ENVIRONMENTAL PRODUCT DECLARATION

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

GEBERIT FLOWFIT SYSTEM PIPE PB

Geberit International AG



EPD HUB, HUB-6978

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Created with One Click LCA

The Life Cycle Assessment has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24.03.2025) and JRC characterisation factors EF 3.1.

KNOW HOW INSTALLED

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Geberit International AG
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Website	www.geberit.com

EPD STANDARDS, SCOPE AND VERIFICATION

Programme operator	EPD Hub, hub@epdhub.com
Reference standards	EN 15804:2012+A2:2019/AC:2021 ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 March 2025 EN 16904 Product Category Rules (PCR) for plastics piping systems inside buildings
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, Corporate Sustainability
EPD verification	Independent verification of this EPD and data according to ISO 14025 ☐ Internal certification ☑ External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer retains the sole ownership of, 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 system pipe PB
Additional labels	-
Product reference	619.241.00.1
Place(s) of raw material origin	Europe
Place of production	Givisiez, Switzerland
Place(s) of installation and use	Europe
Period for data	01.01.2024 – 31.12.2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	1
A1-A3 Specific data (%)	2,73

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg Geberit FlowFit system pipe PB
Declared unit mass (kg)	1
Mass of packaging (kg)	0,028
GWP-fossil, A1-A3 ($kgCO_2e$)	2,73
GWP-total, A1-A3 ($kgCO_2e$)	2,7
Secondary material, inputs (%)	1,46
Total energy use, A1-A3 (kWh)	10,9
Total water use, A1-A3 (m^3)	0,04

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Geberit aims 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 ISO certificate in accordance with ISO 9001 (quality), ISO 14001 (environment) and ISO 45001 (occupational health and safety). The company has 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 comprehensive information on sustainability in the current annual report or at www.geberit.com/company/sustainability

PRODUCT DESCRIPTION

Geberit FlowFit system pipe PB is a single-layer plastic pipe made of polybutene, used as part of the Geberit FlowFit supply system for building services installations. The declaration covers Geberit FlowFit system pipes PB without insulation, supplied in coils in protective pipe in different nominal diameters and lengths. For potable-water applications, the pipes are supplied in grey. The pipes can be uniquely identified and traced via the printed production date. The EN/ISO standard, manufacturer, operating temperatures, pipe diameter and wall thickness are also indicated.

Geberit FlowFit system pipe PB consists of polybutene (PB). The pipe is characterised by high stability, chemical resistance, and corrosion resistance. Geberit FlowFit system pipes PB are available in diameters 14/16/20/25 mm. Temperature resistance is continuous for drinking water: 0–70 °C and for heating: up to 80 °C, at a maximum pressure of 10 bar. Short-term loads up to 95 °C for drinking water and 100 °C for heating are possible for a maximum of 100 hours over 50 years. With proper use, a service life of 50 years can be assumed, based on EN 806-2.

Geberit FlowFit system pipes PB are intended for use in residential, commercial, industrial, and public buildings. Typical applications include potable-water installations, compressed-air distribution, and vacuum systems. The technical specifications refer to EN ISO 21003-2 and EN 806-2 (potable water). In addition, country-specific test standards apply, including national and international sanitary and installation regulations, to demonstrate conformity and performance.

To optimally coordinate the functional areas, fittings, valves and fastening material are offered. For planning, the Geberit ProPlanner is available, which allows country-specific regulatory requirements to be considered during planning. For processing the FlowFit supply system, tools for pipe preparation (cutting, deburring, pressing) are offered. The tools are matched to the system and contribute to the overall functionality and reliability of the installation.

A Geberit FlowFit system pipe PB with an outer diameter of 20 mm, a length of 50 m, and article number 619.241.00.1 is used as the reference product. The environmental impacts declared in this EPD are based on this reference product and are representative for all product variants within the defined scope. This EPD applies a reference product–based grouping approach. The products included differ primarily in geometric parameters such as diameter and length, which result in different masses and material distributions per functional unit. All products included fulfil the same function and are manufactured using the same materials, production technology, and manufacturing site. The declared environmental impacts are therefore considered representative for all Geberit FlowFit system pipes PB within the scope of this declaration. The product description is consistent with the underlying LCA project report.

