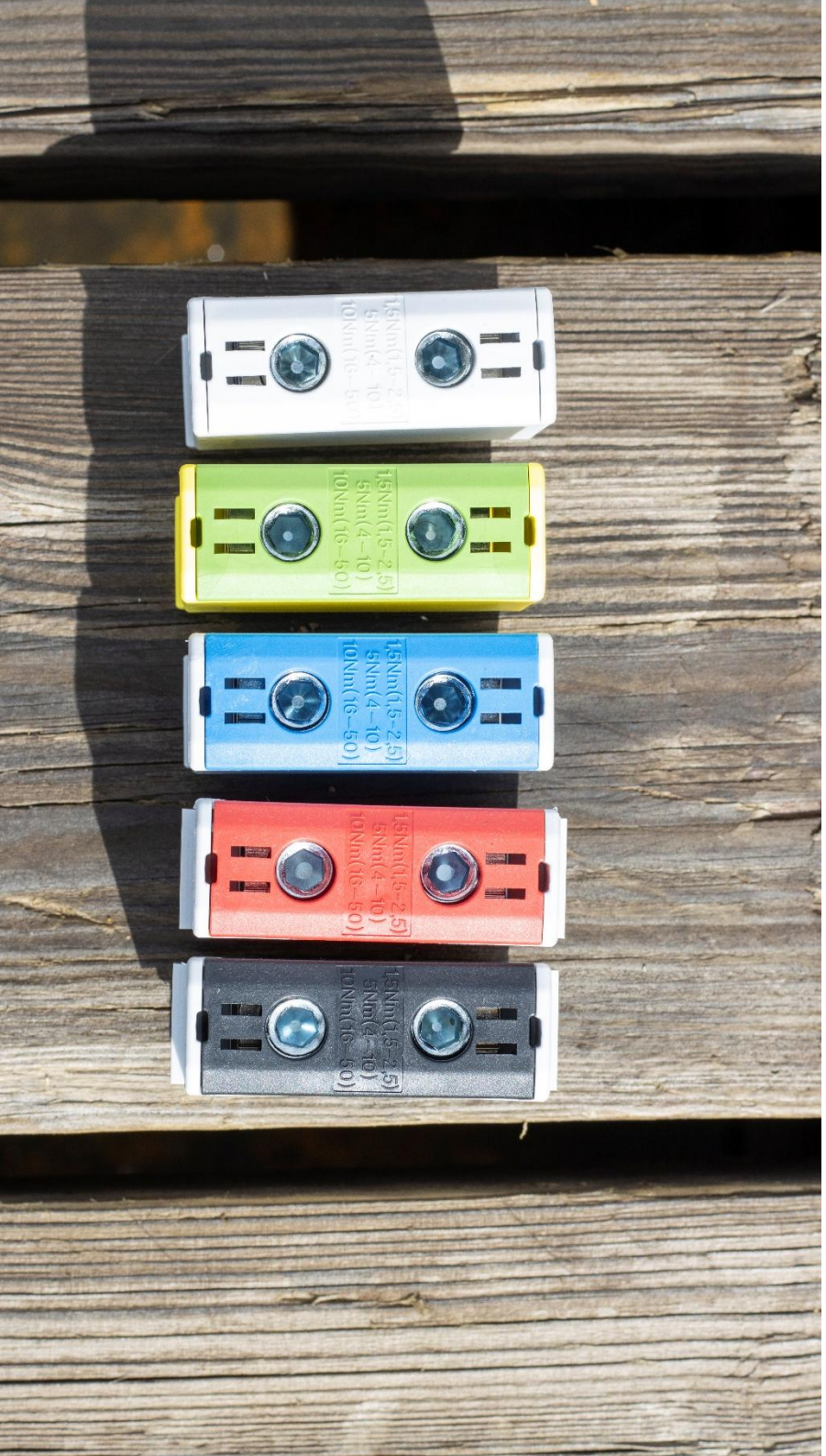


ENVIRONMENTAL PRODUCT DECLARATION

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

OTL universal connector 1x50
Melbye Group

EPD HUB, HUB-3154
Publishing date 12 April 2025, last updated on 12 April 2025, valid until 11 April 2030.

