ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

OL Universal Connector
Ouneva Oy

EPD HUB, EPD number HUB-4027
Published on 28.09.2025, last updated on 28.09.2030

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	Ouneva Oy
Address	Teollisuustie 21, 82730, Tuupovaara, FI
Contact details	firstname.lastname@ouneva.fi
Website	www.ounevaproducts.fi/en/

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	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	Annika Tuovinen
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub

PRODUCT

Product name	OL Universal Connector
Additional labels	see annex 1
Product reference	-
Place(s) of raw material origin	EU
Place of production	Tuupovaara, Finland
Place(s) of installation and use	Global
Period for data	Calendar year 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	+0 % / -22 %
GTIN (Global Trade Item Number)	6410019141924
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	76,2

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.

ENVIRONMENTAL DATA SUMMARY

Declared unit	0,1 kg of product
Declared unit mass	0,1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	6,58E-01
GWP-total, A1-A3 ($kgCO_2e$)	6,56E-01
Secondary material, inputs (%)	11,2
Secondary material, outputs (%)	77
Total energy use, A1-A3 (kWh)	2,29
Net freshwater use, A1-A3 (m^3)	0,01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

We are a strong, family-owned Finnish company with over 50 years of experience in manufacturing connectors and meeting the requirements of the electrical industry. We design and manufacture our high-quality products in North Karelia, Finland. We also provide customer-specific connector and power supply solutions. We meet the strict requirements of the industry with our solid design and testing expertise, continuously developing our operations.

In addition to our own connector products, we are a contract manufacturer of sheet metal products for the electronics, machinery and electrical industries, to mention a few. Our deliveries scale from single components to complex, demanding system deliveries.

PRODUCT DESCRIPTION

Ouneva OL universal connectors are a universal terminal series for connecting aluminium and copper conductors from 6 to 300 mm2. They can be installed easily with a hex key. The connector frames are made of stainless steel and the connector bars are made of tin-plated copper.

This EPD represents the OL product group in its entirety. Product variants include connector sizes 6-70, 25-95, 25-150, 95-185, 95-240, 70-185, 185-300, 2x50-150, 2x95-240 and 2x185-300. The products have a mass range of 0,036 kg to 0,544 kg. All product variants serve the same function.

Representative product OL 6-70M chosen for the EPD weighs 0,036 kg and is designed for connecting aluminium and copper conductors from 6 to 70 mm2.

Standard: UL 486E

Further information can be found at: www.ounevaproducts.fi/en/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	EU
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
Biogenic carbon content in packaging, kg C	0,00117

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	0,1 kg of product
Mass per declared unit	0,1 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.

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

OL connectors are made of steel and tin-plated copper. Product packaging materials include cardboard, packaging label, instructional materials and wooden pallet for transport.

Some assumptions of transport modes were made for A2. A 16-32-metric ton EURO5 lorry datapoint for road transport and a container ship datapoint for sea transport was used. Transport distances for raw materials were calculated based on supplier locations.

The manufacturing phase includes metal forming, shaping and coating processes as well as assembly and packing. A datapoint modeling the residual mix on the medium voltage level in Finland was used for A3.

Manufacturing waste from coating is sent to local recycling facilities, and the transport distance was estimated as 50 km. Recycling rate for metal manufacturing waste (50 %) is considered based on International resource panel statistics.

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.

Module A4 transport is based on sales data of OL connectors to customers in the calendar year 2024. The module uses sales weighted proportions of the product shipped to multiple locations.

The installation phase A5 does not involve material loss or energy consumption, as the connector can be assumed to be installed manually. The installation phase considers waste treatment of packaging materials. Based on Eurostat statistics, the recycling rate is 83 % for paper and cardboard, 32 % for wood and 40 % for plastic. The incineration rate is 8 % for paper and cardboard, 30 % for wood and 37 % for plastic.

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)

The connector is assumed to be deinstalled manually. Therefore no energy or material consumption has been considered for module C1.