Specific net weight [kg per m]: 0.220

Further information is available in the local online product catalogue.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	0	-
Fossil materials	100	Europe
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	0,011

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg Geberit FlowFit system pipe PB
Mass per declared unit	1 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 % (1,000 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	ND	ND	ND	ND	ND	ND	ND	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

ND = Not declared.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impact taken into consideration for the product stage covers the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. The energy used by machines and handling of waste formed in the production processes at the manufacturing facilities are also included in this stage. Furthermore, the study takes into consideration the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilised in the factory.

The Geberit system pipe PB is made of polybutene (PB). Further information on supply chain sustainability and material procurement can be found in the Geberit Annual Report.

Transport from suppliers to Geberit is modelled based on material-specific transport distances. The individual transport distances of each supplier are averaged according to the corresponding purchased amounts. All A2 transports are carried out by lorry. Transport by rail, sea freight or air is not taken into consideration due to lack of relevance.

Pipe extrusion takes place at the production site in Givisiez, Switzerland. The Geberit plant is certified according to ISO 9001, ISO 14001 and ISO 45001. The current Group ISO certificate can be downloaded from https://www.geberit.com.

Material- and production-related losses are included. Manufacturing waste from the pipe extrusion process is collected and recycled externally. Manufacturing waste is transported to the closest waste disposal facilities by lorry, estimated to be 50 km away. The sources of electricity consumed in the Givisiez plant for the manufacturing process are modelled as 100 % renewable.

The production and provision of packaging material are modelled in A3. The finished product is packaged with cardboard and plastic foil. Other packaging materials fall under the cut-off rules.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

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

Transport from Geberit to customers 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 consideration due to lack of relevance.

The following information has been taken into consideration:

- Most transport within Europe is carried out by lorry, so intercontinental transport by sea and air is not taken into consideration.
- Most of the vehicles in use are > 32 t, Euro 6 class (> 85 %).
- The average transport distance in Europe from the production site to the Logistics Centre and to the customer is approximately 600 km.
- Capacity utilisation factor according to c-PCR

Further information on logistics can be found in the Geberit Annual Report. In A5, installation loss according to c-PCR was modelled and assumed to be recycled. Installation is carried out by a professional plumber. Detailed installation information is available. The preparation for waste treatment of packaging materials is included in A5. Plastic and cardboard are assumed to be partly incinerated, recycled and landfilled, according to Eurostat.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impact during the use phase has not been studied.
The product does not consume any electricity in use. Periodic maintenance is not necessary. Under conditions normally encountered in water supply pipes and fittings in buildings, Geberit FlowFit system pipes PB have a service life of at least 50 years (in accordance with EN 806-2).