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Melbye Group
Address	Prost Stabels vei 22, 2019 Skedsmokorset, Norway
Contact details	kontakt@melbye.no
Website	https://melbye.no

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and 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	Annika Tuovinen, Finland
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	OTL universal connector 1x50
Additional labels	OTL Universal connectors, PEN, FBB, Multipole: 1x16, 1x35, 1x50, 1x95, 1x150, 1x240, 1x300, 2x35, 2x50 / 2x50 PEN, 2x95/2x95 PEN / 2x95 FBB, 2x150 / 2x150 PEN, 2x240 / 2x240 PEN / 2x240 FBB, 3x50, 3x95, 3x150, 3x300 / 3x300 FBB, 3x1x35, 5x1x35, 3x1x50
Product reference	VC05-0013
Place of production	Tuupovaara, Finland
Period for data	Calendar year 2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	-18 / +12 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	0,1 kg of product
Declared unit mass	0,1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	7,55E-01
GWP-total, A1-A3 ($kgCO_2e$)	7,47E-01
Secondary material, inputs (%)	23,4
Secondary material, outputs (%)	64
Total energy use, A1-A3 (kWh)	3,18
Net freshwater use, A1-A3 (m^3)	0,02

ABOUT THE MANUFACTURER

Melbye Group is one of Norway's oldest family-owned companies, with a history dating all the way back to 1907. We have a proud tradition of technical innovation and trade, and today, we are a leading provider of forward-thinking products and system solutions for critical infrastructure. We have expertise within transmission and utilities, fiber, ducts and chambers and safety.

We serve customers throughout the Nordic region and the United Kingdom, engage with stakeholders across Europe, and collaborate with around 200 partners and suppliers .

PRODUCT DESCRIPTION

OTL connectors are designed for connecting and branching aluminium and copper conductors. OTL Universal connector 1x50 chosen as a representative product for the EPD is designed for 1xAl/Cu 1,5-50 mm^2 conductors with DIN-rail mounting.

The product studied in this EPD represents the OTL product group. Melbye's universal connectors are suitable for a wide range of applications and needs. They can be used to connect and branch both aluminum and copper conductors, cables and busbars. Universal connectors are tested and certified for operating voltages up to 1,500 volts. They are easy to install without special tools to ensure the best user experience.

The body is made of tin-plated aluminium. Housing is made of halogen-free UL94 V0-class polyamide. Pre-greased contact spaces and the connection done with hex screws guarantee easy and quick installation. Tightening torques on the lid of the connectors make the installation easy, and component markers can be pressed onto the connectors. The compact size of the connectors enables efficient use of space even in constricted installation spaces.

Standards: EN 60947-7-1:2009, EN 60947-7-2:2009, EN 61238-1:2003, UL1059 and CSA C22.2 No 158-10

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	45	EU, Asia
Minerals	0	-
Fossil materials	55	EU
Bio-based materials	0	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,0027

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.

The connector is made of metal and plastic parts. The product packaging and transport materials consist of cardboard, label, installation instruction, a flat pallet and packaging film. The distances and transport routes were estimated based on supplier locations.

The manufacturing processes include injection moulding, metal working and surface treatment, assembly and packaging. Production losses (aluminium) are sent to recycling. A recycling rate of 81% was applied to aluminium based on statistics from the International Aluminium Institute. A 50 km transport distance was estimated from the manufacturer to local waste treatment operators.

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.

A4 transport calculations are based on sales data from the year 2023. The module uses sales weighted proportions of the product being shipped to multiple locations.

The installation phase does not involve material loss or energy consumption, as the connector is assumed to be installed manually. The installation phase (A5) considers waste treatment of the packaging materials. It is assumed that the recycling rates for paper and cardboard are 83%, for wood 32 %, and for plastic 40 %. The incineration rate for paper and carboard is 8%, for wood 30% and for plastic 37%. The rest are assumed to be sent to landfill. Recycling and incineration rates are modeled based on EUROSTAT statistics.

