

ENVIRONMENTAL PRODUCT DECLARATION

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



BROEN BALLOFIX®
Angle valve
- Stainless steel

EPD HUB, Hub-1354
Publishing date 2 May 2024
Last updated date 2 May 2024
Valid until date 2 May 2029

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Broen A/S
Address	Skovvej 30, Assens 5610 Denmark
Contact details	broen@broen.com
Website	https://www.broen.com/

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 1.0, 1 Feb 2022
Sector	Manufactured product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	BROEN (A/S) , Ibrahim Khaled Matar Sustainability specialist
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> 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	BROEN BALLOFIX® ANGLE VALVE
Product reference	Angle valve 72010000
Place of production	Dzierżoniów, Poland
Period for data	January 2023 - December 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	0 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	ONE UNIT OF 72010000
Declared unit mass	0.1388 kg
GWP-fossil, A1-A3 (kgCO2e)	1,29E+00
GWP-total, A1-A3 (kgCO2e)	1,24E+00
Secondary material, inputs (%)	75
Secondary material, outputs (%)	60
Total energy use, A1-A3 (kWh)	5,1
Total water use, A1-A3 (m3e)	0,01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

BROEN Valve Technologies is a leading international manufacturer of valve technology and we operate on three continents across the world.

BROEN is headquartered in Assens, Denmark and is part of Aalberts N.V. listed on the EuroNext Stock Exchange (NL).

For more than 70 years BROEN has been the global leader in the development and production of valve technology for the control of water, air and gas.

BROEN delivers complete solutions for HVAC building installations and is a leading supplier of district energy valves and valve technology for natural gas.

PRODUCT DESCRIPTION

BROEN offers a wide range of ball valves for water, heating and gas installations. The original BROEN BALLOFIX® valve was developed in the 1960s and now, more than 120 million BROEN BALLOFIX® valves have been installed all over the world. The original BROEN BALLOFIX® still assures you the best quality, functionality and design. Our product range is under constant development and is suitable for all common pipes.

A new variant in the BROEN BALLOFIX® portfolio is the stainless steel angle valve, which is a high quality angle valve made completely out of high alloy stainless steel (AISI316) and composite material.

Further information can be found at <https://www.broen.com/>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	95	Asia
Minerals	0	-
Fossil materials	5	Asia
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	0.0157

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	ONE UNIT OF 72010000
Mass per declared unit	0.1388 kg

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	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.

The valve is made of stainless steel, PTFE, EPDM and composite. Composite and PTFE parts are sourced and are directly consumed in the assembly of the valve. The valve consist of following components:

- Retaining ring
- Body stainless steel
- Ball
- Seat
- Roset
- O-Ring
- Handle

The handle is made from composite.

All parts of the valve are sourced then assembled at BROEN. Other polymer parts include O-rings and seats made from EPDM. Additional processes used to manufacture the valves are testing and packaging.

The components are produced in different lands, each components transportation distance assumptions is based on its place of production transported to BROEN in Assens Denmark. The only production loss comes from the processing of the valve body, the production loss is calculated by subtracting the weight of the body after processing from the weight before processing. The valve is only assembled at BROEN, thus no energy is required at site. The valve is packed in cardboard individually. No ancillaries are used for the manual assembly.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation is defined according to the PCR. Distance of transportation from production to building site, is estimated from the countries with the largest sales volume, The transportation method is a combination of lorry and containership, depending on the country. Vehicle capacity utilization volume factor is assumed to be 1 which means full loads, it may vary but as role of transportation emission in total results are small, the variety is assumed to be negligible. Empty returns are not taken into account as it is assumed that the return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as products are packaged properly. Also, volume capacity utilisation factor is assumed to be 1 for the nested packaged products.

No material or energy is required for the installation of the valve. It is assumed that customers will dispose of the packaging as normal waste, thus the packaging will be sent to waste treatment facility that is most likely to incinerate the packaging. Here 50 Km is assumed to be a standard average distance from waste collection to treatment facility.