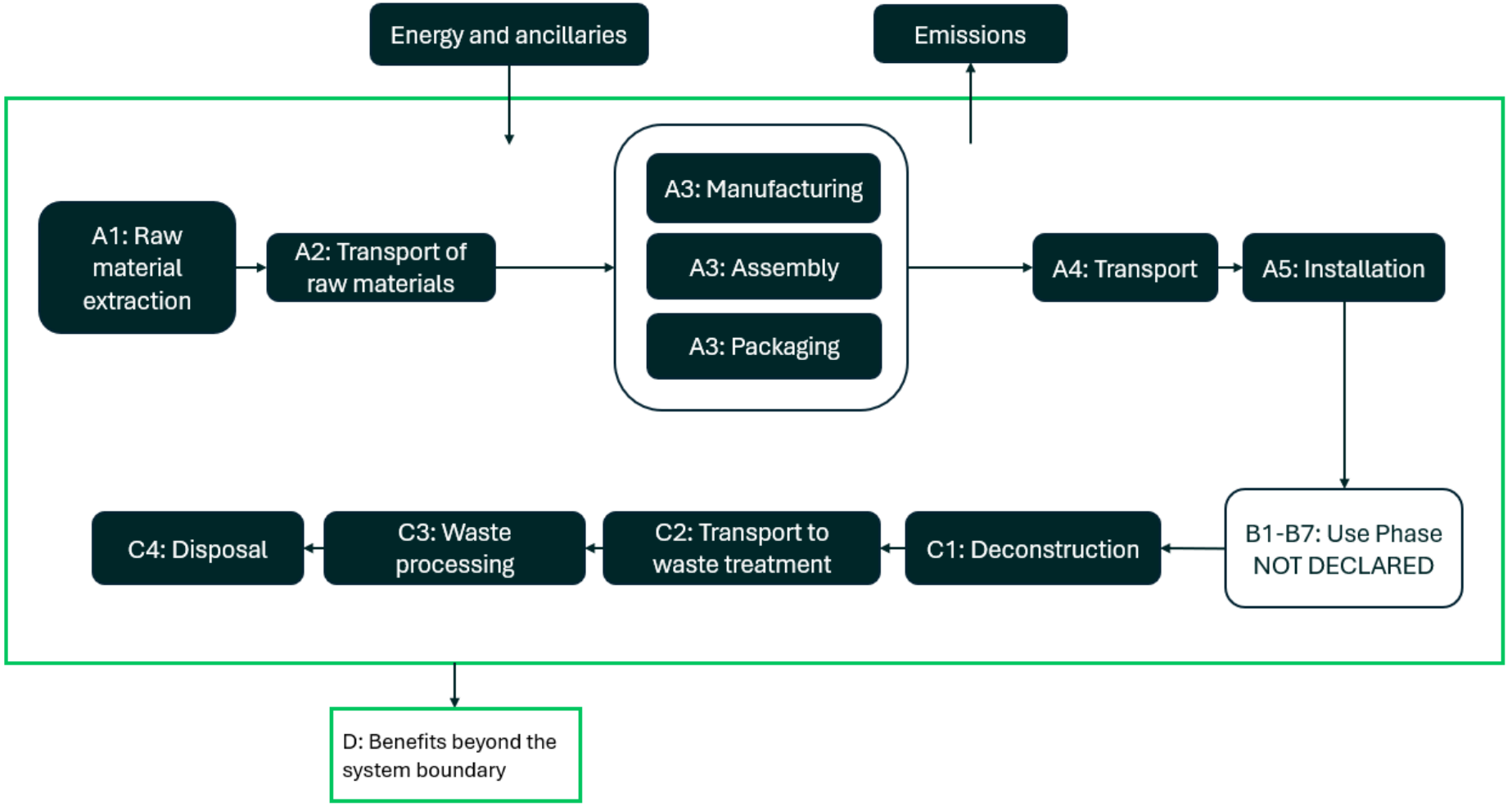
OneClick scenarios for EU were used for End of life (C-D). The scenarios included are currently in use and are representative for one of the most likely scenarios.

C2-C4 accounts for the processing, disposal and transport of waste. Recycling rates are considered based on World Steel Organization for steel parts (85 %) and the standard EN 50693 for the copper parts (60 %). Average distances to recycling and treatment facilities were included in the selected datapoints.

Benefits and loads from recycling and recovery are included in module D. Recycling of copper and steel in C3 and packaging materials in A5 is assumed to lead to avoided raw material production. Incineration with energy recovery of packaging materials in A5 also leads to avoided energy production. Benefits and loads in module D correspond to recycling and recovery rates modeled in packaging and product end of life modules A5 and C1-C4.

Recycled raw material content has been subtracted from benefits and loads to avoid double counting. The module includes benefits and loads from recycling and recovery modeled in A5 and C3. Benefits and loads do not include manufacturing losses or co-products from A3.

