

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH
EN 15804+A2+AC,
ISO 14025,
ISO 21930

**GEBERIT DUOFIX ELEMENT FOR WALL-HUNG WC,
112 CM, WITH SIGMA CONCEALED CISTERN 12 CM**
Geberit International AG

EPD HUB, HUB-0259

Published: 02 February 2023

Last updated: 02 February 2023

Valid until: 02 February 2028

Created with One Click LCA 



GENERAL INFORMATION

MANUFACTURER

Manufacturer	Geberit International AG
Address	Schachenstrasse 77, CH-8645 Jona
Contact details	sustainability@geberit.com
Website	www.geberit.com

EPD STANDARDS, SCOPE AND VERIFICATION

Programme operator	EPD Hub, hub@epdhub.com
Reference standards	EN 15804+A2:2019+AC:2021 ISO 14025 ISO 21930
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Third-party-verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4 and D
EPD author	Georg Nauenburg
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	Elma Avdyli, 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 programmes 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	Geberit Duofix element for wall-hung WC, 112 cm, with Sigma concealed cistern 12 cm
Additional labels	-
Product reference	111.300.00.5
Place of production	Pfullendorf, Germany St. Egidien, Germany
Period for data	2021
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	22 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 piece Geberit Duofix element for wall-hung WC, 112 cm, with Sigma concealed cistern 12 cm
Declared unit mass	13.6 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	36.8
GWP-total, A1-A3 (kgCO ₂ e)	37.0
Secondary material, inputs (%)	41.2
Secondary material, outputs (%)	96.7
Total energy use, A1-A3 (kWh)	142.0
Total water use, A1-A3 (m ³ e)	0.471

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Geberit wants to play a leading role in the transition towards a sustainable sanitary industry. Sustainability has formed an integral component of the corporate strategy for more than 30 years. The Geberit Group has a group certificate in accordance with ISO 9001 (quality), ISO 14001 (environment) and ISO 45001 (occupational health and safety). The company prepared life cycle assessments for key products from an early stage, and eco-design has been an integral part of the product development process since 2007. You can find current and comprehensive information on sustainability in the current annual report or at <https://www.geberit.com/company/sustainability>

PRODUCT DESCRIPTION

Geberit Duofix elements are self-supporting installation elements for mounting sanitary appliances in drywall constructions. The elements are suitable for prewall and partition wall installation. The Geberit Duofix element for wall-hung WC, 112 cm, with Sigma concealed cistern 12 cm has an installation height of 112 cm and consists of a self-supporting, powder-coated frame with adjustable, galvanized foot supports. In addition, the Sigma concealed cistern has the following features:

- Two positions for water supply connection (rear or top centre)
- Assembly and maintenance work can be carried out without tools
- Protection cover for the service opening to protect against moisture and dirt
- Single or dual flush with adjustable flush volume
- Suitable for all Geberit Sigma actuator plates
- Actuation from the front
- Fully insulated against condensation
- Defined electrical connection position
- Conduit pipe for feed pipe for connection of Geberit AquaClean shower toilets

After installation, a wall-hung WC and an actuator plate can be mounted on the Geberit Duofix element (not part of the product). Further information is available in the local online catalogue.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	72	Europe
Minerals	-	-
Fossil materials	28	Europe
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	0.026

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 piece Geberit Duofix element for wall-hung WC, 112 cm, with Sigma concealed cistern 12 cm
Mass per declared unit	13.6 kg
Functional unit	-
Reference service life	50 years

REACH – SUBSTANCES OF VERY HIGH CONCERN (SVHC)

The product does not contain any REACH SVHC substances in amounts greater than 0.1 % (1000 ppm). Single components are made of brass and can therefore contain up to 2.5 % lead (EC Number: 231-100-4, CAS Number: 7439-92-1).

PRODUCT LIFE CYCLE

SYSTEM BOUNDARY

This EPD covers the life cycle modules listed in the following table.