PRODUCT USE AND MAINTENANCE (B1-B7)

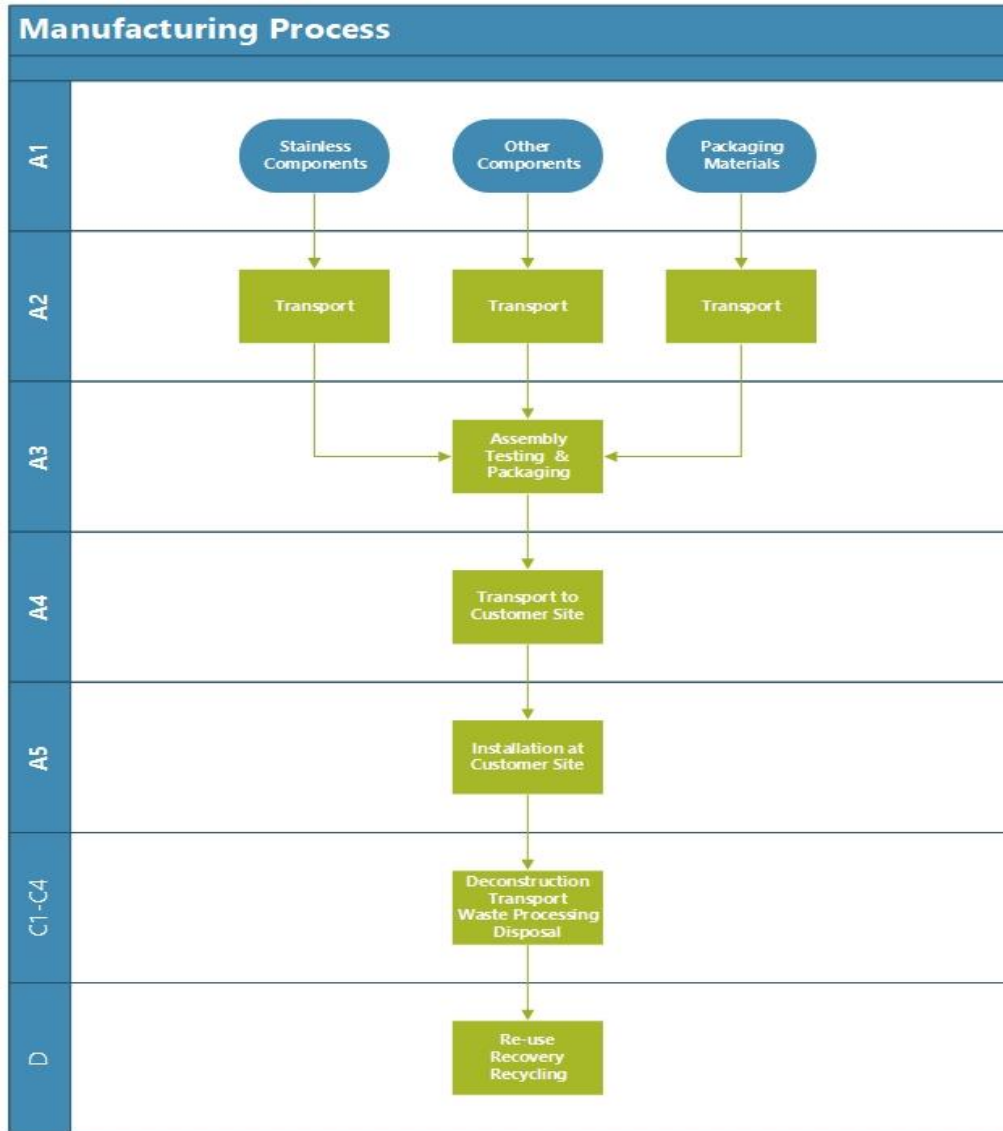
A BROEN BALLOFIX® angle valve needs no maintenance, repair or refurbishment and has no operational water or energy use during its lifetime.