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	No allocation
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, %	+0 % / -22 %

A representative product OL 6-70M was chosen for the EPD. The product represents all OL product variants declared in the EPD (Annex 1). GWP-fossil variation in modules A1-A3 is declared in the EPD. The products serve a similar purpose and performance rating, contain the same materials and have the same main manufacturing processes. Modules A4-A5 and the end-of-life stage are applicable to all products. The range of products complies

with the allowed averaging and aggregation requirements defined in EPD Hub GPI 2.9 & Annex 1.

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 v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

World Steel Organization, Steel recovery rates (https://worldsteel.org/about-steel/facts/steelfacts/wider-sustainability/steel-recovery-rates-by-market/)

International resource panel, Recycling rates of metals: A status report (https://www.unep.org/resources/report/recycling-rates-metals-status-report)

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	3,00E-01	9,25E-03	3,47E-01	6,56E-01	2,59E-02	4,56E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,57E-03	2,01E-03	2,13E-04	-1,28E-01
GWP – fossil	kg CO_2e	2,98E-01	9,25E-03	3,51E-01	6,58E-01	2,59E-02	2,54E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,56E-03	2,01E-03	2,13E-04	-1,27E-01
GWP – biogenic	kg CO_2e	-1,93E-04	1,83E-06	-4,30E-03	-4,49E-03	4,99E-06	4,31E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,83E-07	-5,65E-06	-1,46E-07	-5,05E-04
GWP – LULUC	kg CO_2e	1,99E-03	3,29E-06	1,64E-04	2,16E-03	9,78E-06	1,04E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,58E-06	2,39E-06	1,13E-07	-2,74E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	3,39E-09	1,83E-10	6,21E-09	9,78E-09	4,97E-10	1,32E-12	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,03E-11	2,27E-11	5,20E-12	-1,03E-09
Acidification potential	mol H^+e	1,87E-02	3,15E-05	1,11E-03	1,98E-02	1,69E-04	4,83E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,19E-05	2,20E-05	1,34E-06	-9,23E-04
EP-freshwater[2)]	kg Pe	5,39E-05	6,10E-07	1,14E-04	1,69E-04	1,60E-06	2,38E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,77E-07	1,13E-06	8,79E-08	-1,06E-04
EP-marine	kg Ne	8,01E-04	1,04E-05	2,70E-04	1,08E-03	4,83E-05	5,99E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,87E-06	4,88E-06	5,10E-07	-2,06E-04
EP-terrestrial	mol Ne	1,18E-02	1,13E-04	2,51E-03	1,44E-02	5,31E-04	1,82E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,21E-05	5,51E-05	5,57E-06	-2,42E-03
POCP ("smog")[3)]	kg NMVOCe	3,70E-03	4,70E-05	7,91E-04	4,54E-03	1,84E-04	6,20E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,68E-05	1,62E-05	1,96E-06	-6,60E-04
ADP-minerals & metals[4)]	kg Sbe	5,16E-05	3,00E-08	3,66E-07	5,20E-05	7,70E-08	4,48E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,14E-08	1,23E-07	4,91E-10	-4,76E-05
ADP-fossil resources	MJ	2,31E+00	1,30E-01	5,23E+00	7,67E+00	3,58E-01	1,16E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,03E-02	2,44E-02	4,30E-03	-1,51E+00
Water use[5)]	m^3e depr.	5,76E-02	6,35E-04	3,73E-02	9,55E-02	1,67E-03	3,42E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,36E-04	3,98E-04	2,24E-05	-9,25E-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	1,12E-07	7,22E-10	6,91E-09	1,20E-07	1,87E-09	7,61E-12	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,95E-10	3,05E-10	3,67E-11	-6,71E-09
Ionizing radiation[6]	kBq U235e	4,61E-03	1,64E-04	7,44E-02	7,92E-02	4,22E-04	4,64E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,12E-05	1,14E-04	3,78E-06	-1,44E-02
Ecotoxicity (freshwater)	CTUe	6,11E+00	1,70E-02	6,30E-01	6,76E+00	4,46E-02	1,70E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,81E-03	1,42E-02	1,84E-03	-1,25E+01
Human toxicity, cancer	CTUh	4,79E-09	1,58E-12	5,08E-11	4,85E-09	4,55E-12	6,35E-14	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,03E-13	1,65E-12	1,49E-13	-2,84E-10
Human tox. non-cancer	CTUh	1,43E-07	8,10E-11	2,72E-09	1,46E-07	2,09E-10	3,28E-12	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,16E-11	1,07E-10	1,34E-12	-4,73E-09
SQP[7]	-	4,66E+02	7,66E-02	1,67E+00	4,68E+02	1,92E-01	1,02E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,35E-02	4,65E-02	6,97E-03	-7,92E-01

