

ENVIRONMENTAL PRODUCT DECLARATION

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

Brass Pipe Fittings
Merikarvian LVI-tuote Oy



EPD HUB, HUB-1622

Publishing on 19.07.2024, last updated on 26.08.2024, valid until 19.07.2029

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Merikarvian LVI-tuote Oy
Address	Merikarviantie 653, 29900, Merikarvia, Finland
Contact details	info@mlvi.fi
Website	https://www.mlvi.fi/

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	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Mikko Manni / Nordic Green Environment Partners Ltd.
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Imane Uald lamkaddam, 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	Brass Pipe Fittings
Additional labels	-
Product reference	-
Place of production	Merikarvia, Finland
Period for data	Calendar year 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

ENVIRONMENTAL DATA SUMMARY

Declared unit	kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	8,77E+00
GWP-total, A1-A3 (kgCO ₂ e)	8,73E+00
Secondary material, inputs (%)	37.3
Secondary material, outputs (%)	60
Total energy use, A1-A3 (kWh)	44.3
Net fresh water use, A1-A3 (m ³)	0.26

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Merikarvian LVI-Tuote Oy is a well-known Finnish metal industry company.

Our product range consists of specialty brass products and pipe fittings. Our service range includes services related to the design, manufacturing, and machining of specialty brass parts. The company was established in 1988, and we have over 40 years of experience and expertise in the field.

We manufacture high-quality, type-approved pipe fittings from special brass for steel, plastic, and copper pipes. Our production also includes the manufacturing of customer-specific components and subcontract machining. Customer special requests are fulfilled quickly and professionally. We primarily work with dezincification-resistant brass, but we have also completed projects using completely lead-free brass. We utilize modern machinery and manufacturing processes.

PRODUCT DESCRIPTION

Merikarvian LVI-Tuote Oy specializes in the manufacturing of high-quality brass components, utilizing a combination of casting, hot pressing, and machining to deliver special products tailored to meet the specific needs of our customers.

The brass fittings are made of raw brass (CB772S and CW625N) pieces obtained from casting and metal processing. The raw brass used for manufacturing is 94,7 – 99 % recycled brass. The brass used is primarily dezincification-resistant brass, but also completely lead-free brass is used. Modern machinery and manufacturing processes are utilized. The pieces are mechanically processed, casted, or hot pressed and assembled with other brass fitting components like handles, body, balls, fittings, spindle, screw, nut and inlet.

The manufacturing process requires electricity and fuels for the different equipment as well as heating, which is done with heat recovery heat (2 heat pumps) from the manufacturing process completely. The heat from

heat recovery system heats the production facilities 100 % and no extra fuel is used for heating. The production also utilizes Photo Voltaic and its share in production will be quadrupled in 2024. The waste produced at the plant is directed to incineration or reused for brass fitting production. The wastewater treatment is also considered in the near future. A wooden pallet, cardboard boxes, and packaging film are used as a packaging material for transporting the product from the factory gate.

Further information can be found at <https://www.mlvi.fi/>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	100	Nordics
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	0.025

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	kg
Mass per declared unit	1 kg
Functional unit	
Reference service life	

SUBSTANCES, REACH - VERY HIGH CONCERN

The products contain lead according to CAS 7439-92-1 (0,8-2,5%).

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	Deconstr./demol.	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.

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The manufacturing process requires electricity and fuels for the different equipment as well as heating, which is done with heat recovery heat (2 heat pumps) from the manufacturing process completely. The heat from heat recovery system heats the production facilities 100 % and no extra fuel is used for heating. The production also utilizes Photo Voltaic and its share in production will be quadrupled in 2024.

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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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Average distance of transportation from production plant to retailer's site is assumed as 358 km and the transportation method is lorry. Vehicle

capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. To be conservative, empty returns are included in this study as implemented through an average load factor in the Ecoinvent transport datapoints. Transportation does not cause losses as product is packaged properly.

Environmental impacts from installation into the building include generation of waste packaging materials (A5) and release of biogenic carbon dioxide from wood pallets. The impacts of material production, its processing and disposal as installation waste are also included.

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 consumption of energy for disassembling the product at EoL is included by assuming the use of electric screwdrivers (C1). The end-of-life product is assumed to be sent to the closest facilities by lorry and is assumed to be 50 km away (C2). 100 % of the product is collected separately from the demolition site and 60 % sent to recycling and 40 % to landfill facilities, as per the brass end-of-life scenario by the Copper Alliance 2021 (C3-4). Due to the recycling potential of metals, the end-of-life product is converted into recycled materials (D). The benefits and loads of waste packaging materials in A5 are also considered in module D.

MANUFACTURING PROCESS

The manufacturing methods used are casting, hot pressing, and machining.