Product stage			Construction stage		Use stage							End-of-life stage				Beyond 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	Installation	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 product consists of a metal frame, the cistern, assembly parts, a connection set and other components. The frame is made of hot-rolled steel that is powder-coated and has two feet attached for fixation on the floor. The cistern is made of blow-moulded high-density polyethylene and has a fill valve and a flush valve inside, which are assembled from several different injection-moulded plastic components. For the supply of raw materials, the total input of raw materials was mapped with corresponding European data. Further information on purchasing can be found in Geberit Annual Reports.

The transports from suppliers to Geberit are modelled based on material class-specific transport distances. The individual transport distances of each supplier are averaged according to the corresponding sales

volumes. Nearly all A2 transports are by lorry, however some components have also been transported by sea freight shipping before manufacturing. Transport by rail and air is not considered due to lack of relevance. On average, the transport distance from suppliers of raw and semifinished materials is about 450 km.

Metalworking and powder coating take place at the production site in St. Egidien, Germany. Blow moulding, injection moulding, assembly and packaging take place at the production site in Pfullendorf, Germany. Both Geberit plants are certified according to ISO 9001, ISO 14001, ISO 45001 and ISO 50001. A current ISO certificate can be downloaded from <https://www.geberit.com/>. Material and production-related losses of up to 7.5 % are included. Production waste from metalworking is collected and recycled externally. Production waste from plastic components manufacturing is recycled internally. The production and provision of packaging material and production auxiliaries are also modelled in A3. The manufacturing process is modelled with the specific electricity consumption measured in the plant. Around 80 % of electricity consumed in the Pfullendorf plant comes from a renewable source (hydro and wind power plants). The consumption of additional additives and water is negligible, i.e. it falls under the cut-off rules. The finished product is packaged with cardboard, labels, small foils and the installation instructions.

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.

Transport from Geberit to the customer within Europe is carried out by logistics partners via the modern, efficient Logistics Centre in Pfullendorf, Germany, which is certified according to ISO 9001, ISO 14001 and ISO 45001. Distribution to countries outside Europe is not taken into account.

The following information has been considered:

- The majority of transports within Europe are carried out by truck. Therefore, intercontinental transports by sea and air are not considered.
- The majority of vehicles in use are > 32 t Euro 6 class (> 80 %).

- The average transport distance in Europe from the production site to the Logistics Centre and to the consumer is approximately 950 km.

Further information on logistics can be found in Geberit Annual Reports. There are no relevant environmental impacts during installation. The installation of Geberit products is simple and requires practically no energy or additional auxiliary materials. Therefore, only the preparation of the waste treatment of packaging materials is taken into account in A5.

PRODUCT USE AND MAINTENANCE (B1-B7)