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	1,79E-01	2,23E-03	3,82E-01	5,63E-01	5,78E-03	-3,97E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,89E-04	3,96E-03	6,11E-05	-2,40E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	3,95E-02	3,95E-02	0,00E+00	-3,95E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,47E-03
Total use of renew. PER	MJ	1,79E-01	2,23E-03	4,22E-01	6,03E-01	5,78E-03	-7,93E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,89E-04	3,96E-03	6,11E-05	-2,36E-01
Non-re. PER as energy	MJ	2,31E+00	1,30E-01	5,23E+00	7,66E+00	3,58E-01	-4,11E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,03E-02	2,44E-02	4,30E-03	-1,51E+00
Non-re. PER as material	MJ	0,00E+00	0,00E+00	4,54E-03	4,54E-03	0,00E+00	-4,54E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,16E-03
Total use of non-re. PER	MJ	2,31E+00	1,30E-01	5,23E+00	7,67E+00	3,58E-01	-8,65E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,03E-02	2,44E-02	4,30E-03	-1,51E+00
Secondary materials	kg	1,12E-02	5,94E-05	3,91E-03	1,52E-02	1,65E-04	1,31E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,24E-05	2,86E-05	3,05E-06	7,70E-02
Renew. secondary fuels	MJ	1,43E-04	7,44E-07	8,52E-04	9,96E-04	1,87E-06	9,99E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,85E-07	1,31E-06	5,40E-08	-8,91E-06
Non-ren. secondary fuels	MJ	1,88E-07	0,00E+00	0,00E+00	1,88E-07	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	5,86E-03	1,74E-05	5,48E-03	1,14E-02	4,54E-05	-2,12E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,79E-06	1,12E-05	3,79E-06	-4,43E-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	2,30E-02	1,86E-04	3,59E-02	5,91E-02	5,08E-04	1,28E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,72E-05	1,83E-04	9,36E-06	-3,62E-02
Non-hazardous waste	kg	5,52E-01	3,91E-03	2,17E+00	2,72E+00	1,03E-02	4,18E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,63E-03	5,44E-03	1,46E-02	6,99E-01
Radioactive waste	kg	2,29E-05	4,09E-08	1,84E-05	4,13E-05	1,05E-07	1,17E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,01E-08	2,86E-08	9,30E-10	-3,71E-06

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	6,55E-03	0,00E+00	1,58E+00	1,59E+00	0,00E+00	1,49E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,70E-02	0,00E+00	0,00E+00
Materials for energy rec	kg	3,86E-06	0,00E+00	0,00E+00	3,86E-06	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
Exported energy	MJ	3,76E-04	0,00E+00	0,00E+00	3,76E-04	0,00E+00	3,52E-03	MND	MND	MND	MND	MND	MND	MND	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	1,49E-03	MND	MND	MND	MND	MND	MND	MND	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	2,03E-03	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

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	2,93E-01	9,19E-03	3,49E-01	6,51E-01	2,57E-02	4,05E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,54E-03	2,01E-03	2,12E-04	-1,27E-01
Ozone depletion Pot.	kg CFC_{-11}e	3,50E-09	1,46E-10	4,83E-09	8,47E-09	3,95E-10	1,07E-12	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,02E-11	1,88E-11	4,15E-12	-8,85E-10
Acidification	kg SO_2e	1,65E-02	2,40E-05	9,03E-04	1,74E-02	1,32E-04	3,62E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,13E-06	1,77E-05	9,90E-07	-7,38E-04
Eutrophication	kg PO_4^3e	4,64E-04	5,78E-06	1,79E-04	6,49E-04	2,23E-05	2,80E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,22E-06	2,53E-06	3,43E-07	-6,20E-05
POCP (“smog”)	kg C_2H_4e	7,04E-04	2,19E-06	5,71E-05	7,63E-04	9,01E-06	6,49E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,17E-07	1,05E-06	1,05E-07	-6,96E-05
ADP-elements	kg Sbe	5,17E-05	2,93E-08	3,61E-07	5,21E-05	7,52E-08	4,36E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,11E-08	1,23E-07	4,69E-10	-4,76E-05
ADP-fossil	MJ	2,24E+00	1,27E-01	3,97E+00	6,34E+00	3,51E-01	1,08E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,96E-02	2,25E-02	4,24E-03	-1,31E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	3,00E-01	9,25E-03	3,51E-01	6,60E-01	2,59E-02	2,54E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,56E-03	2,01E-03	2,14E-04	-1,27E-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

