ENVIRONMENTAL PRODUCT DECLARATION

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

Stainless Steel Floating Ball Valves
Vexve Oy

EPD HUB, Hub-1788
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Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Vexve Oy
Address	Pajakatu 11, 38200 Sastamala, Finland
Contact details	vexve@vexve.com
Website	https://www.vexve.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 1.1, 5 Dec 2023
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	Arttu Unkila, Vexve
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 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	Stainless Steel Floating Ball Valves
Additional labels	This EPD covers Vexve Stainless Steel Floating Ball valves in the range of DN 15 to DN 250
Product reference	Vexve Stainless Steel Floating Ball Valve DN 100, painted, product number 230100 DN 100, welding/welding end
Place of production	Laitila, Finland and Sastamala, Finland
Period for data	Calendar year 2023
Averaging in EPD	Multiple products and multiple factories
Variation in GWP-fossil for A1-A3	-22% -4,7%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	6,53E+00
GWP-total, A1-A3 (kgCO2e)	6,38E+00
Secondary material, inputs (%)	60.7
Secondary material, outputs (%)	86.2
Total energy use, A1-A3 (kWh)	22.4
Net fresh water use, A1-A3 (m3)	1.63

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Vexve is the leading valve brand for the heating and cooling needs of cities and industry. Vexve valves are manufactured in Finland, and they are used in district energy networks, power plants, and heating and cooling systems of buildings all around the world.

The brand offers wide selection of ball and butterfly valves needed in the operation of district heating and cooling systems from shut-off valves to control valves, and special-purpose valves such as hot-tapping and branching valves. Vexve also provides smart monitoring and control solutions, specifically designed to improve the efficiency and reliability of the underground district energy networks. Vexve product portfolio for the HVAC/R systems includes ball and balancing valves in steel and stainless steel with various connection types, including welded, threaded, flanged and press-fit connections.

PRODUCT DESCRIPTION

Our Vexve brand has a complete range of valves, and innovative control and monitoring solutions specifically designed for district heating and cooling. Our safe and secure valves are designed and manufactured in Finland from high-quality materials.

Vexve stainless steel ball valves are a reliable part of district heating substations, cooling units, heating, and other HVAC/R systems. In addition, they have the Finnish type approval for domestic water. The maintenance-free valves are designed to last the entire network life cycle, which helps you achieve your energy- efficiency goals. Our valves have a fully welded structure, and their blow-out safe stem construction ensures safe valve operation. They are designed for clean mediums for heating and cooling systems (HVAC/R). All parts in direct contact with the medium are made from high-quality stainless steel and the materials are mainly of EU origin. The lightweight valves are easy to install and insulate, with no risk of leakage or condensation problems. Vexve stainless steel ball valves are also widely used in various industrial systems, and they are reliable solutions for all your valve needs.

Further information can be found at https://www.vexve.com/.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	97,9	Europe and Asia
Minerals	0	
Fossil materials	2,1	Europe and Asia
Bio-based materials	0	

FUNCTIONAL UNIT AND SERVICE LIFE

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

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	0.0415

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, carbon steel, rubber, PTFE and composites. Ball components are received as ready-made. Steel is received as pipes to the factory and components are manufactured by processing the pipes. The processes used to process the steel are milling, drilling, cutting and pressing. Scrap material derived from the production are sent to recycling directly from the factory. Rubber, composite and PTFE parts are sourced and directly consumed in the assembly of the valve.

The valve consists of the following components:

- body,
- ball,
- ball seats,
- stem,
- stem sealing parts.

Optional combinations of 4 connection ends:
- flange end,
- female threaded end,
- male threaded end,
- weld end.

In addition, it is possible to choose between 3 different operating options:
- L handle,
- T handle,
- gear.

The handles are made of composite and steel. The ball is made of stainless steel. Polymer parts include O-rings made of rubber and seals made of PTFE.

Additional processes used to manufacture the valves are welding, testing, painting and packing. The manufacturing process requires electricity and fuels for powering the production equipment. Lubricating oil is used for maintenance of manufacturing machines and to ensure smooth manufacturing process. Wastewater treatment is also included.

The transportation information is based on the actual distances between the supplier and Vexve for each component.

The production loss is metal scrap from the processing of metals. The obtained scrap from the metal processing is sent to authorized recycling facility, and the transportation is defined as the distance between Vexve and the facility in Finland.

A wooden pallet, hardboard, cardboard, and packaging film are used as packaging materials for transporting the valves to the dedicated marketplaces. The packaging material transportation distances are defined as the distance between the suppliers and Vexve, all located in Finland.