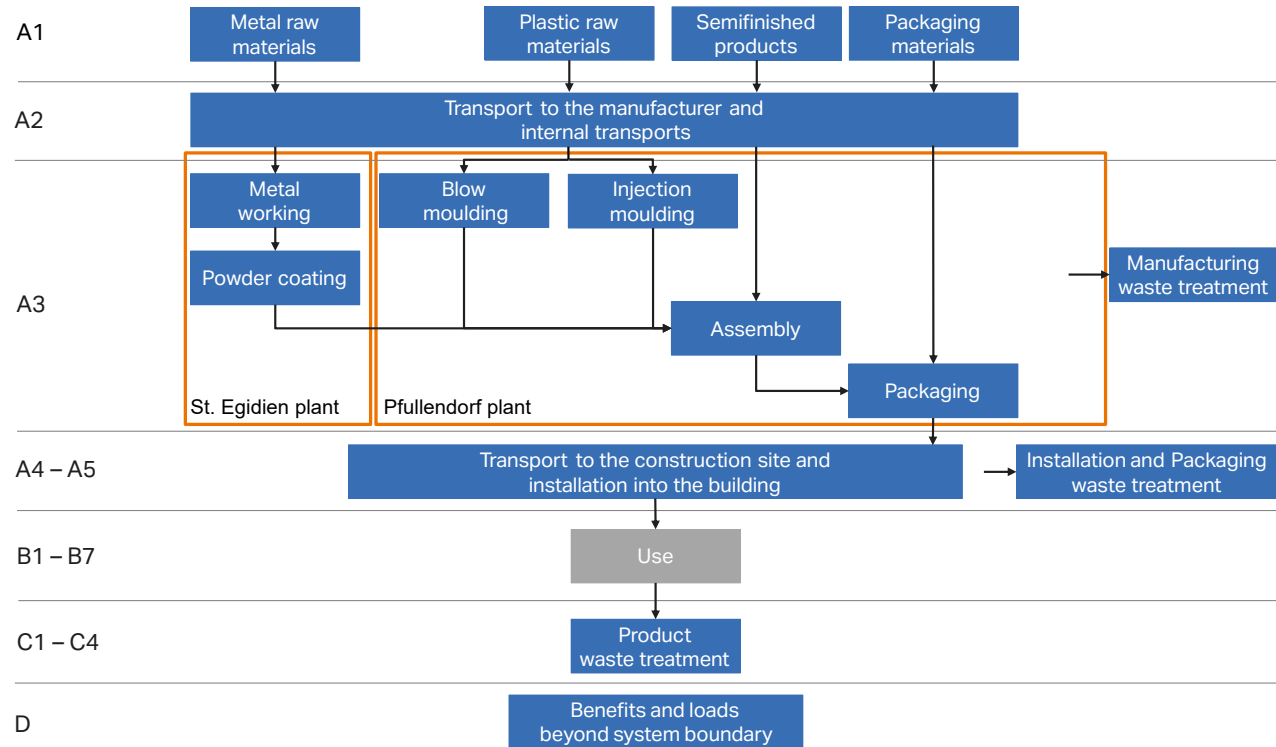
The product use and maintenance phases are not considered. Air, soil, and water impacts during the use phase have not been studied. The product does not consume any electricity in use, all components work mechanically. Periodic maintenance is not necessary. In use, the cistern is filled with water. The flush valve allows adjusting the flushing volume and can therefore be set to a small water volume per flush. Thus, the product can contribute to water saving. The frame and cistern have a lifetime of about 50 years, which usually exceeds the average time until sanitary rooms are renovated. The design of the cistern and valves allows for easy maintenance. Repair and replacement of the fill and flush valves are possible. There is a spare part warranty of up to 25 years that depends on the country of sale.

PRODUCT END-OF-LIFE (C1-C4, D)

Since the consumption of energy and natural resources is negligible for disassembling the end-of-life product, the impacts of demolition are assumed to be nearly zero (C1). The end-of-life product is assumed to be sent to the closest waste disposal facilities by lorry, which is assumed to be 50 km away (C2). It is generally assumed that all waste is collected and professionally separated after demolition on the construction site. The type of waste treatment is determined on the basis of the material class. Metal, paper and cardboard are recycled. All other material classes are disposed of in the municipal waste incineration plant (i.e. plastics) or the inert material landfill (residues not recycled). For recycled material classes, a general recycling efficiency of 95 % is assumed, meaning that for every 1 kg of recycled material (steel, paper, cardboard), 5 % goes to

landfill (C4), while 95 % goes to recycling and generates benefits (D). With 72 % metals in the product of which 95 % is recycled, the overall mass that can be recycled is about 9.4 kg (69 %). The secondary material content of the recycled material is considered in order to avoid overcounting of benefits in module D. Steel has a secondary material content of 54 %, paper of 1.5 % and cardboard of 57 % according to the data sets used for modelling. Plastics and elastomers are thermally recycled in a waste incineration plant, with energy and heat produced from their incineration (D). Waste of packaging and installation materials in A5 have benefits and loads that are considered in module D. Although the plastic components of the product are basically suitable for recycling due to their material properties, they are conservatively modelled with thermal recycling. The product is not biodegradable.

