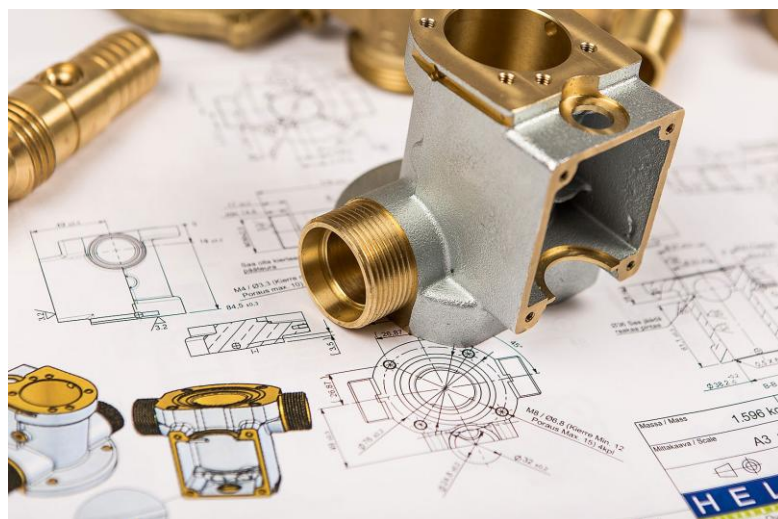


ENVIRONMENTAL PRODUCT DECLARATION

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

Brass Parts

Heikki Laiho Oy



EPD HUB, HUB-3172

Published on 11.04.2025, last updated on 11.04.2025, valid until 10.04.2030

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Heikki Laiho Oy
Address	Rauhalaammintie 16, 29600 Noormarkku, FI
Contact details	info@hela.fi
Website	https://hela.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
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and 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: ☐ Internal verification ☒ External verification
EPD verifier	Imane Uald Lamkaddam as an authorized verifier for EPD Hub

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 Parts
Additional labels	
Product reference	
Place of production	Noormarkku, Finland
Period for data	2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of brass valve fittings
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	3,67E+00
GWP-total, A1-A3 (kgCO ₂ e)	3,56E+00
Secondary material, inputs (%)	100
Secondary material, outputs (%)	79.2
Total energy use, A1-A3 (kWh)	43.1
Net freshwater use, A1-A3 (m ³)	0.09

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

HELA is a serious and reliable partner in the green energy transition. HELA is a registered trademark of Heikki Laiho Oy. HELA is an internationally operating and well-known brand known for its quality, reliability, and functional product solutions. Heikki Laiho Oy is part of the Laiho Industries group. Laiho Industries is a solvent, family-owned Finnish business group focused on the metal product and engineering industry. Heikki Laiho 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 Group's contract manufacturing business covers a wide range of metal industry products made with different manufacturing techniques. Our customers are various companies operating in the technology sector, such as machine, vehicle, research equipment and logistics industry product manufacturers. Most of our customers represent the top of their field and operate extensively in the global market. We have been manufacturing various connectors, valves and plumbing accessories for water and heating systems as well as district heating since 1967. More than 55 years of tradition and expertise combined with innovative solutions and modern and efficient manufacturing technology guarantee the high quality and reliability of HELA products.

PRODUCT DESCRIPTION

The brass fittings are made of raw brass rods and bars obtained from casting and metal processing. The raw brass used for manufacturing is 100 % recycled brass. The brass used is mainly dezincification-resistant brass. Modern machinery and manufacturing processes are utilized. The pieces are mechanically processed, casted, or hot pressed.

The manufacturing process requires electricity and fuels for the different equipment as well as heating, which is done with heat recovery heat and heat

pumps from the manufacturing process completely. The waste produced at the plant is directed to incineration or reused for brass fitting production. Wooden pallets, cardboard boxes, and packaging film are used as packaging material for transporting the product from the factory.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	98.7	EU & Turkey
Minerals		
Fossil materials	1.3	EU
Bio-based materials		

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	
Biogenic carbon content in packaging, kg C	0,44

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of brass valve fittings
Mass per declared unit	1 kg
Functional unit	
Reference service life	50

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	Reuse	Recycling
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal			

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 raw brass used for manufacturing is 100 % recycled brass.

