ENVIRONMENTAL PRODUCT DECLARATION

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

GEBERIT FLOWFIT PLASTIC FITTINGS

Geberit International AG

EPD HUB, HUB-0078
Publishing date 11 July 2022, last updated date 11 July 2022, valid until 11 July 2027

Created with One Click LCA

KNOW HOW INSTALLED

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 and ISO 14025
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	Geberit International AG
EPD verification	Independent verification of this EPD and data according to ISO 14025 ☐ Internal certification ☑ External verification
EPD verifier	Silvia Vilčeková, 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 FlowFit plastic fittings
Additional labels	-
Product reference	620.071.00.1
Place of production	Jona, Switzerland
Period for data	2021
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	4 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Geberit FlowFit plastic fitting
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	7.53
GWP-total, A1-A3 ($kgCO_2e$)	7.6
Secondary material, inputs (%)	13.4
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	34.3
Total water use, A1-A3 (m^3e)	0.0658

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Geberit is one of the pioneers when it comes to sustainability in the sanitary industry. Sustainability has formed an integral component of the corporate strategy for around 30 years. The Geberit Group has a group certificate in accordance with ISO 9001 (quality), ISO 14001 (environment) und ISO 45001 (occupational health and safety). Life cycle assessments have been produced for key products from an early stage, and ecodesign has been an integral component of the product development process since 2008. 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 FlowFit is a supply system consisting of pipes and fittings that are connected to permanently leakproof pipes by means of lateral pressing. The system pipes are multilayer pipes made of plastic and aluminium (Geberit system pipe ML) or polybutene pipes (Geberit system pipe PB). The pipes are connected by means of plastic fittings. Additionally, metal fittings can be used to connect to various other connections. A separate environmental product declaration has been created for each of these system elements.
Application purpose:

- for drinking water installations within buildings (Geberit system pipe PB and Geberit system pipe ML)
- for heating and cooling water installations within building structures (Geberit system pipe ML)

The Geberit FlowFit plastic fittings connect the Geberit system pipes ML and PB in various combinations. The main material is PPSU (polyphenylene sulphone). The pressing procedure permanently deforms the pressing unit (collet and pressing clamp) and pipe and presses them onto the fitting body so that they form a leakproof connection. During the pressing procedure, the pressing indicator is detached and disposed of as part of the packaging, together with the protective caps, in accordance with the regulations in force in the country of installation.
Further information can be found at www.geberit.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	33	Europe
Minerals	6	Europe
Fossil materials	61	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	0.00028

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of Geberit FlowFit plastic fitting
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

REACH – SUBSTANCES OF VERY HIGH CONCERN (SVHC)

The product does not contain any REACH SVHC 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			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 covers 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 is manufactured from polyphenylene sulfone (PPSU), glass fibre-reinforced polyamide (PA), polyoxymethylene (POM), ethylene propylene diene monomer rubber (EPDM) and steel. The finished product is packaged with protective caps (PE), stretch film, label, cardboard and thermal film. For the supply of raw materials, the total input of raw and recycled materials was mapped with corresponding European data, including material and production-related losses of 1 to 2.5 %.
The transports of suppliers to Geberit are modelled based on material class-specific transport distances; however, the individual transport distances of each supplier are averaged on the basis of sales. Transport by rail and air is not considered due to lack of relevance.
The products are manufactured in the Geberit plant in Jona, Switzerland, which is certified according to ISO 9001, ISO 14001 and ISO 45001. A current ISO certificate can be downloaded online. 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. 100 % of electricity consumed in the Jona plant comes from a renewable source (hydro-power plants). The consumption of additional additives and water is negligible, i.e. it falls under the cut-off rules.

TRANSPORT AND INSTALLATION (A4-A5)

Transport impacts occurred from final product delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, and 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 with ship and flight are neglected.
- The majority of vehicles in use are > 32 t Euroclass 5 and 6 (> 95 %).
- 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.

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.

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 zero (C1).
The end-of-life product is assumed to be sent to the closest facilities by lorry, which is assumed to be 50 km away (C2).