MANUFACTURING PROCESS



LIFE CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes that are stated as 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 with 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 use 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 made as per the reference standards and the applied PCR. In this study, allocations have been made in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	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	Not applicable
Variation in GWP-fossil for A1-A3	22 %

Primary data represents the manufacturing sites in St. Egidien, Germany and Pfullendorf, Germany. The data of a Geberit Duofix element for wall-hung WC, 112 cm, with Sigma concealed cistern 12 cm (art. no. 111.300.00.5) was chosen as a reference product. Products with an identical function and highly similar material composition are covered. The different articles are listed in Annex I. The variability of the primary data or the emissions between the different articles did not amount to more than 50 % in GWP-fossil. Variation in GWP-fossil for modules A1-A3 for the articles that are most different to the reference product are in the range of +22 % (44.8 kg CO₂e) and -7 % (34.2 kg CO₂e).

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using the One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards, ISO 14040 and ISO 14044. ecoinvent 3.6 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 ¹ –total	kg CO ₂ e	3,32E1	9,44E-1	2,84E0	3,7E1	1,22E0	1,75E-1	MND	MND	MND	MND	MND	MND	MND	3,3E-11	5,95E-2	1,1E1	2,23E-3	-1,85E1
GWP–fossil	kg CO ₂ e	3,3E1	9,43E-1	2,85E0	3,68E1	1,24E0	1,43E-1	MND	MND	MND	MND	MND	MND	MND	3,3E-11	5,94E-2	1,1E1	2,23E-3	-1,91E1
GWP–biogenic	kg CO ₂ e	2,45E-1	7E-4	-1,91E-2	2,26E-1	9,37E-4	3,26E-2	MND	MND	MND	MND	MND	MND	MND	9,17E-15	4,5E-5	-4,68E-3	6,27E-6	5,39E-1
GWP–luluc ²	kg CO ₂ e	2,39E-2	2,9E-4	9,05E-3	3,32E-2	3,88E-4	2,83E-5	MND	MND	MND	MND	MND	MND	MND	2,79E-15	1,87E-5	9,26E-4	5,54E-7	-6,49E-3
Ozone depletion pot.	kg CFC-11e	1,9E-6	2,27E-7	2,47E-7	2,37E-6	3,04E-7	1,14E-8	MND	MND	MND	MND	MND	MND	MND	7,12E-18	1,46E-8	2,4E-7	1,03E-9	-9,58E-7
Acidification potential	mol H ⁺ e	2,79E-1	3,48E-3	1,07E-2	2,93E-1	3,98E-3	4,31E-4	MND	MND	MND	MND	MND	MND	MND	3,45E-13	1,91E-4	1,18E-2	2,15E-5	-2,37E-1
EP ³ –freshwater	kg Pe	2,26E-3	7,84E-6	2,5E-4	2,52E-3	1,05E-5	1,35E-6	MND	MND	MND	MND	MND	MND	MND	1,33E-16	5,04E-7	2,84E-5	2,24E-8	-2,1E-3
EP–marine	kg Ne	3,56E-2	9,24E-4	3,06E-3	3,96E-2	8,74E-4	1,54E-4	MND	MND	MND	MND	MND	MND	MND	1,52E-13	4,2E-5	4,57E-3	7,88E-6	-2,24E-2
EP–terrestrial	mol Ne	5,45E-1	1,02E-2	3,11E-2	5,86E-1	9,72E-3	1,62E-3	MND	MND	MND	MND	MND	MND	MND	1,67E-12	4,67E-4	4,95E-2	8,68E-5	-2,8E-1
POCP ⁴ ('smog')	kg NMVOCe	1,51E-1	3,56E-3	7,06E-3	1,62E-1	3,82E-3	5,46E-4	MND	MND	MND	MND	MND	MND	MND	4,59E-13	1,83E-4	1,39E-2	2,49E-5	-9,3E-2
ADP–minerals & metals	kg Sbe	2,88E-2	1,64E-5	2,99E-5	2,89E-2	2,2E-5	2,51E-6	MND	MND	MND	MND	MND	MND	MND	5,03E-17	1,06E-6	2,14E-5	2,05E-8	-7,99E-3
ADP ⁵ –fossil resources	MJ	5,6E2	1,5E1	4,1E1	6,16E2	2,01E1	9,05E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-10	9,65E-1	2,3E1	6,92E-2	-2,07E2
Water use	m ³ e depr.	1,96E1	5,58E-2	6,66E-1	2,03E1	7,46E-2	1,09E-2	MND	MND	MND	MND	MND	MND	MND	8,46E-13	3,59E-3	7,52E-1	8,14E-4	-7,18E0

