ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

CRE Exhaust Air Device
Climecon Oy

EPD HUB, HUB-1807
Publishing date 09 August 2024, last updated on 09 August 2024, valid until 09 August 2029.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Climecon Oy
Address	Lämmittäjänkatu 4A, 00880 Helsinki, FINLAND
Contact details	info@climecon.fi
Website	https://climeconair.com/en-en/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 und ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
Sector	Manufactured product
Category of EPD	Third party verified EPD
Parent EPD number	
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Emma Piha
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

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	CRE Exhaust Air Device
Additional labels	CREr, CREuv, CREk
Product reference	-
Place of production	Pihtipudas, Finland
Period for data	Calendar year 2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	+/- 6.4 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	8,60E+00
GWP-total, A1-A3 ($kgCO_2e$)	7,51E+00
Secondary material, inputs (%)	84.8
Secondary material, outputs (%)	84.2
Total energy use, A1-A3 (kWh)	37.6
Net freshwater use, A1-A3 (m^3)	0.09

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

We are Climecon, a responsible forerunner in indoor air design. With our indoor air design, we take a holistic approach to the well-being of people, buildings, and the environment. We design our solutions and products in a human-centric way, taking into account the perspective and needs of different users.

PRODUCT DESCRIPTION

This environmental product declaration covers the environmental impacts of CRE exhaust air device manufactured by Climecon Oy in Pihtipudas, Finland. CRE exhaust air device is part Climecon's ceiling ventilation solutions, which are designed to meet the needs of the even most demanding professional kitchens based on hygiene, functionality and especially design. Our ceiling ventilation solutions include a wide selection of different ventilation units like supply air, capture air, exhaust air units and air curtain units that prevent dirty air from spreading outside the frying stations. The ceiling ventilation solutions can be equipped with dampening elements that silence efficiently noises and improve working conditions.

CRE exhaust air device is designed to exhaust the grease steam arising from the frying stations. Grease separation rate is tested in the VTT Technical Research Centre of Helsinki. The grease filters are UV-certified according to norm DIN 18869-7:2006-06. They can be easily removed and are machine washable.

CRE is available in all standard duct sizes up to 400⌀. The standard sizes are 800, 1000, 1500, 2000, 2500, and 3000 mm, which can be installed on the wall or over a kitchen island. This EPD is modelled from CRE-3000-1 with wall installation and duct size 315⌀.

Further information can be found at https://climeconair.com/en-en/.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100%	Finland
Minerals	-	-
Fossil materials	-	-
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0 kg
Biogenic carbon content in packaging, kg C	0.3 kg

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
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	MND	MND	MND	MND	MND	MND	MND	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

Modules not declared = MND. Modules not relevant = MNR

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.

The hot rolled stainless steel sheets are cut to specified shapes and bent mechanically in Climecon's Kausala production site. Hydraulic oil is used during the process to reduce the wear of machines and to ensure stable cutting and bending conditions. The parts are then transported to Climecon's Pihtipudas production site, where the final products are assembled with steel rivets.

The manufacturing process requires electricity for the different equipment as well as district heating. The steel waste produced at the plant is directed to recycling. The loss of material is considered, as well as wastewater treatments. A wooden pallet, steel screws and packaging plastics are used as packaging materials for transporting the product from the factory gate.

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.