Brass component corrosion problems can be avoided by using special brass alloys (DZR), where zinc loss is prevented. HELA products are safe to use. We only use proper dezincification-resistant (DZR) brass alloys CB770S, CW625, and CW602N. 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 products we manufacture are very long-lasting and highly recyclable.

We follow strict quality criteria in all stages of our production and our quality system is certified according to ISO9001:2015. Depending on the applications and requirements, our products have several different product qualification approval certificates (e.g. STF, KIWA, DVGW and CSTB to name some).

In accordance with the principles of sustainable development, we strive to make our manufacturing and operations even more responsible. The energy efficiency of our production has been improved through continuous investments in new production techniques and more energy-saving technology. We utilize or recycle for reuse the side streams and any waste generated from our production. All electricity used is emission free. We only use specially 4MS potable water approved and high-quality Nordic and European-made dezincification resistance (DZR) brass alloys.

A wooden pallet, cardboard boxes, and packaging film are used as a packaging material 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.

Average distance of transportation from the production plant to retailer's site is assumed as 250 km and the transportation method is a 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.

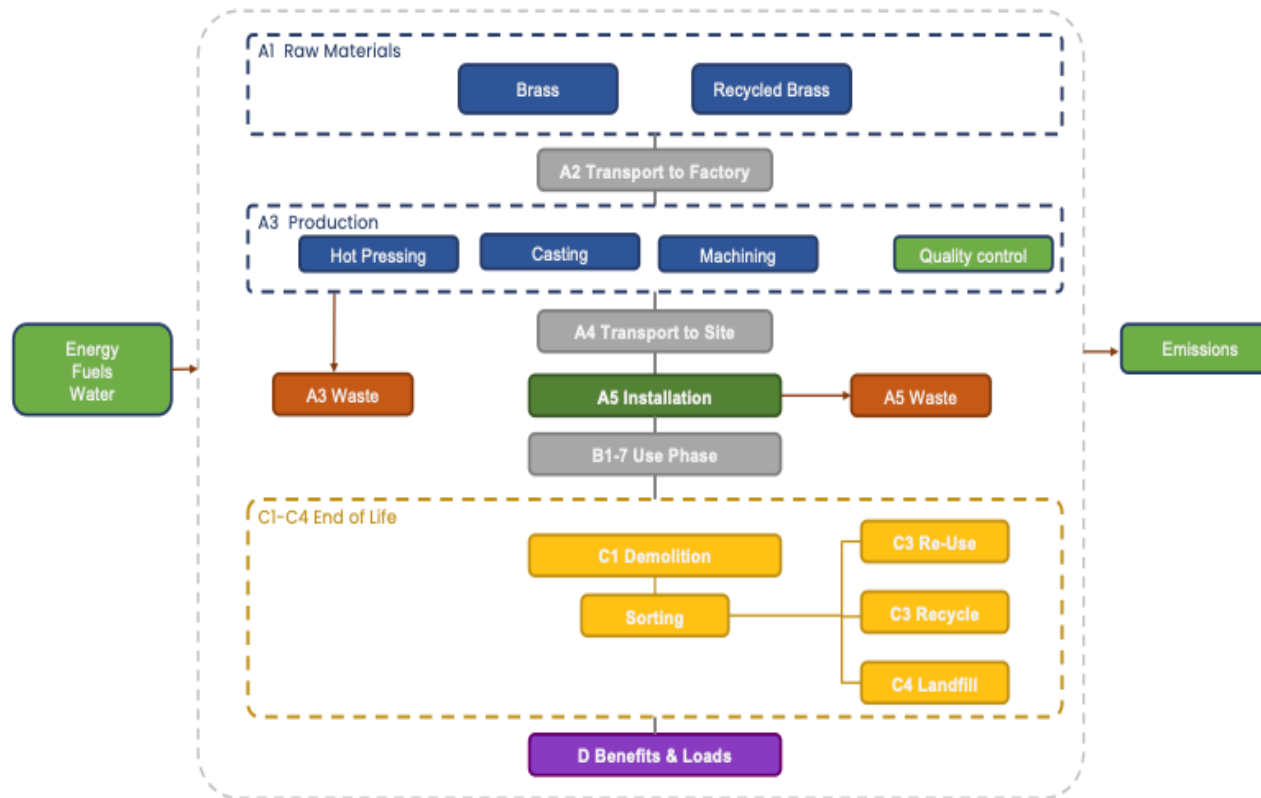
Air, soil, and water impacts during the use phase have not been studied.