1) GWP = Global warming potential; 2) luluc = land use and land use change; 3) EP = Eutrophication potential; 4) POCP = Photochemical ozone creation potential; 5) ADP = Abiotic depletion potential

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	2,64E-6	8,4E-8	1,3E-7	2,85E-6	1,08E-7	7,86E-9	MND	MND	MND	MND	MND	MND	MND	9,14E-18	5,21E-9	2,28E-7	4,47E-10	-1,42E-6
Ionizing radiation	kBq U235e	1,08E0	6,55E-2	1,14E-1	1,26E0	8,78E-2	3,99E-3	MND	MND	MND	MND	MND	MND	MND	1,94E-12	4,22E-3	8E-2	2,97E-4	-7,26E-1
Ecotoxicity, freshwater	CTUe	1,9E3	1,15E1	1,75E2	2,08E3	1,53E1	1,61E0	MND	MND	MND	MND	MND	MND	MND	2,66E-10	7,37E-1	3,78E1	3,9E-2	-1,83E3
Human toxicity, cancer	CTUh	1,9E-7	2,91E-10	1,21E-9	1,91E-7	3,86E-10	7,53E-11	MND	MND	MND	MND	MND	MND	MND	9,53E-21	1,86E-11	2,43E-9	8,59E-13	-6,01E-8
Human tox. non-cancer	CTUh	3,17E-6	1,33E-8	2,99E-8	3,22E-6	1,75E-8	1,34E-9	MND	MND	MND	MND	MND	MND	MND	2,35E-19	8,42E-10	5,57E-8	2,4E-11	-4,88E-7
SQP ⁶	-	7,44E1	2,26E1	8,52E0	1,06E2	3,03E1	1,61E-1	MND	MND	MND	MND	MND	MND	MND	1,16E-11	1,46E0	9,07E0	1,21E-1	-4,25E1

6) SQP = Potential soil quality index

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 ⁷⁾ as energy	MJ	3,39E1	1,89E-1	2,57E1	5,99E1	2,53E-1	3,46E-2	MND	MND	MND	MND	MND	MND	MND	2,45E-12	1,21E-2	8,9E-1	1,01E-3	-4,57E1
Renew. PER as material	MJ	0E0	0E0	5,58E-1	5,58E-1	0E0	-5,58E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	-3,98E0
Total use of renew. PER	MJ	3,39E1	1,89E-1	2,63E1	6,04E1	2,53E-1	-5,24E-1	MND	MND	MND	MND	MND	MND	MND	2,45E-12	1,21E-2	8,9E-1	1,01E-3	-4,96E1
Non-ren. PER as energy	MJ	3,97E2	1,5E1	3,98E1	4,52E2	2,01E1	9,05E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-10	9,65E-1	2,3E1	6,92E-2	-2,07E2
Non-ren. PER as material	MJ	1,62E2	0E0	1,15E0	1,63E2	0E0	-1,15E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-1,62E2	0E0	0E0
Total use of non-ren. PER	MJ	5,6E2	1,5E1	4,1E1	6,16E2	2,01E1	-2,49E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-10	9,65E-1	-1,39E2	6,92E-2	-2,07E2
Secondary materials	kg	5,58E0	0E0	3E-2	5,61E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	3,71E0
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m ³	4,23E-1	3,12E-3	4,48E-2	0,471	4,18E-3	3,13E-4	MND	MND	MND	MND	MND	MND	MND	4,01E-14	2,01E-4	2E-2	7,82E-5	-1,57E-1

