovery, 0.042 kg
5. Exported Energy: Electricity, Ecoinvent, 0.094 MJ
6. Exported Energy: Thermal, Ecoinvent, 0.13 MJ
7. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, Materials for recycling, 0.053 kg

Use stages scenario documentation - B2 Maintenance

Scenario information	Value
Maintenance process / Description or source where description can be found	-
Maintenance cycle / Number per RSL or year *(Not applicable if only B2 is declared)*	-

Use stages scenario documentation - B3 Repair

Scenario information	Value
Repair process / Description or source where description can be found	-
Inspection Process / Description or source where description can be found	-
Repair cycle / Number per RSL or year	-

Use stages scenario documentation - B4 Replacement

Scenario information	Value
Replacement cycle / Number per RSL or year	-

Use stages scenario documentation - B5 Refurbishment

Scenario information	Value
Refurbishment process / Description or source where description can be found	-
Refurbishment cycle / Number per RSL or year	-
Further assumptions for scenario development, e.g., frequency and time period of use, number of occupants / Units as appropriate	-

Use stages scenario documentation - B6 (Energy data source)

Use stages scenario documentation - B7 (Water data source)

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

Scenario information	Value
Ancillary materials specified by material / kg or units as appropriate	-
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc.	-
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants	-

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

1. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.29 kg
2. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.051 kg
3. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.047 kg
4. Treatment of waste aluminium, sanitary landfill, Ecoinvent, 0.0053 kg
5. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 3.5E-4 kg
6. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 1.9E-4 kg
7. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 7.1E-4 kg
8. Exported Energy: Electricity, Ecoinvent, 0.0048 MJ
9. Exported Energy: Electricity, Ecoinvent, 0.0022 MJ
10. Exported Energy: Electricity, Ecoinvent, 0.01 MJ
11. Exported Energy: Electricity, Ecoinvent, 0.45 MJ
12. Exported Energy: Electricity, Ecoinvent, 0.087 MJ
13. Exported Energy: Thermal, Ecoinvent, 0.0066 MJ
14. Exported Energy: Thermal, Ecoinvent, 0.003 MJ
15. Exported Energy: Thermal, Ecoinvent, 0.014 MJ

16. Exported Energy: Thermal, Ecoinvent, 0.62 MJ
17. Exported Energy: Thermal, Ecoinvent, 0.12 MJ
18. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 3.9E-4 kg
19. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 2.3E-4 kg
20. Treatment of waste polypropylene, municipal incineration, Ecoinvent, 4.2E-4 kg
21. Treatment of waste rubber, unspecified, municipal incineration, Ecoinvent, 0.0025 kg
22. Treatment of waste plastic, mixture, sanitary landfill, Ecoinvent, 9.1E-4 kg
23. Wood chipping, industrial residual wood, stationary electric chipper, Ecoinvent, Materials for recycling, 0.12 kg
24. Wood chipping, industrial residual wood, stationary electric chipper, Ecoinvent, Materials for recycling, 0.017 kg
25. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.23 kg
26. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.033 kg
27. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.11 kg
28. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.016 kg
29. Treatment of waste electric and electronic equipment, shredding, Ecoinvent, 0.014068275 kg
30. Treatment of waste mineral wool, inert material landfill, Ecoinvent, 0.057830284 kg

Scenario information	Value
Scenario assumptions e.g. transportation	-

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
13.03.2026