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



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	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 v3.10.1 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	1,85E+00	3,82E-01	1,32E+00	3,56E+00	2,83E-02	1,27E-01	MND	MND	MND	MND	MND	MND	MND	1,45E-03	5,51E-03	3,58E-02	2,14E-02	-3,31E+02
GWP – fossil	kg CO ₂ e	1,85E+00	3,82E-01	1,44E+00	3,67E+00	2,83E-02	9,69E-03	MND	MND	MND	MND	MND	MND	MND	1,42E-03	5,50E-03	3,58E-02	2,14E-02	-3,29E+02
GWP – biogenic	kg CO ₂ e	0,00E+00	1,91E-09	-1,17E-01	-1,17E-01	6,68E-06	1,17E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,12E+00
GWP – LULUC	kg CO ₂ e	1,65E-03	1,72E-04	2,52E-03	4,34E-03	1,32E-05	3,31E-06	MND	MND	MND	MND	MND	MND	MND	2,87E-05	2,46E-06	2,23E-05	8,57E-07	-7,39E-01
Ozone depletion pot.	kg CFC-11e	1,26E-08	5,67E-09	1,07E-07	1,25E-07	4,55E-10	4,23E-11	MND	MND	MND	MND	MND	MND	MND	2,71E-11	8,13E-11	2,47E-10	4,12E-11	-3,06E-06
Acidification potential	mol H ⁺ e	7,97E-03	1,43E-03	9,57E-03	1,90E-02	7,19E-05	1,57E-05	MND	MND	MND	MND	MND	MND	MND	5,24E-06	1,88E-05	2,17E-04	1,17E-05	-2,52E+01
EP-freshwater ²⁾	kg Pe	7,62E-04	2,97E-05	5,62E-05	8,48E-04	2,27E-06	7,74E-07	MND	MND	MND	MND	MND	MND	MND	3,85E-07	4,29E-07	1,16E-05	1,64E-07	-2,01E+00
EP-marine	kg Ne	1,94E-03	4,58E-04	1,98E-03	4,38E-03	1,83E-05	1,95E-05	MND	MND	MND	MND	MND	MND	MND	1,20E-06	6,17E-06	4,95E-05	4,48E-06	-1,31E+00
EP-terrestrial	mol Ne	1,70E-02	5,00E-03	2,41E-02	4,60E-02	1,98E-04	5,90E-05	MND	MND	MND	MND	MND	MND	MND	1,25E-05	6,71E-05	5,52E-04	4,89E-05	-1,80E+01
POCP (“smog”) ³⁾	kg NMVOCe	6,02E-03	2,01E-03	6,89E-03	1,49E-02	1,09E-04	2,01E-05	MND	MND	MND	MND	MND	MND	MND	3,73E-06	2,77E-05	1,63E-04	1,62E-05	-5,06E+00
ADP-minerals & metals ⁴⁾	kg Sbe	6,72E-06	1,08E-06	8,68E-06	1,65E-05	8,18E-08	1,51E-08	MND	MND	MND	MND	MND	MND	MND	7,71E-09	1,54E-08	1,27E-06	3,36E-09	-3,52E-01
ADP-fossil resources	MJ	2,08E+01	5,53E+00	1,06E+02	1,33E+02	4,25E-01	3,72E-02	MND	MND	MND	MND	MND	MND	MND	6,48E-02	7,99E-02	2,44E-01	3,29E-02	-4,11E+03
Water use ⁵⁾	m ³ e depr.	9,77E-01	2,73E-02	1,16E+01	1,26E+01	2,10E-03	1,13E-03	MND	MND	MND	MND	MND	MND	MND	1,77E-03	3,95E-04	5,51E-03	1,14E-03	-3,05E+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, 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	1,87E-07	3,78E-08	5,53E-08	2,80E-07	2,78E-09	2,44E-10	MND	MND	MND	MND	MND	MND	MND	4,35E-11	5,51E-10	2,92E-09	2,16E-10	-5,62E-05
Ionizing radiation ⁶⁾	kBq 11235e	1,14E-01	4,93E-03	4,48E+00	4,60E+00	3,70E-04	1,54E-04	MND	MND	MND	MND	MND	MND	MND	3,73E-03	6,96E-05	2,05E-03	2,51E-05	-3,44E+01
Ecotoxicity (freshwater)	CTUe	1,75E+01	7,78E-01	4,48E+01	6,31E+01	5,98E-02	5,71E-02	MND	MND	MND	MND	MND	MND	MND	4,32E-03	1,13E-02	1,76E-01	3,60E-02	-3,61E+04
Human toxicity, cancer	CTUh	4,44E-09	6,79E-11	7,44E-10	5,25E-09	4,72E-12	2,14E-12	MND	MND	MND	MND	MND	MND	MND	3,98E-13	9,09E-13	1,76E-11	4,68E-13	-2,68E-06
Human tox. non-cancer	CTUh	1,10E-07	3,55E-09	1,89E-08	1,32E-07	2,74E-10	1,09E-10	MND	MND	MND	MND	MND	MND	MND	1,51E-11	5,17E-11	1,14E-09	1,13E-11	-2,68E-04
SQP ⁷⁾	-	5,06E+00	5,46E+00	8,42E+00	1,89E+01	4,28E-01	3,31E-02	MND	MND	MND	MND	MND	MND	MND	2,08E-02	8,04E-02	4,69E-01	6,05E-02	-8,23E+03