Merikarvian LVI-Tuote Oy specializes in the manufacturing of high-quality brass components, utilizing a combination of casting, hot pressing, and machining to deliver special products tailored to meet the specific needs of our customers.

CASTING

Our casting process involves the pouring of molten brass into carefully designed steel moulds. The casting method allows us to create complex shapes. Through the casting technique, we ensure that each component meets the stringent quality standards required in today's demanding industries.

HOT PRESSING

Hot pressing is a key manufacturing method we employ to enhance the mechanical properties of our brass components. By heating brass billets to a precise temperature and then applying controlled pressure, we achieve superior density and uniformity. This process improves the material's strength and durability.

MACHINING

Our automated machining capabilities ensure that each brass component is finished to perfection. Utilizing CNC (Computer Numerical Control) technology, we perform precise cutting, drilling, and shaping to achieve exact specifications. Our machining process enable an excellent surface finish, making our components ideal for a wide range of applications.

MERIKARVIAN LVI-TUOTE OY'S COMMITMENT TO QUALITY

Merikarvian LVI-Tuote Oy maintain the certificate to ISO 9001:2015 and the ISO 14001:2015 Environmental Management Systems (EMS) to ensure sustainable operations. The company operate in accordance with the ISO 45001:2018 standard, which governs our Occupational Health and Safety Management Systems, prioritizing the well-being of our workforce.

Our commitment to environmental responsibility is evident in our utilization of industrial waste heat and our ongoing investments in green energy solutions and sustainable wastewater treatment.

Standard products are type-approved and tested in accordance with the requirements of the authorities: SINTEF (Norway) and EUROFINS (Finland).

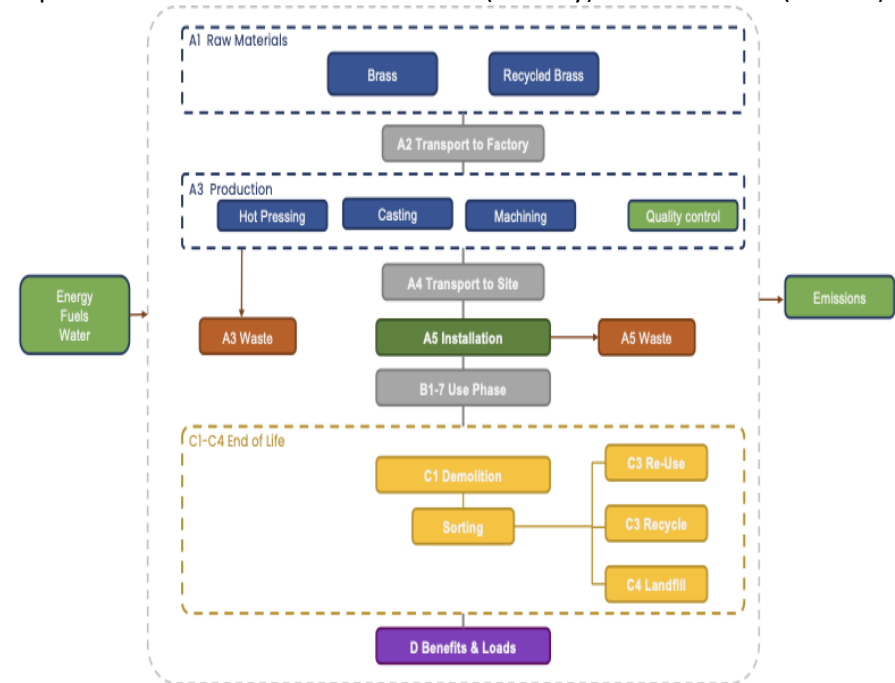


Image 1. Flowchart of the production

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

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	- %

This EPD is product and factory specific and does not contain average calculations.