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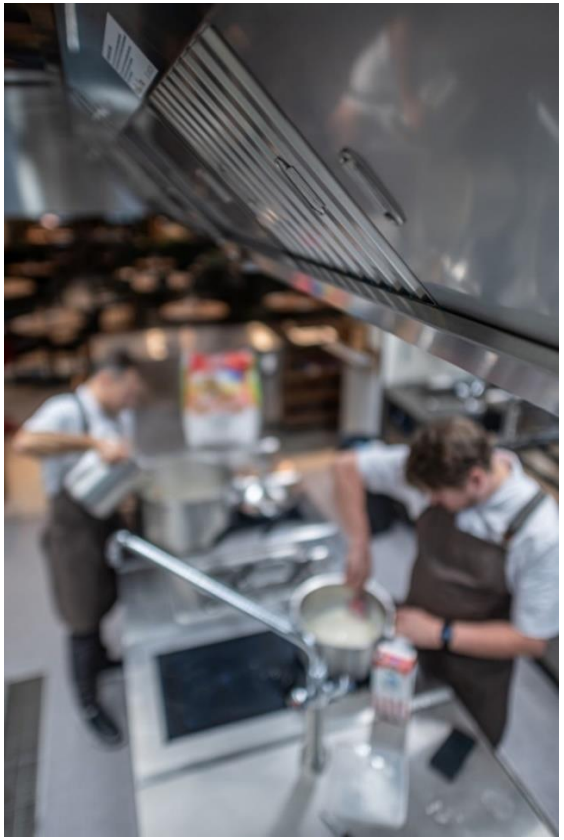
The average distance of transportation from the Pihtipudas production site to the building site is assumed to be 350 km, which is the distance between the production plant and Climecon's headquarters in Helsinki. The transportation method is assumed to be a lorry. Vehicle capacity is assumed to be 100%, which means full load. In reality, it may vary, but as the role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Transportation does not cause losses as products are packaged properly. Installation consumes 0.01 kWh of energy for assembling 1 kg of product. Treatment of packaging material waste (wood, steel, and plastic) is considered in this module. Moreover, direct emissions of carbon dioxide to the air are also considered to balance emissions of biogenic CO2.

PRODUCT USE AND MAINTENANCE (B1-B7)

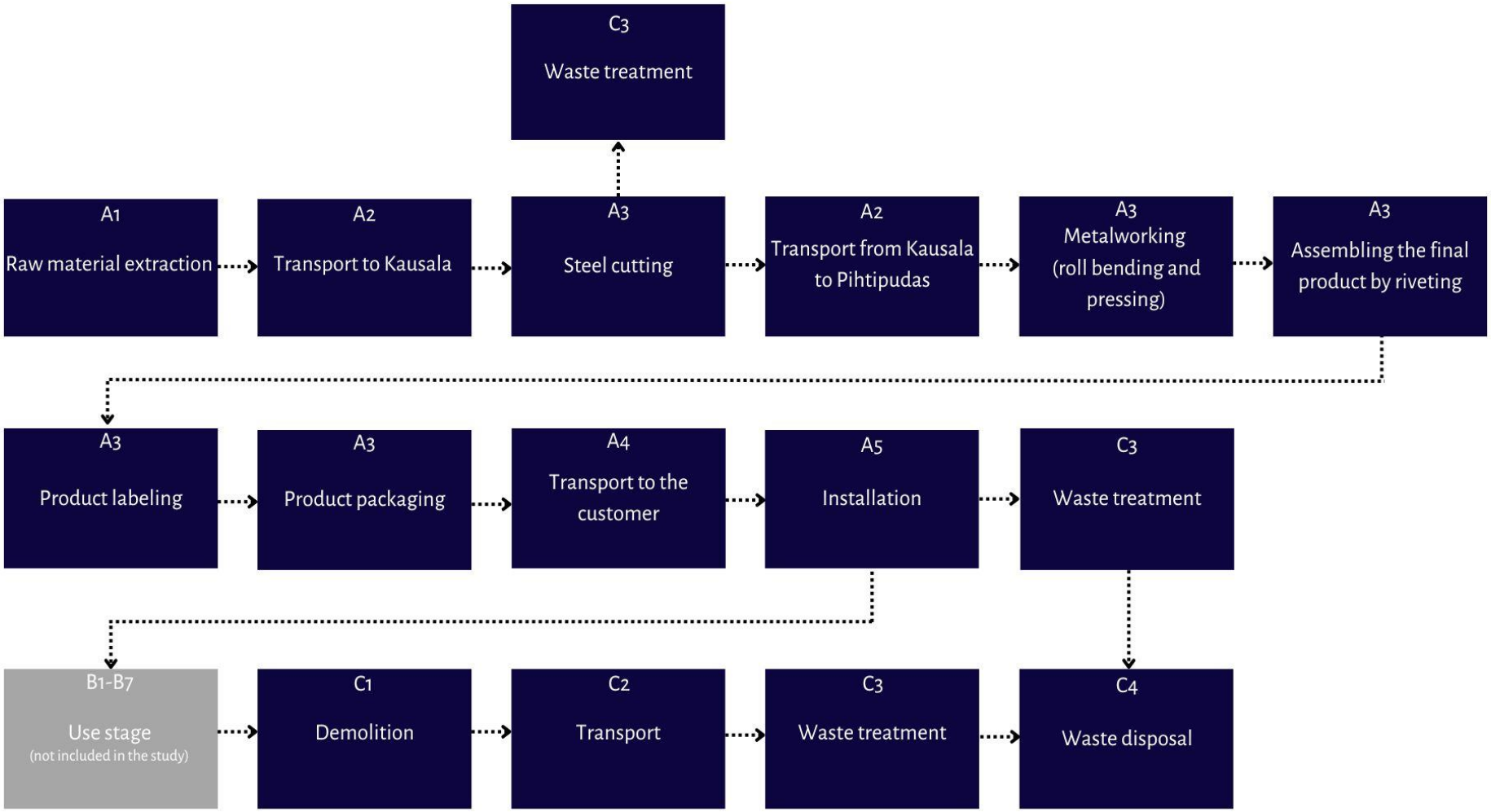
This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Demolition is assumed to consume 0,01 kWh/kg of product. The source of energy is diesel fuel used by construction machines (C1). It is assumed that 100% of the waste is collected and transported to the waste treatment centre. The transportation distance to treatment is assumed to be 50 km, and the transportation method is assumed to be a lorry (C2). Approximately 85% of steel, including the steel from both the product and the packaging, is assumed to be recycled, according to The World Steel Association (C3). Due to the recycling process, the end-of-life product is converted into recycled steel, while the majority of the wood (97%) and plastic packaging (85%) are incinerated with energy recovery (D). The remaining 15% of plastics and 3% of wood is recycled (C3), according to Statistics Finland. It is assumed that the remaining 15% of steel is taken to the landfill for final disposal (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 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.