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	1,70E+00	7,68E-02	2,31E+01	2,49E+01	5,83E-03	-1,30E+00	MND	MND	MND	MND	MND	MND	MND	2,31E-02	1,09E-03	4,49E-02	4,34E-04	-1,14E+03
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,09E+00	1,09E+00	0,00E+00	-1,09E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,60E-01
Total use of renew. PER	MJ	1,70E+00	7,68E-02	2,42E+01	2,60E+01	5,83E-03	-2,39E+00	MND	MND	MND	MND	MND	MND	MND	2,31E-02	1,09E-03	4,49E-02	4,34E-04	-1,14E+03
Non-re. PER as energy	MJ	2,06E+01	5,53E+00	1,04E+02	1,30E+02	4,25E-01	-1,77E-01	MND	MND	MND	MND	MND	MND	MND	6,48E-02	7,99E-02	-6,56E-02	-1,41E-01	-4,11E+03
Non-re. PER as material	MJ	0,00E+00	0,00E+00	2,62E-01	2,62E-01	0,00E+00	-2,62E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,16E-01
Total use of non-re. PER	MJ	2,06E+01	5,53E+00	1,05E+02	1,31E+02	4,25E-01	-4,39E-01	MND	MND	MND	MND	MND	MND	MND	6,48E-02	7,99E-02	-6,56E-02	-1,41E-01	-4,11E+03
Secondary materials	kg	1,29E+00	2,37E-03	4,26E-02	1,33E+00	1,81E-04	4,46E-05	MND	MND	MND	MND	MND	MND	MND	6,81E-06	3,40E-05	3,01E-04	1,06E-05	5,53E+01
Renew. secondary fuels	MJ	3,44E-04	2,96E-05	3,81E-02	3,84E-02	2,30E-06	3,34E-07	MND	MND	MND	MND	MND	MND	MND	2,30E-08	4,32E-07	1,37E-05	2,55E-07	-8,61E-02
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	-1,63E-02	8,14E-04	1,10E-01	9,49E-02	6,39E-05	-6,67E-05	MND	MND	MND	MND	MND	MND	MND	5,62E-05	1,18E-05	1,48E-04	5,08E-05	-1,02E+01