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 ₂ e	7,67E+00	1,09E-01	9,57E-01	8,73E+00	0,00E+00	9,58E-02	MND	MND	MND	MND	MND	MND	MND	2,61E-03	4,50E-03	-2,76E-03	-8,50E-03	-5,66E-01
GWP – fossil	kg CO ₂ e	7,62E+00	1,09E-01	1,05E+00	8,77E+00	0,00E+00	4,03E-03	MND	MND	MND	MND	MND	MND	MND	2,59E-03	4,50E-03	1,31E-02	2,11E-03	-5,53E-01
GWP – biogenic	kg CO ₂ e	3,65E-02	0,00E+00	-1,02E-01	-6,52E-02	0,00E+00	9,17E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,59E-02	-1,06E-02	-8,48E-03
GWP – LULUC	kg CO ₂ e	1,63E-02	4,27E-05	9,18E-03	2,55E-02	0,00E+00	9,97E-07	MND	MND	MND	MND	MND	MND	MND	2,34E-05	1,75E-06	1,72E-05	1,99E-06	-4,47E-03
Ozone depletion pot.	kg CFC ₁₁ e	4,25E-07	2,56E-08	6,81E-08	5,19E-07	0,00E+00	1,80E-10	MND	MND	MND	MND	MND	MND	MND	1,46E-10	1,06E-09	1,62E-09	8,52E-10	-5,90E-08
Acidification potential	mol H ⁺ e	5,27E-01	3,89E-04	4,43E-03	5,32E-01	0,00E+00	8,18E-06	MND	MND	MND	MND	MND	MND	MND	1,05E-05	1,46E-05	1,67E-04	1,98E-05	-2,14E-01
EP-freshwater ²⁾	kg Pe	2,34E-03	9,17E-07	4,14E-05	2,38E-03	0,00E+00	3,37E-08	MND	MND	MND	MND	MND	MND	MND	9,78E-08	3,81E-08	7,05E-07	2,21E-08	-9,06E-04
EP-marine	kg Ne	2,61E-02	8,66E-05	7,92E-04	2,70E-02	0,00E+00	5,45E-06	MND	MND	MND	MND	MND	MND	MND	1,77E-06	3,22E-06	3,53E-05	6,86E-06	-8,87E-03
EP-terrestrial	mol Ne	3,73E-01	9,61E-04	9,04E-03	3,83E-01	0,00E+00	3,09E-05	MND	MND	MND	MND	MND	MND	MND	2,12E-05	3,57E-05	4,08E-04	7,54E-05	-1,34E-01
POCP (“smog”) ³⁾	kg NMVOCe	1,03E-01	3,59E-04	2,66E-03	1,06E-01	0,00E+00	9,23E-06	MND	MND	MND	MND	MND	MND	MND	5,64E-06	1,38E-05	1,12E-04	2,19E-05	-3,58E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,30E-02	2,64E-07	5,78E-06	1,31E-02	0,00E+00	6,33E-09	MND	MND	MND	MND	MND	MND	MND	1,04E-08	1,09E-08	1,77E-06	4,84E-09	-5,61E-03
ADP-fossil resources	MJ	9,42E+01	1,70E+00	3,14E+01	1,27E+02	0,00E+00	1,74E-02	MND	MND	MND	MND	MND	MND	MND	7,82E-02	7,04E-02	1,78E-01	5,77E-02	-9,45E+00
Water use ⁵⁾	m ³ e depr.	6,91E+00	7,58E-03	6,78E-01	7,60E+00	0,00E+00	1,46E-03	MND	MND	MND	MND	MND	MND	MND	1,67E-03	3,14E-04	3,45E-03	1,83E-04	-2,19E+00