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

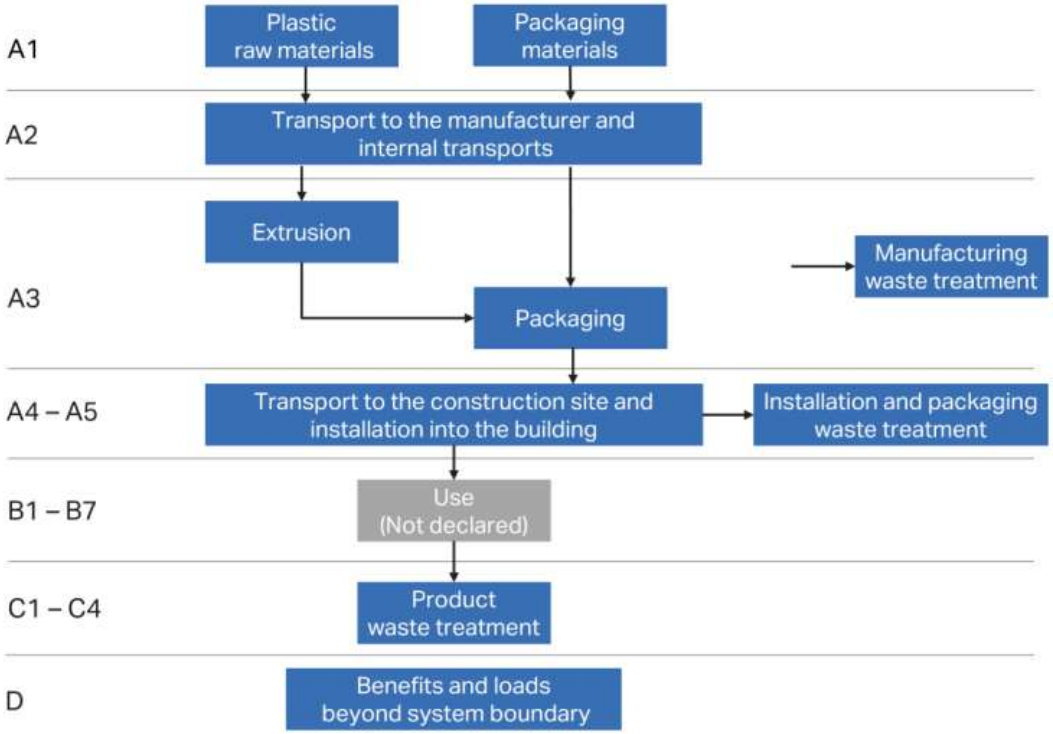
As the consumption of energy and natural resources for disassembling the product at its end-of-life is negligible, the impact of demolition is assumed to be zero (C1). The product reaches its end-of-life when the building is demolished or the bathroom renovated. The place of end-of-life is assumed to be identical to the place of installation (Europe).

It is assumed that all waste is collected and professionally separated after demolition at the construction site. The end-of-life product is transported by lorry to the closest waste disposal facilities, with an assumed transport distance according to the applicable c-PCR (C2).

The type of waste treatment is determined based on the material class. Furthermore, the properties of waste from sanitary systems and the respective current waste treatment technologies have been taken into consideration. Plastics are disposed of in a municipal waste incineration plant. Although the plastic components of the product are very well suited for recycling due to their material properties, they are conservatively modelled with thermal energy recovery (C3). The product is not biodegradable.

In Module D, benefits and loads beyond the system boundary are considered for material recycling and energy recovery at the end-of-life of the product (Modules C1–C4) and of packaging waste generated in Module A5. Energy recovery from incineration is modelled as part of the applied waste treatment background datasets. The recovered electricity and heat are assumed to substitute average European electricity (medium voltage) and European district or industrial heat production other than natural gas.

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.

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.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterisation factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

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	Not applicable
Manufacturing energy and waste	Physical Properties

A4: Transport distance represents a conservative average. The transport distance for distribution was calculated as a sales-volume based weighted average according to the percentage ratios for each destination point.

C2: Transport distance to waste handling facility is modelled according to cPCR.

C3, C4, D: 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.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	1

This EPD applies a grouping type “Multiple products”, as several highly similar articles are included. The applied grouping method is a reference product–based functional grouping. A Geberit FlowFit system pipe PB (art. no. 619.241.00.1) with an outer diameter of 20 mm and a length of 50 m is defined as the reference product.

The reference product represents all FlowFit system pipes PB with:

- the same technical function (distribution of potable water in building installations),
- identical material composition based on polybutene (PB),
- identical manufacturing process and a single manufacturing site.

Product variants within the group differ only in geometric parameters such as diameter, coil length (e.g. 25 m or 50 m), and packaging configuration. These variations result in minor differences in mass and material distribution per declared unit.

The average product group is technically characterised by a single-layer polybutene pipe with high chemical and corrosion resistance; environmental impacts are primarily driven by product mass per declared unit, while technical and functional properties remain identical across the product range.