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	5,83E-01	9,36E-03	5,11E-02	6,43E-01	7,17E-04	4,33E-04	MND	MND	MND	MND	MND	MND	MND	8,80E-05	1,35E-04	1,89E-03	4,68E-04	-9,58E+01
Non-hazardous waste	kg	2,21E+01	1,74E-01	3,98E+00	2,63E+01	1,33E-02	1,33E-01	MND	MND	MND	MND	MND	MND	MND	2,05E-03	2,50E-03	6,54E-02	7,90E-03	-7,59E+03
Radioactive waste	kg	2,84E-05	1,21E-06	1,72E-03	1,75E-03	9,05E-08	3,90E-08	MND	MND	MND	MND	MND	MND	MND	8,02E-07	1,70E-08	5,24E-07	6,18E-09	-9,01E-03

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	0,00E+00	0,00E+00	0,00E+00	5,01E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,92E-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	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,19E-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	1,85E+00	3,80E-01	1,42E+00	3,64E+00	2,81E-02	1,47E-02	MND	MND	MND	MND	MND	MND	MND	1,45E-03	5,47E-03	3,58E-02	2,14E-02	-3,29E+02
Ozone depletion Pot.	kg CFC ₁₁ e	1,07E-08	4,53E-09	8,65E-08	1,02E-07	3,63E-10	3,43E-11	MND	MND	MND	MND	MND	MND	MND	2,39E-11	6,48E-11	2,04E-10	3,34E-11	-2,58E-06
Acidification	kg SO ₂ e	6,54E-03	1,10E-03	7,48E-03	1,51E-02	5,73E-05	1,18E-05	MND	MND	MND	MND	MND	MND	MND	4,19E-06	1,43E-05	1,74E-04	8,65E-06	-2,21E+01
Eutrophication	kg PO ₄ ³ e	2,55E-03	2,52E-04	2,67E-03	5,47E-03	1,37E-05	9,29E-06	MND	MND	MND	MND	MND	MND	MND	7,07E-07	3,49E-06	2,59E-05	2,63E-06	-1,07E+00
POCP ("smog")	kg C ₂ H ₄ e	5,42E-04	9,41E-05	3,31E-04	9,67E-04	5,45E-06	2,14E-06	MND	MND	MND	MND	MND	MND	MND	2,90E-07	1,28E-06	1,04E-05	7,53E-07	-9,23E-01
ADP-elements	kg Sbe	6,47E-06	1,06E-06	8,67E-06	1,62E-05	7,97E-08	1,47E-08	MND	MND	MND	MND	MND	MND	MND	7,77E-09	1,50E-08	1,26E-06	2,84E-09	-3,51E-01
ADP-fossil	MJ	1,90E+01	5,45E+00	1,06E+02	1,30E+02	4,20E-01	3,46E-02	MND	MND	MND	MND	MND	MND	MND	1,21E-02	7,88E-02	2,08E-01	3,25E-02	-3,62E+03

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 ₂ e	1,85E+00	3,82E-01	1,44E+00	3,67E+00	2,83E-02	9,70E-03	MND	MND	MND	MND	MND	MND	MND	1,45E-03	5,51E-03	3,58E-02	2,14E-02	-3,30E+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.

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
11.04.2025