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

PRODUCT END OF LIFE (C1-C4, D)

The consumption of energy and natural resources for disassembling the end-of-life is assumed to be negligible, as the disassembly of the product is done by the buyer or the recycling facilities (C1). The end-of-life product is assumed to be sent to the closest facilities by lorry, which is dependent on the individual country (C2). 85% of the product is sent for recycling, and 85% of polymer parts are sent for incineration with energy recovery (C3). 15% of the end-of-life product is assumed to go to a landfill or be lost in the processing (C4). Due to the recycling and incineration potential of metals and plastics, the end-of-life is converted into recycled materials, while heat is produced from material incineration (D). The benefits and burdens of waste packaging 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 materials	No allocation
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	0 %

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. Ecoinvent v3.8 and One Click LCA databases were used 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	9,89E-01	2,69E-01	-2,23E-02	1,24E+00	3,74E-03	5,87E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,24E-02	2,08E-04	-9,32E-02
GWP – fossil	kg CO ₂ e	9,88E-01	2,69E-01	3,47E-02	1,29E+00	3,73E-03	1,48E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,24E-02	2,08E-04	-9,29E-02
GWP – biogenic	kg CO ₂ e	0,00E+00	1,49E-05	-5,72E-02	-5,72E-02	0,00E+00	5,72E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	9,48E-04	9,73E-05	2,43E-04	1,29E-03	1,38E-06	5,07E-0	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,31E-06	1,11E-07	-2,79E-04
Ozone depletion pot.	kg CFC ₁₁ e	5,07E-08	6,39E-08	2,91E-09	1,17E-07	8,59E-10	1,49E-10	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,31E-10	4,58E-11	-5,00E-09
Acidification potential	mol H ⁺ e	5,53E-03	1,14E-03	1,82E-04	6,85E-03	1,58E-05	1,16E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,33E-05	1,08E-06	-4,75E-04
EP-freshwater ²⁾	kg Pe	3,92E-05	1,88E-06	2,24E-06	4,33E-05	3,06E-08	1,56E-08	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,34E-07	1,30E-09	-4,63E-06
EP-marine	kg Ne	9,61E-04	3,44E-04	9,43E-05	1,40E-03	4,70E-06	4,92E-06	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	7,50E-06	4,97E-07	-1,44E-04
EP-terrestrial	mol Ne	1,04E-02	3,79E-03	5,31E-04	1,47E-02	5,19E-05	5,1E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	8,56E-05	4,11E-06	-1,10E-03
POCP (“smog”) ³⁾	kg NMVOCe	3,32E-03	1,22E-03	1,10E-04	4,65E-03	1,66E-05	1,28E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,37E-05	1,22E-06	-3,43E-04
ADP-minerals & metals ⁴⁾	kg Sbe	2,48E-05	6,38E-07	2,63E-07	2,57E-05	8,76E-09	4,91E-089	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,34E-07	2,80E-10	-8,42E-07
ADP-fossil resources	MJ	1,13E+01	4,10E+00	4,38E-01	1,58E+01	5,61E-02	1,16E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,56E-02	3,13E-03	-9,95E-01
Water use ⁵⁾	m ³ e depr.	3,74E-01	1,89E-02	1,82E-02	4,11E-01	2,51E-04	2,74E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	9,28E-04	1,07E-05	-3,18E-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	7,62E-08	3,15E-08	3,34E-09	1,11E-07	4,30E-10	1,08E-10	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	4,47E-10	2,18E-11	-8,67E-09
Ionizing radiation ⁶⁾	kBq U235e	7,26E-02	2,10E-02	1,53E-03	9,51E-02	2,67E-04	4,20E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,82E-04	1,43E-05	-3,41E-03
Ecotoxicity (freshwater)	CTUe	3,45E+01	3,44E+00	1,78E+00	3,98E+01	5,05E-02	8,03E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,61E-01	2,29E-03	-3,65E+00
Human toxicity, cancer	CTUh	2,04E-08	9,10E-11	2,61E-11	2,05E-08	1,24E-12	3,58E-12	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	6,13E-12	5,51E-14	-2,95E-10
Human tox. non-cancer	CTUh	2,39E-08	3,62E-09	5,22E-10	2,80E-08	4,99E-11	1,49E-10	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,27E-10	1,38E-12	-1,65E-09
SQP ⁷⁾	-	5,60E+00	4,76E+00	1,48E+00	1,18E+01	6,46E-02	6,28E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	6,96E-02	6,76E-03	-1,70E+00