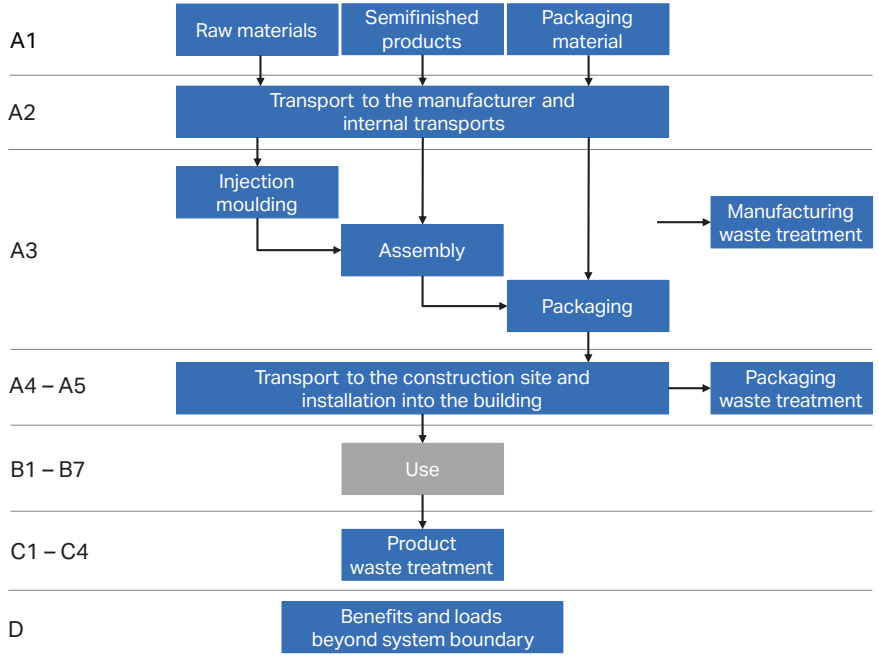
It is generally assumed that all waste is collected and professionally separated after demolition on the construction site. The type of waste treatment is determined on the basis of the material class. Metal, paper and cardboard are recycled. All other material classes are disposed of in the municipal 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 of every 1 kg of recycled material (steel, paper, cardboard), 5 % goes to landfill (C4), while 95 % goes to recycling and generates benefits (D). 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 17 %, paper of 1.5 % and cardboard of 57 % according to the ecoinvent 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 packaging materials in A5 have benefits and loads that are considered in module D. Although the plastics of the product are basically suitable for recycling due to their material properties, they are conservatively modelled with thermal recycling.

MANUFACTURING PROCESS

In the manufacturing process (A3), the fitting body, collet, pressing indicator and protective caps are produced in Jona, Switzerland, by injection moulding of the respective raw materials (PPSU, PA, POM, PE). The fittings are assembled together with the purchased O-rings and pressing clamps (semifinished products). After packaging, the finished product is ready for transport to the Logistics Centre in Pfullendorf, Germany, and afterwards to the customer.



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.

For easier modelling, and due to a lack of accuracy in available modelling resources, some constituents under 0.1 % of product mass are excluded. These include some additives that are present in the product only in very small amounts and have no serious impact on the emissions of the product.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. In this study, as per the reference standard, allocation is conducted in the following order:

- Allocation should be avoided.
- Allocation should be based on physical properties (e.g. mass and volume) when the difference in revenue is small.
- Allocation should be based on economic values.

In this study, allocation could not be avoided for energy consumption as the information was only measured on factory or production-process level. The inputs were allocated to the studied product based on annual production volume (mass). The values for 1 kg of product are calculated by considering the product composition and scaling it to 1 kg.

The transport distance for distribution was calculated as a sales-volume-based weighted average according to the percentage ratios for each destination point.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs.

All estimations and assumptions regarding the cut-off criteria and the allocation are declared in the 'Cut-off Criteria' section, except the estimations/assumptions below:

- Module A4: transport does not cause losses as products are packaged properly. Additionally, transport distance represents a conservative average, and a lorry is the assumed vehicle type used.
- Module A5: only the preparation of the waste treatment of packaging materials is taken into account.
- Module C2: transport distance to waste handling facility is estimated as 50 km and the transport method is assumed as lorry.
- Module C3, C4, D: the product undergoes separate collection and is treated according to material class. For cardboard, paper and steel, 95 % is assumed to be recycled and 5 % is landfilled. Ash from incineration processes is assumed negligible. The recycled end-of-life materials are assumed to serve as secondary raw materials in manufacturing, while the incinerated materials partly displace electricity and heat production.

Allocation used in environmental data sources is aligned with the above.