The ancillaries of the production are tap water, mineral oils for lubrication purposes and welding shielding gas. Wastewater is discharged to treatment facilities via pipes. Welding shielding gas cannot be collected and is diffused in air. Mineral oil is collected and sent for waste treatment. The transportation of mineral oils is defined as the distance between Vexve and the treatment facility in Finland.

TRANSPORT AND INSTALLATION (A4-A5)

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

Distance of transportation from production to building site, is estimated from the countries with the largest sales volume, the transportation method is mainly lorry. Vehicle capacity utilization volume factor is assumed to be 1 which means full loads. It may vary but as the role of transportation emission in total results are small, the variety is assumed to be negligible. 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.

The installation process uses hand tools or electrical hand tools. The amount of energy use to install 1 kg of valve is considered neglectable. Environmental impacts from installation into the building include generation of waste packaging materials (A5). The transportation from building site to recycling station is assumed to be 50 km in all scenarios.

PRODUCT USE AND MAINTENANCE (B1-B7)

A Vexve Stainless Steel Ball Valve needs no maintenance, repair or refurbishment. The use phase is not relevant for the life cycle emissions of this product and is therefore not accounted into the assessment.

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

PRODUCT END OF LIFE (C1-C4, D)

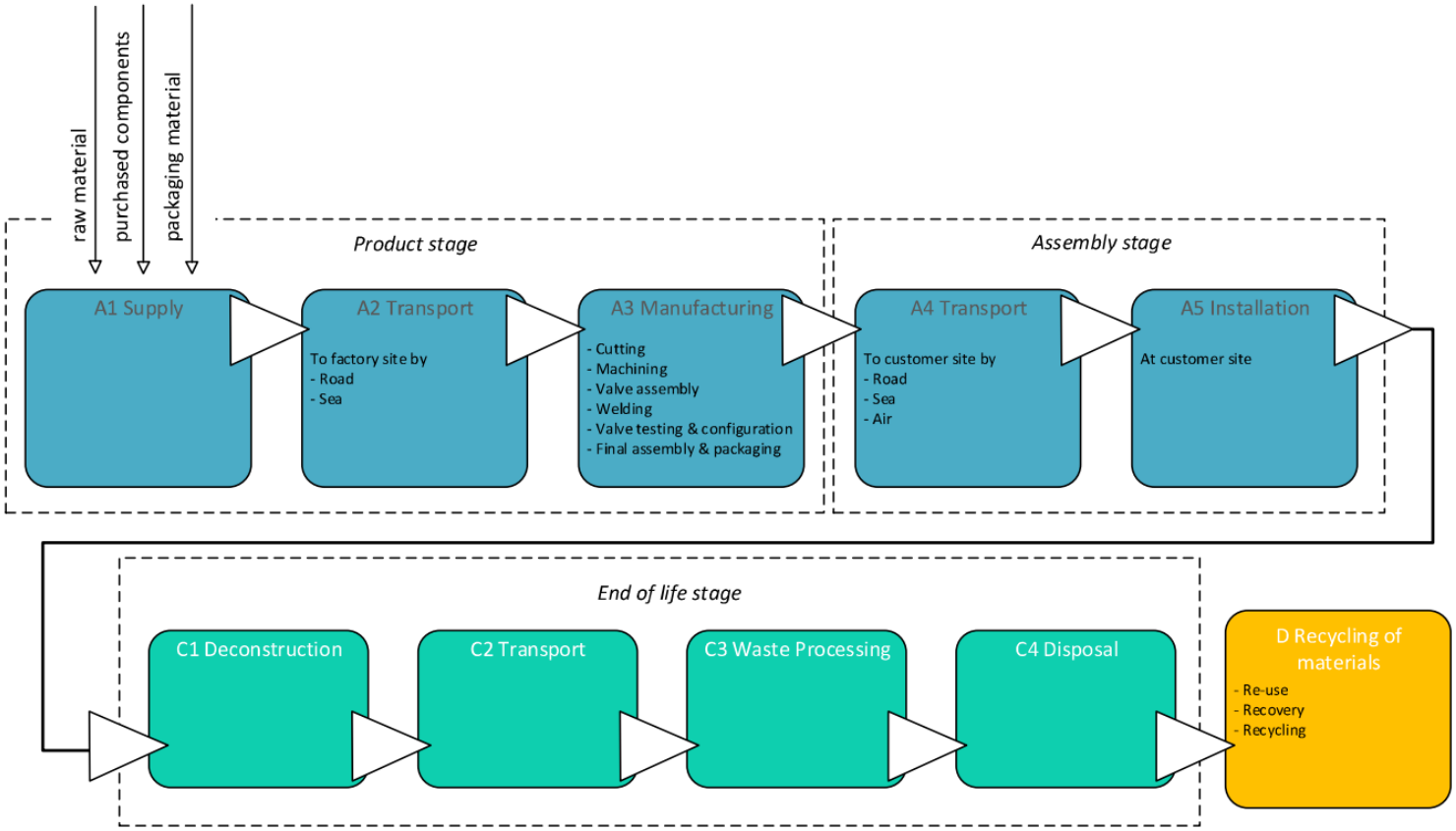
The consumption of energy and natural resources for disassembling the end-of-life is assumed to be negligible, as the disassembly of the product is done by the buyer or the recycling facilities (C1).