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

AVERAGES AND VARIABILITY

Type of average	Multiple products
Averaging method	Representative product
Variation in GWP-fossil for A1-A3	+/- 6.4 %

This environmental product declaration covers Climecon Oy's CRE exhaust air device product family manufactured in Pihtipudas, Finland. The EPD contains fours kitchen ventilation solutions. There are two alternative ways to mount the device, either to the wall (CRE-1) or over a kitchen island (CRE-2).

All of the devices have the same manufacturing materials, process and locations. The difference occurs only in the amount of stainless steel, which then alters slightly the material composition. CRE-3000-1 was used as a reference product, as it was the most sold product size and type in 2023.

The EPD data can be scaled for different product sizes by multiplying EPD result table by the mass of product. The conversion table can be found in the annex. In case of the CREuv, the GWP-total can be calculated by adding the GWP-total of the electronic components to the conversion table result. See annex for more information about CREuv.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

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	8,23E+00	7,74E-02	-7,96E-01	7,51E+00	4,53E-02	1,13E+00	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,69E-03	2,19E-02	7,91E-04	-7,70E-01
GWP – fossil	kg CO_2e	8,22E+00	7,73E-02	3,03E-01	8,60E+00	4,53E-02	2,46E-02	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,69E-03	2,19E-02	7,90E-04	-7,71E-01
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-1,10E+00	-1,10E+00	1,75E-05	1,10E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO_2e	8,34E-03	2,85E-05	2,22E-03	1,06E-02	1,67E-05	2,63E-05	MND	MND	MND	MND	MND	MND	MND	3,30E-07	1,73E-06	2,86E-05	7,46E-07	8,12E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	4,55E-07	1,78E-08	2,27E-08	4,96E-07	1,04E-08	9,64E-10	MND	MND	MND	MND	MND	MND	MND	7,07E-10	1,08E-09	2,35E-09	3,20E-10	-2,10E-08
Acidification potential	mol H^+e	4,50E-02	3,27E-04	1,78E-03	4,71E-02	1,92E-04	7,98E-05	MND	MND	MND	MND	MND	MND	MND	3,44E-05	1,99E-05	2,51E-04	7,43E-06	-2,91E-03
EP-freshwater[2)]	kg Pe	3,43E-04	6,33E-07	1,58E-05	3,60E-04	3,71E-07	2,00E-07	MND	MND	MND	MND	MND	MND	MND	1,10E-08	3,84E-08	9,53E-07	8,28E-09	-6,53E-06
EP-marine	kg Ne	7,60E-03	9,73E-05	4,16E-04	8,11E-03	5,70E-05	3,29E-05	MND	MND	MND	MND	MND	MND	MND	1,52E-05	5,90E-06	5,33E-05	2,57E-06	-1,47E-05
EP-terrestrial	mol Ne	8,40E-02	1,07E-03	5,13E-03	9,02E-02	6,28E-04	3,54E-04	MND	MND	MND	MND	MND	MND	MND	1,67E-04	6,51E-05	6,14E-04	2,83E-05	-7,91E-03
POCP ("smog")[3)]	kg NMVOCe	2,64E-02	3,43E-04	1,35E-03	2,81E-02	2,01E-04	8,95E-05	MND	MND	MND	MND	MND	MND	MND	4,59E-05	2,08E-05	1,69E-04	8,23E-06	-4,37E-03
ADP-minerals & metals4)	kg Sbe	1,95E-04	1,81E-07	4,78E-06	2,00E-04	1,06E-07	3,88E-08	MND	MND	MND	MND	MND	MND	MND	1,68E-09	1,10E-08	2,51E-06	1,82E-09	-2,38E-05
ADP-fossil resources	MJ	9,75E+01	1,16E+00	7,31E+00	1,06E+02	6,80E-01	1,56E-01	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	2,62E-01	2,17E-02	-6,67E+00
Water use[5)]	m^3e depr.	2,88E+00	5,20E-03	1,66E-01	3,05E+00	3,04E-03	2,62E-02	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	4,46E-03	6,87E-05	3,04E-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, PEF