PRODUCT USE AND MAINTENANCE (B1-B7)

Product use and maintenance are not declared in the EPD, as the connector does not require repairs and has no operational use of water or energy during its lifetime.

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

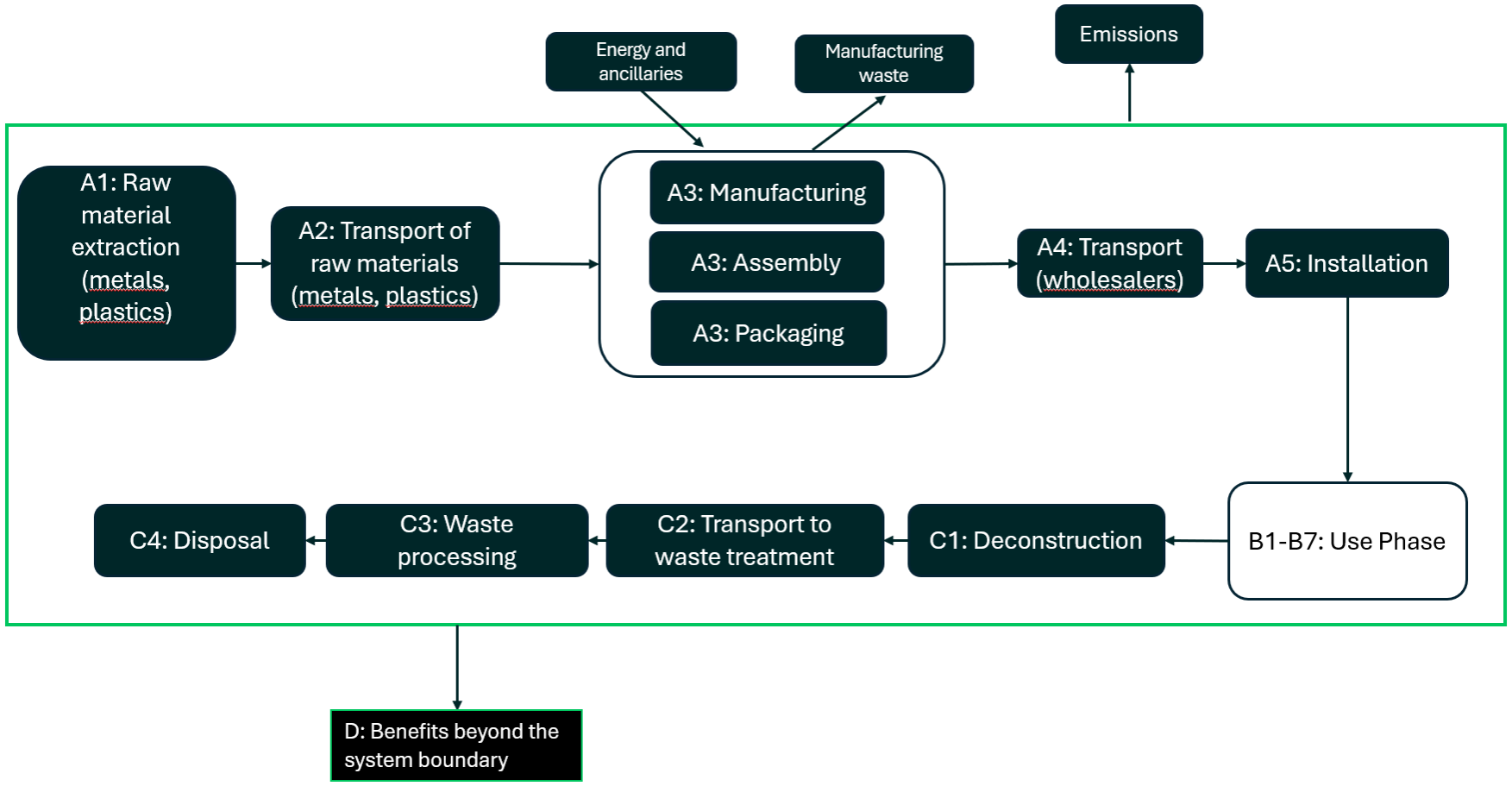
PRODUCT END OF LIFE (C1-C4, D)