AVERAGES AND VARIABILITY

Primary data represents the manufacturing site in Jona, Switzerland. Different fittings with similar material composition but different design or weight are covered by averaging. The kg-based results for products and packaging can be scaled to the weight of each fitting. The different fittings are listed in Annex I. The data of a 90° bend fitting (article number 620.071.00.1) was used to calculate average impacts for the product. The variability of the primary data or the emissions between the different fittings did not amount to more than 50 % in GWP-fossil. Variation in GWP-fossil for modules A1-A3 for the product types that are most different to the average product are in the range +3 % (7.78 kg CO_2e/kg) and -4 % (7.3 kg CO_2e/kg).

The primary data was averaged by calculating a weighted average of the site's consumption of raw materials and energy, and production of waste.

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 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_2e	7,27E0	4,1E-2	2,93E-1	7,6E0	9,93E-2	5,42E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,55E-3	3,88E-1	8,44E-5	-6,51E-1
GWP–fossil	kg CO_2e	7,2E0	4,09E-2	2,91E-1	7,53E0	1E-1	4,76E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,54E-3	3,9E-1	8,42E-5	-6,59E-1
GWP–biogenic	kg CO_2e	6,69E-2	2,06E-5	1,18E-3	6,81E-2	7,27E-5	6,58E-3	MND	MND	MND	MND	MND	MND	MND	0E0	3,3E-6	-1,53E-3	1,67E-7	9,22E-3
GWP–luluc[2]	kg CO_2e	3,77E-3	1,44E-5	3,25E-4	4,11E-3	3,01E-5	2,69E-5	MND	MND	MND	MND	MND	MND	MND	0E0	1,37E-6	2,17E-4	2,5E-8	-1,36E-3
Ozone depletion pot.	kg $CFC_{-11}e$	5,57E-7	9,15E-9	9,92E-9	5,76E-7	2,35E-8	3,63E-9	MND	MND	MND	MND	MND	MND	MND	0E0	1,07E-9	3,09E-8	3,47E-11	-1,36E-7
Acidification potential	mol H^+e	3,5E-2	1,39E-4	1,11E-3	3,62E-2	4,21E-4	1,42E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,91E-5	1,25E-3	8E-7	-1,84E-2
EP[3]-freshwater	kg Pe	2,49E-4	3,81E-7	6,86E-6	2,56E-4	8,15E-7	7,88E-7	MND	MND	MND	MND	MND	MND	MND	0E0	3,7E-8	6,26E-6	1,02E-9	-1,54E-4
EP-marine	kg Ne	7,45E-3	3,36E-5	2,21E-4	7,7E-3	1,27E-4	4,38E-5	MND	MND	MND	MND	MND	MND	MND	0E0	5,75E-6	3,78E-4	2,75E-7	-2,18E-3
EP-terrestrial	mol Ne	6,35E-2	3,73E-4	2,37E-3	6,62E-2	1,4E-3	4,4E-4	MND	MND	MND	MND	MND	MND	MND	0E0	6,35E-5	4,13E-3	3,03E-6	-2,58E-2
POCP[4] ('smog')	kg NMVOCe	2,59E-2	1,29E-4	9,97E-4	2,7E-2	4,5E-4	1,44E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,04E-5	1,29E-3	8,81E-7	-8,11E-3
ADP-minerals & metals	kg Sbe	1,2E-4	9,61E-7	2,79E-6	1,24E-4	1,71E-6	6,31E-7	MND	MND	MND	MND	MND	MND	MND	0E0	7,75E-8	4,59E-6	7,7E-10	-1,04E-5
ADP[5]-fossil resources	MJ	1,22E2	6,16E-1	9,18E0	1,32E2	1,56E0	4,69E-1	MND	MND	MND	MND	MND	MND	MND	0E0	7,07E-2	3,9E0	2,36E-3	-2,93E1
Water use	m^3e depr.	5,75E0	2,36E-3	2,8E-1	6,04E0	5,79E-3	9,7E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,63E-4	7,88E-2	1,09E-4	-4,36E-1