The end-of-life product is assumed to be sent to the closest facilities by lorry, transportation distance is assumed to be 50 km (C2).

Module C3 accounts for energy and resource inputs for sorting and treating of steel, rubber, PTFE and composite materials for recycling and incineration with energy recovery with efficiency greater than 60%. 85 % of steel is sent for recycling. Additionally, waste that is incinerated without energy recovery or landfilled is included in Module C4.

Due to the material and energy recovery potential of parts in the product and in packaging, recycled raw materials lead to avoided virgin material production and the energy recovered from incineration replaces electricity and heat from primary sources. Benefits and loads from incineration and recycling are included in Module 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	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	Multiple products and multiple factories
Averaging method	Representative product
Variation in GWP-fossil for A1-A3	-22% -4,7%

Vexve Stainless Steel Floating Ball Valve (painted) DN100 has been selected as the representative valve. It has four different connection possibilities and a handle. Initial calculations revealed that it was closest to the general average of mass for Vexve Stainless Steel Floating Ball Valve.

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_2e	5,63E+00	2,42E-01	5,10E-01	6,38E+00	3,44E-02	1,32E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,85E-03	3,74E-02	1,83E-03	-2,78E-01
GWP – fossil	kg CO_2e	5,62E+00	2,42E-01	6,62E-01	6,53E+00	3,44E-02	2,37E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,84E-03	3,74E-02	1,83E-03	-2,78E-01
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-1,52E-01	-1,52E-01	0,00E+00	1,29E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,24E-04
GWP – LULUC	kg CO_2e	4,38E-03	9,13E-05	4,76E-04	4,94E-03	1,27E-05	1,60E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,79E-06	2,53E-05	8,68E-07	7,19E-04
Ozone depletion pot.	kg CFC_{11}e	4,93E-05	5,57E-08	7,41E-08	4,94E-05	7,92E-09	2,52E-10	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,11E-09	2,40E-09	3,52E-10	-3,72E-08
Acidification potential	mol H^+e	2,47E-02	1,27E-03	4,06E-03	3,01E-02	1,46E-04	1,50E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,05E-05	2,44E-04	8,39E-06	-4,18E-04
EP-freshwater[2)]	kg Pe	1,83E-04	1,88E-06	6,36E-06	1,91E-04	2,82E-07	6,15E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,96E-08	1,02E-06	1,03E-08	4,70E-06
EP-marine	kg Ne	3,91E-03	3,65E-04	5,61E-04	4,84E-03	4,33E-05	1,54E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,10E-06	5,28E-05	4,14E-06	2,30E-04
EP-terrestrial	mol Ne	4,22E-02	4,03E-03	1,07E-02	5,70E-02	4,78E-04	5,58E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,73E-05	6,07E-04	3,18E-05	-2,45E-03
POCP ("smog")[3)]	kg NMVOCe	1,37E-02	1,24E-03	1,59E-03	1,65E-02	1,53E-04	1,76E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,15E-05	1,66E-04	9,46E-06	-2,10E-03
ADP-minerals & metals[4)]	kg Sbe	1,59E-04	5,57E-07	9,21E-07	1,60E-04	8,07E-08	1,78E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,14E-08	2,54E-06	2,20E-09	1,39E-06
ADP-fossil resources	MJ	4,61E+01	3,62E+00	7,55E+00	5,73E+01	5,17E-01	2,58E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,28E-02	2,61E-01	2,42E-02	-1,84E+00
Water use[5)]	m^3e depr.	2,46E+01	1,61E-02	1,37E+00	2,60E+01	2,31E-03	9,93E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,26E-04	5,70E-03	8,49E-05	2,63E-01