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	5,96E-07	8,91E-09	3,76E-08	6,42E-07	5,22E-09	9,15E-10	MND	MND	MND	MND	MND	MND	MND	9,22E-10	5,41E-10	3,42E-09	1,50E-10	-2,57E-08
Ionizing radiation[6)]	kBq U235e	8,31E-01	5,53E-03	2,72E-01	1,11E+00	3,24E-03	4,07E-03	MND	MND	MND	MND	MND	MND	MND	2,05E-04	3,36E-04	1,57E-03	9,80E-05	8,13E-03
Ecotoxicity (freshwater)	CTUe	2,53E+02	1,04E+00	9,16E+00	2,63E+02	6,11E-01	1,61E-01	MND	MND	MND	MND	MND	MND	MND	2,68E-02	6,34E-02	1,23E+00	1,41E-02	-1,77E+01
Human toxicity, cancer	CTUh	1,59E-07	2,57E-11	3,05E-10	1,59E-07	1,50E-11	1,81E-11	MND	MND	MND	MND	MND	MND	MND	1,03E-12	1,56E-12	3,67E-11	3,53E-13	7,87E-09
Human tox. non-cancer	CTUh	1,91E-07	1,03E-09	5,68E-09	1,98E-07	6,05E-10	8,26E-10	MND	MND	MND	MND	MND	MND	MND	1,94E-11	6,27E-11	1,59E-09	9,24E-12	4,69E-08
SQP[7)]	-	4,68E+01	1,34E+00	8,86E+00	5,70E+01	7,83E-01	7,37E-02	MND	MND	MND	MND	MND	MND	MND	5,79E-03	8,12E-02	5,23E-01	4,63E-02	-2,79E+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	2,03E+01	1,31E-02	9,33E+00	2,96E+01	7,66E-03	2,12E-02	MND	MND	MND	MND	MND	MND	MND	2,54E-04	7,94E-04	4,04E-02	1,88E-04	-9,48E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	9,84E+00	9,84E+00	0,00E+00	-9,84E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,38E+00
Total use of renew. PER	MJ	2,03E+01	1,31E-02	1,92E+01	3,95E+01	7,66E-03	-9,82E+00	MND	MND	MND	MND	MND	MND	MND	2,54E-04	7,94E-04	4,04E-02	1,88E-04	8,44E+00
Non-re. PER as energy	MJ	9,75E+01	1,16E+00	7,05E+00	1,06E+02	6,80E-01	1,56E-01	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	2,62E-01	2,17E-02	-6,46E+00
Non-re. PER as material	MJ	0,00E+00	0,00E+00	2,42E-01	2,42E-01	0,00E+00	-2,42E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,42E-01
Total use of non-re. PER	MJ	9,75E+01	1,16E+00	7,29E+00	1,06E+02	6,80E-01	-8,61E-02	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	2,62E-01	2,17E-02	-6,22E+00
Secondary materials	kg	8,48E-01	3,22E-04	2,58E-03	8,51E-01	1,89E-04	1,32E-04	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	2,81E-04	4,55E-06	5,35E-01
Renew. secondary fuels	MJ	2,87E-03	3,25E-06	2,15E-04	3,09E-03	1,90E-06	4,34E-07	MND	MND	MND	MND	MND	MND	MND	5,70E-08	1,97E-07	1,43E-05	1,19E-07	-2,75E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	8,47E-02	1,50E-04	5,83E-03	9,07E-02	8,81E-05	9,90E-07	MND	MND	MND	MND	MND	MND	MND	2,70E-06	9,13E-06	1,27E-04	2,37E-05	-2,14E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6,92E+00	1,54E-03	2,53E-02	6,95E+00	9,01E-04	2,19E-04	MND	MND	MND	MND	MND	MND	MND	5,96E-05	9,34E-05	2,02E-03	0,00E+00	-4,72E-01
Non-hazardous waste	kg	1,48E+01	2,53E-02	4,84E-01	1,53E+01	1,48E-02	3,69E-01	MND	MND	MND	MND	MND	MND	MND	4,19E-04	1,54E-03	5,11E-02	1,50E-01	-1,58E+00
Radioactive waste	kg	3,05E-04	7,77E-06	6,39E-05	3,77E-04	4,55E-06	1,02E-06	MND	MND	MND	MND	MND	MND	MND	3,13E-07	4,71E-07	1,16E-06	0,00E+00	6,25E-07

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	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	8,00E-01	8,00E-01	0,00E+00	1,46E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,50E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,63E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,80E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

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	8,08E+00	7,65E-02	2,99E-01	8,46E+00	4,48E-02	2,43E-02	MND	MND	MND	MND	MND	MND	MND	3,27E-03	4,64E-03	2,15E-02	7,74E-04	-7,14E-01
Ozone depletion Pot.	kg CFC_{-11}e	3,92E-07	1,41E-08	2,00E-08	4,26E-07	8,25E-09	8,04E-10	MND	MND	MND	MND	MND	MND	MND	5,60E-10	8,55E-10	1,90E-09	2,53E-10	-3,07E-08
Acidification	kg SO_2e	3,74E-02	2,54E-04	1,35E-03	3,90E-02	1,49E-04	5,79E-05	MND	MND	MND	MND	MND	MND	MND	2,45E-05	1,54E-05	2,03E-04	5,61E-06	-2,31E-03
Eutrophication	kg PO_4^3e	1,42E-02	5,79E-05	5,56E-04	1,48E-02	3,39E-05	5,46E-05	MND	MND	MND	MND	MND	MND	MND	5,69E-06	3,52E-06	6,31E-05	1,21E-06	-1,21E-03
POCP (“smog”)	kg C_2H_4e	1,88E-03	9,93E-06	8,39E-05	1,97E-03	5,81E-06	2,04E-06	MND	MND	MND	MND	MND	MND	MND	5,36E-07	6,03E-07	7,71E-06	2,35E-07	-5,76E-04
ADP-elements	kg Sbe	1,94E-04	1,76E-07	4,77E-06	1,99E-04	1,03E-07	3,69E-08	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	2,51E-06	1,79E-09	-2,38E-05
ADP-fossil	MJ	9,74E+01	1,16E+00	7,03E+00	1,06E+02	6,80E-01	1,52E-01	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	2,62E-01	2,17E-02	-6,66E+00

ANNEX 1: CREUV PRODUCT LIFE CYCLE

The product life cycle of the electronic unit of CREuv was modelled separately from this EPD study. The system boundary of the electronic unit includes A1-A5, C1-C4, and D. The declared unit weight is 4.176 kg.