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, medium voltage, residual mix
Electricity CO2e / kWh	0,66
District heating data source and quality	Market for heat, district or industrial, other than natural gas
District heating CO2e / kWh	0,07

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Transport, freight, lorry 16-32 metric ton, EURO5 (Europe)
Average transport distance, km	3664
Capacity utilization (including empty return) %	100
Bulk density of transported products	-
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m^3	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	Paper: 0,00016 kg Wood: 0,00145 kg Cardboard: 0,00103 kg Plastic: 0,00016 kg
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	% for recycling, incineration with energy recovery and landfill, respectively: Paper and cardboard: 83%, 8%, 9% Wood: 32%, 30%, 38% Plastic: 40%, 37%, 23%
Direct emissions to ambient air, soil and water / kg	-

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	0,1
Collection process – kg collected with mixed waste	-
Recovery process – kg for re-use	-
Recovery process – kg for recycling	0,077
Recovery process – kg for energy recovery	0,006
Disposal (total) – kg for final deposition	0,017
Scenario assumptions e.g. transportation	Recycling: Market for transport, freight, lorry >32 metric ton, EURO5, 250 km Landfill: Market for transport, freight, lorry >32 metric ton, EURO5, 100 km Incineration: Market for transport, freight, lorry >32 metric ton, EURO5, 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 15802+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

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
28.09.2025

ANNEX 1.

A1-A3 SCALING TABLE – GWP-FOSSIL, GWP-TOTAL

Product code	Product name	Mass (g) from calalog	Scaling factor	per 0,1 kg of product		per product	
				GWP-total	GWP-fossil	GWP-total	GWP-fossil
VC01-0006	OL 6-70M	**36**	1,92	0,656	0,658	**0,341**	**0,342**
VC01-0002	OL 6-70 / 7	44	1,45	0,598	0,601	**0,413**	**0,415**
VC01-0028	OL 6-70T	44	1,45	0,618	0,621	**0,426**	**0,428**
VC01-0007	OL 6-70MZ	47	1,37	0,565	0,566	**0,412**	**0,413**
VC01-0029	OL 25-95T	69	1,18	0,612	0,621	**0,517**	**0,525**
VC01-0024	OL 25-95 / 11	74	1,40	0,607	0,617	**0,434**	**0,441**
VC01-0005	OL 25-95 / 9	76	1,13	0,554	0,562	**0,490**	**0,497**
VC01-0012	OL 25-95 / 7	78	1,23	0,570	0,579	**0,465**	**0,472**
VC01-0013	OL 25-150 / 11	131	0,66	0,574	0,577	**0,870**	**0,874**
VC01-0020	OL 95-240M / 11	140	0,58	0,550	0,553	**0,954**	**0,959**
VC01-0027	OL 95-185 / 13	141	0,44	0,552	0,554	**1,248**	**1,252**
VC01-0030	OL 95-240M / 9	142	0,57	0,548	0,550	**0,962**	**0,965**
VC01-0017	OL 95-185 / 11	142	0,52	0,562	0,565	**1,073**	**1,079**
VC01-0003	OL 95-185 / 9	145	0,52	0,552	0,555	**1,071**	**1,077**
VC01-0008	OL 70-185Z	195	0,39	0,540	0,543	**1,377**	**1,385**
VC01-0011	OL 2x(50-150)	240	0,39	0,525	0,531	**1,340**	**1,356**
VC01-0001	OL 185-300	287	0,35	0,546	0,552	**1,565**	**1,583**
VC01-0031	OL 2x(95-240) / 13	343	0,24	0,512	0,515	**2,165**	**2,178**
VC01-0014	OL 2x(95-240)	345	0,24	0,533	0,536	**2,179**	**2,192**
VC01-0009	OL 185-300Z	350	0,29	0,531	0,535	**1,825**	**1,839**
VC01-0019	OL 2x(185-300)	544	0,18	0,536	0,541	**2,972**	**2,999**