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	1,22E-06	1,23E-08	2,75E-08	1,26E-06	0,00E+00	1,26E-10	MND	MND	MND	MND	MND	MND	MND	5,98E-11	5,11E-10	2,18E-09	3,99E-10	-3,10E-07
Ionizing radiation ⁶⁾	kBq U235e	9,58E-01	8,15E-03	1,46E+00	2,43E+00	0,00E+00	1,58E-04	MND	MND	MND	MND	MND	MND	MND	3,77E-03	3,37E-04	1,99E-03	2,61E-04	-1,56E-01
Ecotoxicity (freshwater)	CTUe	4,91E+03	1,51E+00	1,86E+01	4,93E+03	0,00E+00	3,24E-02	MND	MND	MND	MND	MND	MND	MND	4,30E-02	6,27E-02	8,06E-01	3,77E-02	-2,05E+03
Human toxicity, cancer	CTUh	1,07E-07	3,74E-11	5,65E-10	1,08E-07	0,00E+00	1,90E-12	MND	MND	MND	MND	MND	MND	MND	1,11E-12	1,53E-12	2,47E-11	9,42E-13	2,15E-08
Human tox. non-cancer	CTUh	7,06E-06	1,45E-09	1,15E-08	7,08E-06	0,00E+00	6,27E-11	MND	MND	MND	MND	MND	MND	MND	2,55E-11	6,03E-11	1,10E-09	2,46E-11	-3,01E-06
SQP ⁷⁾	-	1,74E+02	1,94E+00	1,67E+01	1,93E+02	0,00E+00	2,15E-02	MND	MND	MND	MND	MND	MND	MND	2,47E-02	8,10E-02	3,58E-01	1,24E-01	-6,39E+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	2,46E+01	1,91E-02	8,15E+00	3,28E+01	0,00E+00	9,58E-04	MND	MND	MND	MND	MND	MND	MND	1,91E-02	7,93E-04	3,16E-02	5,01E-04	-3,23E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	8,02E-01	8,02E-01	0,00E+00	-8,02E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	2,46E+01	1,91E-02	8,95E+00	3,36E+01	0,00E+00	-8,01E-01	MND	MND	MND	MND	MND	MND	MND	1,91E-02	7,93E-04	3,16E-02	5,01E-04	-3,23E+00
Non-re. PER as energy	MJ	9,42E+01	1,70E+00	3,09E+01	1,27E+02	0,00E+00	1,74E-02	MND	MND	MND	MND	MND	MND	MND	7,82E-02	7,05E-02	1,78E-01	5,78E-02	-9,43E+00
Non-re. PER as material	MJ	0,00E+00	0,00E+00	1,36E-01	1,36E-01	0,00E+00	-1,36E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	9,42E+01	1,70E+00	3,10E+01	1,27E+02	0,00E+00	-1,19E-01	MND	MND	MND	MND	MND	MND	MND	7,82E-02	7,05E-02	1,78E-01	5,78E-02	-9,43E+00
Secondary materials	kg	3,73E-01	4,75E-04	1,25E-02	3,86E-01	0,00E+00	1,68E-05	MND	MND	MND	MND	MND	MND	MND	5,33E-06	1,95E-05	1,98E-04	1,21E-05	1,80E-01
Renew. secondary fuels	MJ	1,95E-03	4,74E-06	2,44E-02	2,63E-02	0,00E+00	1,41E-07	MND	MND	MND	MND	MND	MND	MND	2,29E-08	1,97E-07	1,03E-05	3,17E-07	-3,02E-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	2,29E-01	2,19E-04	2,75E-02	2,56E-01	0,00E+00	7,42E-06	MND	MND	MND	MND	MND	MND	MND	6,92E-05	9,09E-06	1,04E-04	6,32E-05	-7,23E-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	2,52E+00	2,24E-03	6,83E-02	2,59E+00	0,00E+00	7,70E-05	MND	MND	MND	MND	MND	MND	MND	1,68E-04	9,28E-05	1,21E-03	0,00E+00	1,83E+00
Non-hazardous waste	kg	1,51E+02	3,67E-02	1,70E+00	1,53E+02	0,00E+00	4,08E-02	MND	MND	MND	MND	MND	MND	MND	4,15E-03	1,52E-03	3,86E-02	4,00E-01	-6,08E+01
Radioactive waste	kg	3,43E-04	1,15E-05	3,23E-04	6,78E-04	0,00E+00	6,20E-08	MND	MND	MND	MND	MND	MND	MND	8,24E-07	4,75E-07	1,04E-06	0,00E+00	-5,92E-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	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	3,75E-01	3,75E-01	0,00E+00	2,50E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	6,00E-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	1,79E-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	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,13E-01	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 ₂ e	7,46E+00	1,08E-01	1,04E+00	8,61E+00	0,00E+00	6,33E-03	MND	MND	MND	MND	MND	MND	MND	2,56E-03	4,45E-03	1,29E-02	2,06E-03	-5,48E-01
Ozone depletion Pot.	kg CFC ₋₁₁ e	3,54E-07	2,03E-08	5,88E-08	4,33E-07	0,00E+00	1,46E-10	MND	MND	MND	MND	MND	MND	MND	1,27E-10	8,38E-10	1,31E-09	6,74E-10	-4,38E-08
Acidification	kg SO ₂ e	4,62E-01	3,15E-04	3,62E-03	4,66E-01	0,00E+00	6,16E-06	MND	MND	MND	MND	MND	MND	MND	8,63E-06	1,19E-05	1,35E-04	1,50E-05	-1,88E-01
Eutrophication	kg PO ₄ ³ e	1,41E-01	6,57E-05	1,59E-03	1,42E-01	0,00E+00	7,56E-05	MND	MND	MND	MND	MND	MND	MND	3,77E-06	2,60E-06	4,45E-05	3,23E-06	-5,67E-02
POCP ("smog")	kg C ₂ H ₄ e	1,75E-02	1,39E-05	1,72E-04	1,77E-02	0,00E+00	7,88E-07	MND	MND	MND	MND	MND	MND	MND	3,92E-07	5,47E-07	5,10E-06	6,27E-07	-6,99E-03
ADP-elements	kg Sbe	1,30E-02	2,57E-07	5,80E-06	1,30E-02	0,00E+00	6,14E-09	MND	MND	MND	MND	MND	MND	MND	1,05E-08	1,06E-08	1,77E-06	4,77E-09	-5,61E-03
ADP-fossil	MJ	9,41E+01	1,70E+00	2,98E+01	1,26E+02	0,00E+00	1,74E-02	MND	MND	MND	MND	MND	MND	MND	7,41E-02	7,04E-02	1,78E-01	5,77E-02	-9,44E+00

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.

Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited
19.07.2024