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

C2-C4 accounts for the processing, disposal and transport of waste. Applied recycling rates are based on International Aluminium Institute (81 %), World Steel Organization (80 %) and the standard EN 50693 for plastics (50 %). Average distances included in the datapoints were used for transport of materials to waste treatment facilities.

Benefits and loads from recycling and recovery are included in module D. The recycling and recovery of the product and packaging materials lead to avoided virgin raw material production and energy from primary sources.

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 , 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	No allocation
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	-18 / +12 %

A representative product OTL 1x50 (VC05-0013) was chosen for the LCA study. The product acts as a representative for the OTL products declared in this EPD. Minor variation exists in A1-A3 GWP-fossil between products, and the variance is declared in this EPD. The products also serve a similar purpose and performance rating and are manufactured using the same processes. Modules A4-A5 and the end-of-life scenarios are also the same for all products. The range of products complies with the allowed averaging and aggregations requirements defined on 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‘.

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	6,31E-01	3,42E-02	8,21E-02	7,47E-01	3,44E-02	1,21E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,91E-03	6,76E-02	3,47E-02	-2,66E-02
GWP – fossil	kg CO_2e	6,30E-01	3,42E-02	9,09E-02	7,55E-01	3,43E-02	2,08E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,91E-03	6,76E-02	3,47E-02	-2,50E-02
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-1,00E-02	-1,00E-02	0,00E+00	1,00E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,56E-03
GWP – LULUC	kg CO_2e	8,04E-04	1,33E-05	1,18E-03	1,99E-03	1,22E-05	2,88E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,29E-06	1,67E-06	4,94E-07	-1,39E-05
Ozone depletion pot.	kg CFC-$_{11}$e	1,00E-08	6,43E-10	1,73E-09	1,24E-08	6,82E-10	3,76E-12	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,10E-11	3,51E-11	1,88E-11	-2,02E-10
Acidification potential	mol H^+e	5,00E-03	2,84E-04	4,14E-04	5,70E-03	1,15E-04	1,48E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,74E-06	2,57E-05	9,48E-06	-1,00E-04
EP-freshwater[2)]	kg Pe	2,74E-04	2,03E-06	5,26E-05	3,28E-04	2,27E-06	6,69E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,27E-07	7,38E-07	1,37E-07	-1,23E-05
EP-marine	kg Ne	9,14E-04	7,85E-05	4,29E-04	1,42E-03	3,81E-05	1,68E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,16E-06	1,10E-05	3,41E-05	-1,61E-05
EP-terrestrial	mol Ne	7,06E-03	8,65E-04	8,97E-04	8,82E-03	4,15E-04	5,69E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,44E-05	9,99E-05	4,43E-05	-2,46E-04
POCP ("smog")[3)]	kg NMVOCe	2,10E-03	2,83E-04	3,09E-04	2,70E-03	1,74E-04	1,87E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,37E-05	2,62E-05	1,20E-05	-8,18E-05