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	3,98E-7	2,97E-9	1,11E-8	4,12E-7	9,06E-9	2,48E-9	MND	MND	MND	MND	MND	MND	MND	0E0	4,11E-10	2,34E-8	1,55E-11	-1,64E-7
Ionizing radiation	kBq U235e	1,6E-1	2,61E-3	7,44E-3	1,7E-1	6,81E-3	1,46E-3	MND	MND	MND	MND	MND	MND	MND	0E0	3,09E-4	1,22E-2	9,66E-6	-1,16E-1
Ecotoxicity, freshwater	CTUe	2,22E2	5,07E-1	5,1E0	2,28E2	1,19E0	5,21E-1	MND	MND	MND	MND	MND	MND	MND	0E0	5,4E-2	3,99E0	1,49E-3	-6,66E1
Human toxicity, cancer	CTUh	3,74E-8	1,32E-11	1,15E-10	3,75E-8	3,05E-11	4,95E-11	MND	MND	MND	MND	MND	MND	MND	0E0	1,38E-12	3,97E-10	3,52E-14	-2,77E-9
Human tox. non-cancer	CTUh	2,32E-7	5,39E-10	2,28E-9	2,35E-7	1,41E-9	7,03E-10	MND	MND	MND	MND	MND	MND	MND	0E0	6,4E-11	5,6E-9	1,09E-12	3,93E-8
SQP[6]	-	1,01E1	6,62E-1	2,77E-1	1,1E1	2,35E0	2,74E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,07E-1	2,22E0	4E-3	-2,91E0

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	7,58E0	7,25E-3	9,07E0	1,67E1	1,96E-2	2,29E-2	MND	MND	MND	MND	MND	MND	MND	0E0	8,9E-4	1,85E-1	1,9E-5	-7,05E0
Renew. PER as material	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	-1,28E-1
Total use of renew. PER	MJ	7,58E0	7,25E-3	9,07E0	1,67E1	1,96E-2	2,29E-2	MND	MND	MND	MND	MND	MND	MND	0E0	8,9E-4	1,85E-1	1,9E-5	-7,18E0
Non-ren. PER as energy	MJ	1,03E2	6,16E-1	3,35E0	1,07E2	1,56E0	4,69E-1	MND	MND	MND	MND	MND	MND	MND	0E0	7,07E-2	3,9E0	2,36E-3	-2,93E1
Non-ren. PER as material	MJ	1,94E1	0E0	5,83E0	2,52E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-ren. PER	MJ	1,22E2	6,16E-1	9,18E0	1,32E2	1,56E0	4,69E-1	MND	MND	MND	MND	MND	MND	MND	0E0	7,07E-2	3,9E0	2,36E-3	-2,93E1
Secondary materials	kg	1,1E-1	0E0	2,4E-2	1,34E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	2E-1
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	6,4E-2	1,15E-4	1,67E-3	6,58E-2	3,24E-4	1,4E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,47E-5	1,12E-3	2,58E-6	-7,57E-3

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	1,86E0	7,38E-4	9,08E-3	1,87E0	1,51E-3	2,52E-3	MND	MND	MND	MND	MND	MND	MND	0E0	6,87E-5	0E0	2,2E-6	-3,33E-1
Non-hazardous waste	kg	1,03E1	5,28E-2	2,94E-1	1,07E1	1,67E-1	6,6E-2	MND	MND	MND	MND	MND	MND	MND	0E0	7,6E-3	0E0	1,6E-2	-5,71E0
Radioactive waste	kg	1,36E-4	4,12E-6	6,39E-6	1,47E-4	1,07E-5	1,84E-6	MND	MND	MND	MND	MND	MND	MND	0E0	4,85E-7	0E0	1,56E-8	-1,09E-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	3,1E-1	0E0	0E0
Materials for energy rec.	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	6,71E-1	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	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_2e	6,81E0	4,06E-2	2,72E-1	7,12E0	9,93E-2	4,9E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,5E-3	3,81E-1	8,27E-5	-5,86E-1
Ozone depletion pot.	kg $CFC_{-11}e$	7,17E-7	7,27E-9	9,35E-9	7,34E-7	1,87E-8	3,01E-9	MND	MND	MND	MND	MND	MND	MND	0E0	8,49E-10	2,56E-8	2,75E-11	-1,19E-7
Acidification	kg SO_2e	2,92E-2	9E-5	9,15E-4	3,02E-2	2,04E-4	9,19E-5	MND	MND	MND	MND	MND	MND	MND	0E0	9,25E-6	6,98E-4	3,33E-7	-1,61E-2
Eutrophication	kg PO_4^3e	9,95E-3	1,92E-5	2,75E-4	1,02E-2	4,12E-5	1,04E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,87E-6	7,77E-4	6,45E-8	-4,84E-3
POCP ('smog')	kg C_2H_4e	2,4E-3	5,06E-6	8,89E-5	2,49E-3	1,29E-5	8,97E-6	MND	MND	MND	MND	MND	MND	MND	0E0	5,86E-7	6,61E-5	2,44E-8	-8,86E-4
ADP-elements	kg Sbe	1,2E-4	9,61E-7	2,79E-6	1,24E-4	1,71E-6	6,31E-7	MND	MND	MND	MND	MND	MND	MND	0E0	7,75E-8	4,59E-6	7,7E-10	-1,04E-5
ADP-fossil	MJ	1,22E2	6,16E-1	9,18E0	1,32E2	1,56E0	4,69E-1	MND	MND	MND	MND	MND	MND	MND	0E0	7,07E-2	3,9E0	2,36E-3	-2,93E1