7) 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	7,68E0	1,46E-2	1,26E-1	7,82E0	1,95E-2	4,44E-3	MND	MND	MND	MND	MND	MND	MND	4,88E-13	9,37E-4	0E0	5,02E-5	-4,08E0
Non-hazardous waste	kg	1,27E2	1,61E0	9,44E0	1,38E2	2,16E0	1,27E-1	MND	MND	MND	MND	MND	MND	MND	5,22E-12	1,04E-1	0E0	4,92E-1	-1,2E2
Radioactive waste	kg	9,45E-4	1,03E-4	1,18E-4	1,17E-3	1,38E-4	5,54E-6	MND	MND	MND	MND	MND	MND	MND	3,18E-15	6,63E-6	0E0	4,69E-7	-6,52E-4

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 reuse	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,34E0	0E0	0E0
Materials for energy rec.	kg	0E0	0E0	2,25E-2	2,25E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	3,82E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	8,52E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1,18E2	0E0	0E0

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	3,14E1	9,34E-1	2,8E0	3,52E1	1,22E0	1,5E-1	MND	MND	MND	MND	MND	MND	MND	3,27E-11	5,89E-2	1,1E1	2,19E-3	-1,84E1
Ozone depletion pot.	kg CFC-11e	1,74E-6	1,8E-7	2,2E-7	2,14E-6	2,41E-7	9,31E-9	MND	MND	MND	MND	MND	MND	MND	5,63E-18	1,16E-8	2,01E-7	8,21E-10	-8,97E-7
Acidification	kg SO ₂ e	2,19E-1	1,96E-3	7,41E-3	2,28E-1	2,63E-3	3,2E-4	MND	MND	MND	MND	MND	MND	MND	4,87E-14	1,26E-4	4,87E-3	7,08E-6	-2,13E-1
Eutrophication	kg PO ₄ ³ e	9,82E-2	3,96E-4	7,79E-3	1,06E-1	5,3E-4	1,91E-4	MND	MND	MND	MND	MND	MND	MND	8,57E-15	2,55E-5	4,05E-3	1,36E-6	-8,78E-2
POCP ('smog')	kg C ₂ H ₄ e	1,62E-2	1,18E-4	4,4E-4	1,67E-2	1,51E-4	2,08E-5	MND	MND	MND	MND	MND	MND	MND	5,01E-15	7,26E-6	3,55E-4	5,54E-7	-1,18E-2
ADP-elements	kg Sbe	2,88E-2	1,64E-5	2,99E-5	2,89E-2	2,2E-5	2,51E-6	MND	MND	MND	MND	MND	MND	MND	5,03E-17	1,06E-6	2,14E-5	2,05E-8	-7,99E-3
ADP-fossil	MJ	5,6E2	1,5E1	4,1E1	6,16E2	2,01E1	9,05E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-10	9,65E-1	2,3E1	6,92E-2	-2,07E2

ANNEX I

ARTICLES COVERED BY THIS EPD

Article number	GWP-fossil, A1-A3 [kg CO ₂ e/item]
111.300.00.5	36.8
111.305.00.5	39.1
111.306.00.5	41.7
111.308.00.5	39.8
111.309.00.5	34.2
111.311.00.5	37.8
111.320.00.5	36.8
111.342.00.2	44.5
111.349.00.5	44.2
111.355.00.5	44.8
111.364.00.5	37.1
111.374.00.5	39.2
111.383.00.5	40
111.900.00.5	37.9

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier. The process involved reviewing results, documents and compliance with reference standards, ISO 14025, ISO 14040 and ISO 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 the One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

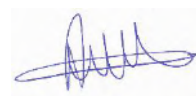
THIRD-PARTY VERIFICATION STATEMENT

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.



Elma Avdyli, as an authorized verifier acting for EPD Hub Limited

02.02.2023