ADP-minerals & metals[4)]	kg Sbe	1,86E-04	9,63E-08	4,23E-07	1,86E-04	1,12E-07	1,47E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,38E-09	6,25E-08	3,01E-09	-3,71E-07
ADP-fossil resources	MJ	8,46E+00	4,68E-01	2,71E+00	1,16E+01	4,82E-01	3,28E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,10E-02	2,45E-02	1,22E-02	-3,03E-01
Water use[5)]	m^3e depr.	4,01E-01	2,12E-03	7,14E-02	4,74E-01	2,36E-03	1,23E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,92E-04	4,57E-03	2,25E-03	1,65E-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, 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	3,65E-08	2,35E-09	4,03E-09	4,29E-08	2,69E-09	2,17E-11	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,39E-10	2,24E-10	7,87E-11	-1,04E-09
Ionizing radiation[6]	kBq U235e	8,97E-03	5,32E-04	1,22E-01	1,32E-01	6,11E-04	1,38E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,35E-05	6,49E-05	1,89E-05	-2,40E-03
Ecotoxicity (freshwater)	CTUe	3,76E+00	5,68E-02	1,22E+00	5,04E+00	6,31E-02	4,96E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,40E-03	1,38E-01	6,53E-01	1,38E-01
Human toxicity, cancer	CTUh	2,91E-10	6,10E-12	4,07E-11	3,38E-10	5,87E-12	2,33E-13	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,93E-13	6,47E-12	3,06E-12	1,88E-12
Human tox. non-cancer	CTUh	2,76E-08	2,62E-10	2,36E-09	3,03E-08	3,01E-10	1,09E-11	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,58E-11	2,49E-10	1,44E-10	1,52E-09
SQP[7]	-	1,22E+00	2,35E-01	1,59E+00	3,04E+00	2,85E-01	3,10E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,67E-02	2,55E-02	1,37E-02	-1,19E-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	6,85E-01	7,32E-03	7,16E-01	1,41E+00	8,29E-03	-9,50E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,63E-04	2,33E-03	3,75E-04	-3,98E-02
Renew. PER as material	MJ	0,00E+00	0,00E+00	9,12E-02	9,12E-02	0,00E+00	-9,12E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,35E-02
Total use of renew. PER	MJ	6,85E-01	7,32E-03	8,07E-01	1,50E+00	8,29E-03	-1,86E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,63E-04	2,33E-03	3,75E-04	-2,63E-02
Non-re. PER as energy	MJ	7,03E+00	4,68E-01	2,52E+00	1,00E+01	4,82E-01	-5,71E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,10E-02	-9,93E-01	-1,01E+00	-3,03E-01
Non-re. PER as material	MJ	1,71E+00	0,00E+00	6,67E-02	1,78E+00	0,00E+00	-6,67E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-8,55E-01	-8,55E-01	2,58E-02
Total use of non-re. PER	MJ	8,74E+00	4,68E-01	2,59E+00	1,18E+01	4,82E-01	-1,24E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,10E-02	-1,85E+00	-1,86E+00	-2,77E-01
Secondary materials	kg	2,34E-02	2,16E-04	7,20E-03	3,08E-02	2,21E-04	5,07E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,83E-05	2,52E-05	7,91E-06	1,45E-02
Renew. secondary fuels	MJ	2,06E-04	2,30E-06	2,70E-03	2,91E-03	2,77E-06	3,88E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,33E-07	9,96E-07	2,29E-07	-2,50E-06
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	1,32E-02	5,75E-05	2,18E-03	1,55E-02	6,46E-05	-5,30E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,52E-06	8,03E-05	-2,49E-05	-7,49E-04