ANNEX I

ARTICLES COVERED BY THIS EPD

Article number		Net weight [g/item]	GWP-fossil, A1-A3 [kg CO_2e/item]
620.010.00.1	Geberit FlowFit coupling PPSU	33	0.25
620.011.00.1		40	0.30
620.012.00.1		51	0.38
620.013.00.1		80	0.61
620.014.00.1		101	0.76
620.015.00.1		328	2.47
620.016.00.1		539	4.06
620.017.00.1		655	4.93
620.031.00.1		39	0.29
620.032.00.1		45	0.34
620.042.00.1	Geberit FlowFit reducer PPSU	49	0.37
620.033.00.1		64	0.48
620.043.00.1		70	0.53
620.034.00.1		77	0.58
620.044.00.1		81	0.61
620.054.00.1		97	0.73
620.035.00.1		215	1.62
620.045.00.1		225	1.69
620.036.00.1		338	2.54
620.046.00.1		454	3.42
620.037.00.1		410	3.09
620.047.00.1		518	3.90
620.057.00.1		626	4.71
620.062.00.1		61	0.46
620.063.00.1	Geberit FlowFit bend 45° PPSU	96	0.72
620.064.00.1		121	0.91
620.065.00.1		359	2.70
620.066.00.1		592	4.45
620.067.00.1		745	5.61
620.070.00.1	Geberit FlowFit bend 90° PPSU	39	0.29
620.071.00.1		49	0.37
620.072.00.1		65	0.49
620.073.00.1		102	0.76
620.074.00.1		137	1.03
620.075.00.1		402	3.02
620.076.00.1		660	4.97
620.077.00.1		818	6.16
620.080.00.1	Geberit FlowFit T-piece, equal PPSU	58	0.44
620.081.00.1		73	0.55
620.082.00.1		97	0.73
620.083.00.1		152	1.14
620.084.00.1		198	1.49
620.085.00.1		591	4.45
620.086.00.1		968	7.29
620.087.00.1		1193	8.98
620.101.00.1	Geberit FlowFit T-piece, reduced PPSU	63	0.47
620.111.00.1		64	0.48
620.121.00.1		60	0.45
620.131.00.1		68	0.51
620.102.00.1		82	0.61
620.112.00.1		86	0.64
620.122.00.1		92	0.70
620.132.00.1		80	0.60
620.142.00.1		89	0.67
620.103.00.1		115	0.86
620.113.00.1	Geberit FlowFit T-piece, reduced PPSU	117	0.88
620.123.00.1		106	0.80
620.133.00.1		123	0.93
620.143.00.1		132	1.00
620.104.00.1		151	1.14
620.114.00.1		161	1.21
620.124.00.1		182	1.37
620.105.00.1		325	2.45
620.115.00.1		407	3.06
620.125.00.1		432	3.25
620.135.00.1		451	3.40
620.106.00.1		637	4.79
620.116.00.1		665	5.01
620.126.00.1		688	5.18
620.136.00.1		837	6.30
620.107.00.1		778	5.86
620.117.00.1		811	6.11
620.127.00.1		837	6.31
620.137.00.1		998	7.51
620.147.00.1		1134	8.54
620.290.00.1	Geberit FlowFit adapter with MasterFix	34	0.26
620.291.00.1		38	0.29
620.490.00.1	Geberit FlowFit elbow adapter 90° with MasterFix	43	0.32
620.491.00.1		48	0.36
620.380.00.1		60	0.45
620.381.00.1	Geberit FlowFit T-piece adapter with MasterFix	66	0.49
620.391.00.1		71	0.54
620.382.00.1		78	0.59
620.392.00.1		87	0.65
620.780.00.1	Geberit FlowFit T-piece adapter with MasterFix	60	0.45
620.781.00.1		72	0.54

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.

Silvia Vilčeková, as an authorized verifier acting for EPD Hub Limited
11.07.2022

VERIFIED ISO 14025