A calculation was performed for minimum and maximum product variants. The resulting GWP-fossil values for A1–A3 show a variation below 1 % compared to the reference product. This minimal variation is caused by small differences in the proportion of pipe material and protective pipe and minor differences in packaging depending on diameter and coil length. The variation in GWP-fossil is determined based on differences in product mass and material composition between the minimum and maximum configurations and the reference product. Due to the very low variation, the declared results are considered representative for the entire product group.

Due to the applied grouping and averaging approach, this EPD is valid only for Geberit FlowFit system pipes PB within the defined product group and configuration boundaries and shall not be used for products made of different materials, production technologies, or manufacturing sites not included in this declaration. The declared results are valid for products manufactured at the declared production site in Europe and are not representative for products manufactured outside this geographical scope or under different energy supply and production conditions.

To calculate results for the reference product per meter or per item, the following scaling applies:

Article GWP-fossil per m = GWP-fossil/kg * specific weight per m

Article GWP-fossil per item = GWP-fossil/kg * specific weight per item

The specific weight per m or item can be found in technical datasheets available in local online product catalogues. To calculate results for other product variants in m or per item, scaling can be performed similarly.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'. EN 806-2 was used as an additional reference for the reference service life. Eurostat statistics have been applied to some waste treatment scenarios.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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	2,61E+00	6,97E-02	1,78E-02	2,70E+00	2,90E-01	1,45E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,86E-02	3,10E+00	0,00E+00	-2,41E+00
GWP–fossil	kg CO_2e	2,60E+00	6,97E-02	5,69E-02	2,73E+00	2,90E-01	1,04E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,85E-02	3,10E+00	0,00E+00	-2,40E+00
GWP–biogenic	kg CO_2e	1,56E-03	1,51E-05	-4,02E-02	-3,86E-02	6,34E-05	4,05E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,82E-05	5,77E-05	0,00E+00	0,00E+00
GWP–luluc[2]	kg CO_2e	1,49E-03	2,71E-05	1,14E-03	2,66E-03	1,13E-04	8,82E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,47E-06	8,52E-06	0,00E+00	-1,63E-03
Ozone depletion pot.	kg CFC_{-11}e	1,18E-07	1,45E-09	9,80E-10	1,20E-07	6,06E-09	3,92E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,22E-10	4,26E-10	0,00E+00	-2,10E-08
Acidification potential	mol H^+e	8,01E-03	1,64E-04	1,80E-04	8,35E-03	6,85E-04	2,99E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,16E-05	3,92E-04	0,00E+00	-1,73E-02
EP[3]-freshwater	kg Pe	4,95E-04	4,87E-06	1,82E-05	5,18E-04	2,03E-05	1,72E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,95E-06	4,29E-06	0,00E+00	-1,20E-03
EP-marine	kg Ne	1,57E-03	4,32E-05	7,99E-05	1,69E-03	1,80E-04	7,31E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,08E-05	1,92E-04	0,00E+00	-2,29E-03
EP-terrestrial	mol Ne	1,62E-02	4,67E-04	5,88E-04	1,72E-02	1,94E-03	6,72E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,35E-04	2,03E-03	0,00E+00	-2,38E-02
POCP[4] ('smog')	kg NMVOCe	1,42E-02	2,86E-04	1,77E-04	1,47E-02	1,19E-03	5,12E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,39E-04	4,97E-04	0,00E+00	-7,50E-03
ADP-minerals & metals	kg Sbe	2,31E-05	1,99E-07	2,25E-07	2,35E-05	8,30E-07	7,71E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,83E-08	7,92E-08	0,00E+00	-1,40E-06
ADP[5]-fossil resources	MJ	8,17E+01	1,05E+00	6,26E-01	8,34E+01	4,36E+00	2,73E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,05E-01	2,95E-01	0,00E+00	-2,97E+01
Water use[6]	m^3e depr.	6,99E-01	5,36E-03	9,93E-01	1,70E+00	2,23E-02	5,30E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,12E-03	7,23E-02	0,00E+00	-3,82E-01