6) EN 15804+A2 disclaimer for ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	2,36E+00	5,24E-02	3,04E-01	2,72E+00	6,32E-04	4,36E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	5,98E-03	3,02E-05	-3,64E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	5,01E-01	5,01E-01	0,00E+00	-5,01E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	2,36E+00	5,24E-02	8,05E-01	3,22E+00	6,32E-04	-4,96E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	5,98E-03	3,02E-05	-3,64E-01
Non-re. PER as energy	MJ	1,11E+01	4,10E+00	4,34E-01	1,56E+01	5,61E-02	4,68E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,56E-02	3,13E-03	-9,91E-01
Non-re. PER as material	MJ	1,84E-01	0,00E+00	4,04E-03	1,88E-01	0,00E+00	-4,04E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-1,56E-01	-2,76E-02	0,00E+00
Total use of non-re. PER	MJ	1,13E+01	4,10E+00	4,38E-01	1,58E+01	5,61E-02	7,52E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-1,21E-01	-2,45E-02	-9,91E-01
Secondary materials	kg	1,01E-01	1,16E-03	3,88E-02	1,41E-01	1,56E-05	1,38E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,91E-05	6,94E-07	-4,30E-02
Renew. secondary fuels	MJ	3,44E-04	1,04E-05	2,76E-03	3,11E-03	1,57E-07	2,3E-07	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,96E-06	1,92E-08	-2,79E-03
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	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	1,10E-02	5,43E-04	4,29E-04	1,20E-02	7,27E-06	4,87E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,10E-05	3,42E-06	-7,32E-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	8,92E-01	4,53E-03	1,91E-03	8,98E-01	7,44E-05	3,64E-06	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,93E-04	0,00E+00	-2,11E-02
Non-hazardous waste	kg	1,63E+00	7,81E-02	3,93E-02	1,75E+00	1,22E-03	3,91E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,20E-02	2,10E-02	-1,37E-01
Radioactive waste	kg	2,74E-05	2,82E-05	7,86E-07	5,64E-05	3,75E-07	1,84E-08	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,06E-07	0,00E+00	-1,69E-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	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	2,10E-02	2,10E-02	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,19E-01	2,10E-02	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	MNR	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	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,24E-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 ₂ e	9,68E-01	2,66E-01	3,68E-02	1,27E+00	3,70E-03	7,55E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,23E-02	1,87E-04	-9,28E-02
Ozone depletion Pot.	kg CFC ₁₁ e	4,47E-08	5,06E-08	2,42E-09	9,77E-08	6,80E-10	2,95E-10	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,68E-10	3,62E-11	-4,51E-09
Acidification	kg SO ₂ e	4,60E-03	8,86E-04	1,28E-04	5,61E-03	1,23E-05	1,68E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,67E-05	8,18E-07	-3,72E-04
Eutrophication	kg PO ₄ ³ e	1,66E-03	1,97E-04	1,04E-04	1,96E-03	2,80E-06	2,19E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,62E-05	6,14E-06	-2,02E-04
POCP ("smog")	kg C ₂ H ₄ e	2,49E-04	3,47E-05	8,54E-06	2,92E-04	4,80E-07	1,99E-06	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,23E-06	4,69E-08	-3,36E-05
ADP-elements	kg Sbe	2,46E-05	6,20E-07	2,26E-07	2,55E-05	8,48E-09	7,08E-08	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,33E-07	2,75E-10	-8,01E-07
ADP-fossil	MJ	1,13E+01	4,10E+00	4,34E-01	1,58E+01	5,61E-02	4,68E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,56E-02	3,13E-03	-9,90E-01

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 compliance 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

02.05.2024