MANUFACTURING AND PACKAGING (A1-A3)

The electronic unit consists of steel and aluminium parts, electronic components, plastic and silicone parts, and ultraviolet lamp. The steel frame, ancillary materials, packaging, and energy use of the electronic components are already accounted for in this EPD study. The study also considers the material losses occurring during the manufacturing processes

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 average distance of transportation from the Pihtipudas production site to the building site is assumed to be 350 km, which is the distance between the production plant and Climecon's headquarters in Helsinki. The transportation method is assumed to be a lorry. Vehicle capacity is assumed to be 100%, which means full load. In reality, it may vary, but as the role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Transportation does not cause losses as products are packaged properly.

PRODUCT END OF LIFE (C1-C4, D)

Demolition is assumed to consume 0,01 kWh/kg of product. The source of energy is diesel fuel used by construction machines (C1). It is assumed that 100% of the waste is collected and transported to the waste treatment centre. The transportation distance to treatment is assumed to be 50 km, and the transportation method is assumed to be a lorry (C2). 85% of the steel parts (The World Steel Association), 100% of aluminium (Statistics Finland), and 60% of electronical waste (Eurostat) are recycled (C3). According to Statistics Finland, 85% of the plastic and silicone parts are incinerated (D). The remaining 15% of the plastic and silicone is recycled (C3). It is assumed that the remaining 15% of steel, 40% of the electronic components, and the ultraviolet lamp are taken to the landfill for final disposal (C4).

CREUV ELECTRONIC COMPONENTS ENVIRONMENTAL IMPACTS

Product mass (kg)	System boundary	GWP-fossil A1-A3 (kgCO2e)	GWP-total A1-A3 (kgCO2e)
4.176	A1-A5, C1-C4, D	52.4	52.5

ANNEX 2: CONVERSION OF FITTING TO WEIGHT

This annex includes information the conversion tables to determine the environmental impacts of each product type and size. Using the GWP-total A1-A3 (kgCO2e) value the carbon emissions attributed to each product has been determined below.

CRER AND CREK CONVERSION OF FITTING TO WEIGTH

Product name	Product mass (kg)	GWP-total A1-A3 (kgCO2e)
CRE-800-1	12.76	95.83
CRE-1000-1	15.13	113.63
CRE-1500-1	19.51	146.52
CRE-2000-1	25.94	194.81
CRE-2500-1	30.68	230.41
CRE-3000-1	34.93	262.32
CRE-800-2	19.15	143.82
CRE-1000-2	21.37	160.49
CRE-1500-2	27.24	204.57
CRE-2000-2	32.97	247.60
CRE-2500-2	38.64	290.19
CRE-3000-2	43.89	329.61

CREUV CONVERSION OF FITTING TO WEIGHT

Product name	Product mass (kg)	GWP-total A1-A3 (kgCO2e)
CREuv-800-1	16.94	148.33
CREuv-1000-1	19.31	166.13
CREuv-1500-1	23.69	199.02
CREuv-2000-1	30.12	247.31
CREuv-2500-1	34.86	282.91
CREuv-3000-1	39.11	314.82
CREuv-800-2	23.33	196.32
CREuv-1000-2	25.55	212.99
CREuv-1500-2	31.42	257.07
CREuv-2000-2	37.15	300.10
CREuv-2500-2	42.82	342.69
CREuv-3000-2	48.01	382.11

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

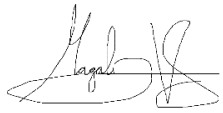
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
09.08.2024



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