1) GWP = Global warming potential; 2) luluc = land use and land use change; 3) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO_4e; 4) POCP = Photochemical ozone creation potential; 5) ADP = Abiotic depletion potential; 6) 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, EF 3.1

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	6,32E-08	6,80E-09	2,22E-09	7,22E-08	2,83E-08	3,59E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,28E-09	1,74E-09	0,00E+00	-1,71E-07
Ionizing radiation[7]	kBq U235e	2,09E-01	1,26E-03	4,31E-03	2,15E-01	5,25E-03	6,87E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,83E-04	3,09E-04	0,00E+00	-3,20E-01
Ecotoxicity, freshwater	CTUe	6,40E+00	1,23E-01	3,36E-01	6,86E+00	5,13E-01	3,31E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,41E-01	5,97E-01	0,00E+00	-3,95E+00
Human toxicity, cancer	CTUh	5,69E-10	1,16E-11	1,45E-11	5,95E-10	4,83E-11	2,33E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,88E-12	9,02E-11	0,00E+00	-4,68E-10

Human tox. non-cancer	CTUh	2,20E-08	6,76E-10	3,86E-10	2,31E-08	2,82E-09	9,03E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,53E-10	4,40E-09	0,00E+00	-1,96E-08
SQP[8]	-	7,32E+00	1,05E+00	1,12E+00	9,50E+00	4,39E+00	4,94E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,39E-01	7,65E-02	0,00E+00	-1,73E+01

7) EN 15804+A2 disclaimer for Ionising radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionising radiation on human health of the nuclear fuel cycle. It does not take into consideration effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionising radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 8) 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[9] as energy	MJ	2,25E+00	1,70E-02	2,82E+00	5,08E+00	7,10E-02	-2,65E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,59E-03	7,22E-03	0,00E+00	-5,90E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	3,46E-01	3,46E-01	0,00E+00	-3,46E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	2,25E+00	1,70E-02	3,16E+00	5,43E+00	7,10E-02	-6,11E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,59E-03	7,22E-03	0,00E+00	-5,90E+00
Non-ren. PER as energy	MJ	3,58E+01	1,05E+00	-2,85E+00	3,40E+01	4,36E+00	-1,09E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,05E-01	-3,87E+01	0,00E+00	-2,97E+01
Non-ren. PER as material	MJ	4,59E+01	0,00E+00	-3,31E+00	4,26E+01	0,00E+00	-8,61E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-4,25E+01	0,00E+00	0,00E+00
Total use of non-ren. PER	MJ	8,17E+01	1,05E+00	-6,16E+00	7,66E+01	4,36E+00	-1,95E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,05E-01	-8,12E+01	0,00E+00	-2,97E+01
Secondary materials	kg	1,46E-02	4,53E-04	2,70E-02	4,20E-02	1,88E-03	1,47E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,81E-04	4,60E-04	0,00E+00	5,91E-03
Renew. secondary fuels	MJ	1,21E-04	5,71E-06	2,58E-03	2,71E-03	2,38E-05	8,33E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,37E-06	2,79E-06	0,00E+00	-1,50E-05
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	1,83E-02	1,55E-04	2,32E-02	4,16E-02	6,43E-04	1,28E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,89E-05	5,50E-04	0,00E+00	-2,12E-02

9) 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	9,55E-02	1,51E-03	3,27E-03	1,00E-01	6,31E-03	3,79E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,80E-04	2,76E-02	0,00E+00	-2,04E-01
Non-hazardous waste	kg	2,35E+01	3,03E-02	1,14E-01	2,36E+01	1,26E-01	7,44E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,24E-02	1,07E+00	0,00E+00	-5,84E+00
Radioactive waste	kg	5,32E-05	3,12E-07	1,09E-06	5,46E-05	1,30E-06	1,75E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,19E-07	7,61E-08	0,00E+00	-8,20E-05