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	2,54E-02	6,60E-04	6,19E-03	3,22E-02	6,91E-04	4,75E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,13E-05	1,24E-03	5,91E-04	-1,34E-02
Non-hazardous waste	kg	2,26E+00	1,31E-02	1,95E+01	2,18E+01	1,45E-02	1,14E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,33E-03	3,35E-02	1,02E-01	2,69E-01
Radioactive waste	kg	3,28E-05	1,32E-07	2,65E-05	5,94E-05	1,52E-07	3,48E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,22E-09	1,62E-08	4,73E-09	-5,65E-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	6,13E-03	0,00E+00	1,91E+01	1,91E+01	0,00E+00	4,17E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,60E-02	0,00E+00	0,00E+00
Materials for energy rec	kg	7,75E-05	0,00E+00	1,83E-03	1,91E-03	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,80E-02	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,50E-02	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	7,01E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,40E-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	8,03E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,90E-01	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	6,36E-01	3,40E-02	9,34E-02	7,64E-01	3,41E-02	2,46E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,90E-03	6,76E-02	3,47E-02	-2,48E-02
Ozone depletion Pot.	kg CFC-$_{11}$e	6,78E-09	5,11E-10	1,45E-09	8,74E-09	5,42E-10	3,06E-12	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,28E-11	3,06E-11	1,62E-11	-2,00E-10
Acidification	kg SO_2e	4,24E-03	2,24E-04	3,34E-04	4,80E-03	8,80E-05	1,11E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,45E-06	1,92E-05	6,78E-06	-8,05E-05
Eutrophication	kg PO_4^3e	5,15E-04	3,40E-05	4,24E-04	9,72E-04	2,14E-05	7,79E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,81E-06	5,05E-06	3,69E-06	7,30E-06
POCP (“smog”)	kg C_2H_4e	2,33E-04	1,41E-05	2,53E-05	2,72E-04	8,06E-06	1,85E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,67E-07	1,21E-06	6,50E-07	-1,52E-05
ADP-elements	kg Sbe	1,90E-04	9,42E-08	4,21E-07	1,90E-04	1,09E-07	1,43E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,16E-09	6,09E-08	2,26E-09	-3,70E-07
ADP-fossil	MJ	7,84E+00	4,59E-01	9,69E-01	9,26E+00	4,72E-01	3,05E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,05E-02	2,35E-02	1,19E-02	-2,65E-01

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

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	6,31E-01	3,42E-02	9,21E-02	7,57E-01	3,44E-02	2,08E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,91E-03	6,76E-02	3,47E-02	-2,50E-02

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

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

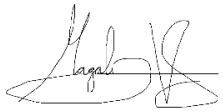
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried 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
12.04.2025



VERIFIED ISO 14025

ANNEX 1.

A1-A3 GWP-fossil, per product variant (kg CO2e)

Product name		GWP-fossil kg CO2e per 0,1 kg of product	Scaling factor	GWP-fossil kg CO2e per product
OTL universal connector	1x16	8,46E-01	5,04	1,68E-01
OTL universal connector	1x35	7,68E-01	2,36	3,25E-01
OTL universal connector	1x50	7,55E-01	2,09	3,61E-01
OTL universal connector	1x95	7,13E-01	1,23	5,81E-01
OTL universal connector	1x150	7,25E-01	0,88	8,25E-01
OTL universal connector	1x240	6,89E-01	0,46	1,50E+00
OTL universal connector	1x300	6,66E-01	0,28	2,42E+00
OTL universal connector	2x35	7,41E-01	1,72	4,32E-01
OTL Universal connector / OTL PEN Universal connector	2x50 / 2x50 PEN	6,51E-01	1,35	4,81E-01
OTL Universal connector / OTL PEN Universal connector	2x95 / 2x95 PEN	7,24E-01	0,79	9,20E-01
OTL Universal connector / OTL PEN Universal connector	2x150 / 2x150 PEN	6,71E-01	0,54	1,25E+00
OTL Universal connector / OTL PEN Universal connector	2x240 / 2x240 PEN	6,22E-01	0,31	2,01E+00
OTL branching connector	3x50	6,60E-01	0,76	8,68E-01
OTL branching connector	3x95	6,63E-01	0,43	1,55E+00
OTL branching connector	3x150	6,76E-01	0,41	1,63E+00
OTL branching connector	3x300	6,27E-01	0,10	6,00E+00
OTL Multipole connector	3x1x35	7,27E-01	1,53	4,75E-01
OTL Multipole connector	5x1x35	7,19E-01	0,74	9,72E-01
OTL Multipole connector	3x1x50	6,95E-01	0,78	8,91E-01
OTL FBB branching connector	2x95 FBB	6,74E-01	0,51	1,32E+00
OTL FBB branching connector	2x240 FBB	6,57E-01	0,27	2,43E+00
OTL FBB branching connector	3x300 FBB	6,29E-01	0,13	4,84E+00