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	1,96E-07	2,72E-08	2,29E-08	2,46E-07	3,97E-09	2,03E-10	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,58E-10	3,17E-09	1,68E-10	3,44E-09
Ionizing radiation[6)]	kBq U235e	2,38E-01	1,75E-02	4,51E-01	7,07E-01	2,46E-03	2,50E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,47E-04	2,88E-03	1,11E-04	1,63E-02
Ecotoxicity (freshwater)	CTUe	8,11E+01	3,18E+00	8,97E+00	9,33E+01	4,65E-01	9,50E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,54E-02	1,24E+00	1,86E-02	-1,47E+00
Human toxicity, cancer	CTUh	5,63E-08	8,24E-11	2,85E-10	5,66E-08	1,14E-11	7,90E-12	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,61E-12	3,69E-11	4,36E-13	6,72E-09
Human tox. non-cancer	CTUh	1,72E-07	3,16E-09	4,72E-09	1,80E-07	4,60E-10	8,28E-11	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,48E-11	1,65E-09	1,08E-11	3,91E-08
SQP[7)]	-	1,33E+01	4,07E+00	8,65E+00	2,61E+01	5,96E-01	2,90E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,38E-02	5,19E-01	5,24E-02	-2,98E-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	8,89E+00	4,14E-02	3,12E+00	1,20E+01	5,83E-03	1,70E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,20E-04	4,56E-02	2,41E-04	1,31E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,23E+00	1,23E+00	0,00E+00	-1,23E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-7,70E-05
Total use of renew. PER	MJ	8,89E+00	4,14E-02	4,35E+00	1,33E+01	5,83E-03	-1,23E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,20E-04	4,56E-02	2,41E-04	1,31E-01
Non-re. PER as energy	MJ	4,70E+01	3,62E+00	1,81E+01	6,86E+01	5,17E-01	2,58E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,28E-02	2,61E-01	2,42E-02	-1,78E+00
Non-re. PER as material	MJ	0,00E+00	0,00E+00	6,52E-02	6,52E-02	0,00E+00	-6,52E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,01E-01
Total use of non-re. PER	MJ	4,70E+01	3,62E+00	1,81E+01	6,87E+01	5,17E-01	-3,94E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,28E-02	2,61E-01	2,42E-02	-1,68E+00
Secondary materials	kg	6,07E-01	1,02E-03	5,06E-02	6,58E-01	1,44E-04	3,27E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,02E-05	2,99E-04	5,45E-06	3,34E-01
Renew. secondary fuels	MJ	6,89E-04	9,75E-06	1,88E-02	1,95E-02	1,45E-06	2,07E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,04E-07	1,50E-05	1,53E-07	-7,70E-06
Non-ren. secondary fuels	MJ	4,76E-08	0,00E+00	0,00E+00	4,76E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	1,62E+00	4,64E-04	1,28E-02	1,63E+00	6,70E-05	2,47E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,43E-06	1,98E-04	2,64E-05	-1,24E-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	2,32E+00	4,62E-03	2,20E-02	2,34E+00	6,86E-04	2,84E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,64E-05	2,18E-03	0,00E+00	2,65E-02
Non-hazardous waste	kg	4,77E+00	7,55E-02	6,33E-01	5,48E+00	1,13E-02	3,96E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,58E-03	6,53E-02	1,60E-01	-5,47E-01
Radioactive waste	kg	9,90E-05	2,44E-05	1,74E-04	2,97E-04	3,46E-06	1,11E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,87E-07	1,51E-06	0,00E+00	5,58E-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	3,31E-03	0,00E+00	0,00E+00	3,31E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,81E-02	0,00E+00	3,97E-01	4,35E-01	0,00E+00	5,60E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,62E-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	2,04E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	9,45E-04	0,00E+00	0,00E+00	9,45E-04	0,00E+00	2,11E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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_2e	5,41E+00	1,52E-01	6,72E-01	6,23E+00	3,41E-02	8,53E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,80E-03	3,71E-02	1,63E-03	-2,46E-01
Ozone depletion Pot.	kg CFC_{-11}e	5,74E-05	2,83E-08	6,41E-08	5,75E-05	6,27E-09	2,05E-10	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,83E-10	1,95E-09	2,79E-10	-3,40E-08
Acidification	kg SO_2e	1,89E-02	6,03E-04	3,03E-03	2,25E-02	1,13E-04	1,12E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,59E-05	1,97E-04	6,34E-06	-2,72E-04
Eutrophication	kg PO_4^3e	6,91E-03	1,24E-04	8,39E-04	7,87E-03	2,58E-05	1,07E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,63E-06	6,69E-05	6,17E-05	-3,52E-04
POCP (“smog”)	kg C_2H_4e	1,02E-03	2,20E-05	1,55E-04	1,20E-03	4,42E-06	1,97E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,22E-07	7,46E-06	3,93E-07	-3,21E-04
ADP-elements	kg Sbe	1,27E-04	3,46E-07	2,10E-06	1,29E-04	7,82E-08	1,74E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,10E-08	2,54E-06	2,17E-09	1,37E-06
ADP-fossil	MJ	4,59E+01	2,31E+00	1,82E+01	6,65E+01	5,17E-01	2,58E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,28E-02	2,61E-01	2,42E-02	-1,83E+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