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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	8,00E-02	8,00E-02	0,00E+00	5,52E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	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	2,94E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,00E+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	2,24E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,30E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,31E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	2,57E+00	6,92E-02	5,87E-02	2,70E+00	2,88E-01	1,06E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,84E-02	3,10E+00	0,00E+00	-2,40E+00
Ozone depletion pot.	kg CFC_{-11}e	9,55E-08	1,16E-09	8,02E-10	9,75E-08	4,82E-09	3,17E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,96E-10	3,57E-10	0,00E+00	-1,79E-08
Acidification	kg SO_2e	6,62E-03	1,30E-04	1,33E-04	6,88E-03	5,43E-04	2,44E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,96E-05	2,73E-04	0,00E+00	-1,47E-02
Eutrophication	kg PO_4^{3}e	3,92E-03	3,26E-05	1,40E-04	4,10E-03	1,36E-04	1,36E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,82E-05	9,38E-05	0,00E+00	-1,27E-03
POCP ('smog')	kg C_2H_4e	1,00E-03	1,33E-05	1,39E-05	1,03E-03	5,54E-05	3,51E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,51E-06	1,69E-05	0,00E+00	-8,12E-04
ADP-elements	kg Sbe	2,28E-05	1,95E-07	2,20E-07	2,32E-05	8,11E-07	7,61E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,61E-08	6,15E-08	0,00E+00	-1,38E-06
ADP-fossil	MJ	7,81E+01	1,03E+00	5,50E-01	7,97E+01	4,27E+00	2,61E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,97E-01	2,90E-01	0,00E+00	-2,40E+01

ENVIRONMENTAL IMPACTS – FRENCH NATIONAL COMPLEMENTS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-elements	kg Sbe	2,28E-05	1,95E-07	2,19E-07	2,32E-05	8,11E-07	7,44E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,38E-06
Hazardous waste disposed	kg	9,55E-02	1,51E-03	3,27E-03	1,00E-01	6,31E-03	3,79E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,80E-04	2,76E-02	0,00E+00	-2,04E-01
Non-haz. waste disposed	kg	2,35E+01	3,03E-02	1,14E-01	2,36E+01	1,26E-01	7,44E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,24E-02	1,07E+00	0,00E+00	-5,84E+00
Air pollution	m^3	4,54E+02	1,60E+01	1,12E+01	4,81E+02	6,67E+01	1,81E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,31E+00	1,58E+01	0,00E+00	-9,60E+02
Water pollution	m^3	4,64E+01	5,73E-01	3,88E-01	4,74E+01	2,38E+00	1,55E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,51E-01	4,16E-01	0,00E+00	-1,35E+01

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[10]	kg CO_2e	2,61E+00	6,97E-02	5,80E-02	2,73E+00	2,90E-01	1,04E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,85E-02	3,10E+00	0,00E+00	-2,41E+00

10) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH_4 fossil, CH_4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO_2 is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity production, hydro, reservoir, alpine region, renewable energy products, Switzerland, Ecoinvent

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO6, 600.0 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	22
Bulk density of transported products	20,2
Volume capacity utilization factor	<1

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	-
Water use (m^3)	-
Ancillary materials: type and mass (kg)	-
Waste materials: type and mass (kg)	Product waste: 3 g plastic; Packaging waste: 2g Plastic film, 27g Cardboard
Waste materials: output routes	Product waste: 3g plastic 100% Recycling; Packaging waste: 2g Plastic film: 40% Recycling, 37% Incineration, 23% landfill; 27g Cardboard: 83% Recycling, 8% Incineration, 9% landfill
Direct emissions (kg)	-

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	Total End of Life mass of 1kg is assumed to be collected separately.
Collection process: Mixed waste (kg)	-
Recovery: re-use (kg)	0
Recovery: recycling (kg)	0
Recovery: energy recovery (kg)	1
Disposal (kg)	0
Scenario assumptions e.g. transportation (mode, km) & other	C2 assumptions according to cPCR

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub cannot identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
17.07.2026



EPD Hub
VERIFIED ISO 14025