



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Firestop wrap range
Hilti AG



EPD HUB, HUB-6075

Published on 17.04.2026, last updated on 17.04.2026, valid until 17.04.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.



Created with One Click LCA



GENERAL INFORMATION

MANUFACTURER

Manufacturer	Hilti AG
Address	Feldkircherstrasse 100, FL-9494, Schaan, Liechtenstein
Contact details	sustainability@hilti.com
Website	www.hilti.group

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options A4-A5 and modules C1-C4, D
EPD author	Joan Berzosa, Olga Guevara
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 for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. 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	Firestop wrap range
Additional labels	CP_648, CFS-W
Product reference	(Whole list of references, annex to the list of full list and scaling table)
Place(s) of raw material origin	Germany, China
Place of production	Hilti Plant 4a, Bavaria, Germany (city: commercially sensitive)
Place(s) of installation and use	Global
Period for data	2023
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	9,58

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of CP 648 product
Declared unit mass	1 kg
Mass of packaging	0,167923 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	1,78
GWP-total, A1-A3 (kgCO ₂ e)	1,67
Secondary material, inputs (%)	1,33
Secondary material, outputs (%)	7,5
Total energy use, A1-A3 (kWh)	7,8
Net freshwater use, A1-A3 (m ³)	0,04

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

The Hilti Group supplies the worldwide construction and energy industries with technologically leading products, systems, software and services. With about 34,000 team members in over 120 countries the company stands for direct customer relationships, quality and innovation. The headquarters of the Hilti Group have been located in Schaan, Liechtenstein, since its founding in 1941. The company is privately owned by the Martin Hilti Family Trust, which ensures its long-term continuity. The Hilti Group's purpose is making construction better, based on a passionate and inclusive global team and a caring and performance-oriented culture.

PRODUCT DESCRIPTION

Intumescent, flexible firestop wrap strip to help create a fire and smoke barrier around combustible pipe penetrations

Features:

- Quicker and easier installation – no hooks, anchors or drilling

- Installed inside the base material – ideal when space and access are limited

- Base materials: Concrete, Masonry, Gypsum

Density: 1.35g/cm³

The product has been tested, fulfils requirements and certified according to: CDPH V1.2 2017, School Classroom and Office Scenario: VOC Emissions, Certificate No.: 220713-02, 13.07.2022

AgBB VOC Emissions 05.08.2018

Belgian Royal Decree, VOC Emissions, 05.08.2018

French Regulation (order of April 2011), concerning the labelling of construction products or coverings of walls or floors and paints and varnishes on their emissions of volatile pollutants; Test Report No. 392-2018-00139201_B_03. 05.08.2018

Further information can be found at:

www.hilti.group

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	1	Europe
Minerals	30	Europe, Asia
Fossil materials	69	Europe, Asia
Bio-based materials	0	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,031364

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of CP 648 product
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

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	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x	Recycling	Recovery
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse		

Not declared = ND.

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.

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

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 manufacturing process is as follows: The raw materials are weighed and mixed and then applied via extrusion technology to the foil backing. At the end of the line, the inlay with foil is cut to the required length, coiled and dried before being packed and sent to the distribution centre.

The system boundaries regarding packaging consider the sales box. Due to variability, lack of data, potential deviations, and low contribution to the overall impacts, transport boxes are not considered in the system. Hence, the cardboard box present in the study as packaging is aimed at containing the product at direct sale point.

Transportation distances have been estimated based on location of the raw material supplier and manufacturer production site. The transportation via truck have been estimated with Google Maps (<https://www.google.es/maps>) while the transportation via container ship have been estimated with Sea Distances (<https://sea-distances.org/>).

For suppliers located in Europe, the transportation method is considered to be by truck. For suppliers located in China, two transportation legs are considered: one from Hong Kong port to Hamburg port via container ship and another one from Hamburg port to the manufacturer production site via truck.

The amounts of raw materials have been based on the bill of materials of

the final product and already consider production losses.

Regarding the manufacturing phase, there are two main energy requirements during production phase: electricity and natural gas. In the case of the electricity, its production is based on wind power, generated in Italy. Hence, the transmission network, inefficiencies derived from its transmission and production, and direct emissions to atmosphere have been considered. 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.

The main ancillary material is lubricating oil. Manufacturing waste of the production line has been allocated to all the products produced therein. Therefore, generic market datasets have been added as ancillary material inputs for closing the mass balance with wastes, as necessary: Paper has been added to balance the wastes derived from paper and cardboard, brass has been added to balance the wastes derived from metals, and lubricating oil has been added to balance the wastes derived from liquid wastes.

Due to a lack of information of specific packaging and ancillary materials suppliers, Market for datasets have been used, which already covers transportation distances and methods. In case of raw materials that might have different production routes, "market for processes have been implemented in case of having no further information.

Manufacturing waste treatment have been assumed based on common practice in Germany: approx. 75% recycling; approx. 20% incineration with energy recovery, and approx. 5% other (landfill, backfilling, underground storage).

Transportation distances of A3 waste have been assumed based on the closest recycling and incineration plants to the production site: 7 km to

recycling plant, 32 km to incineration plant, 35 km to landfill, and 280 km to hazardous waste incineration.

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 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.

Transportation impacts 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 to installation site considers both ship and road transport on an average assumption as explained in assumptions paragraph. A5 stage includes packaging materials released as a waste.

PRODUCT USE AND MAINTENANCE (B1-B7)

Emissions due to installation are excluded as they are considered negligible: a manual hand tool or a handheld cordless power tool is operated for approximately 10 seconds to complete the installation. The product is embedded within the building structure and therefore undergoes no routine maintenance. Air, soil, and water impacts during the use phase have not been studied.

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

PRODUCT END OF LIFE (C1-C4, D)

The energy needs during demolition are based on assumptions from Bozdag, Ö.; Seçer, M. 2007, detailed on assumptions paragraph. This description covers not only C1 activities, but also the transport to treatment

place (C2).

Assumptions for distance and transport method to waste processing are available in the Assumptions paragraph.

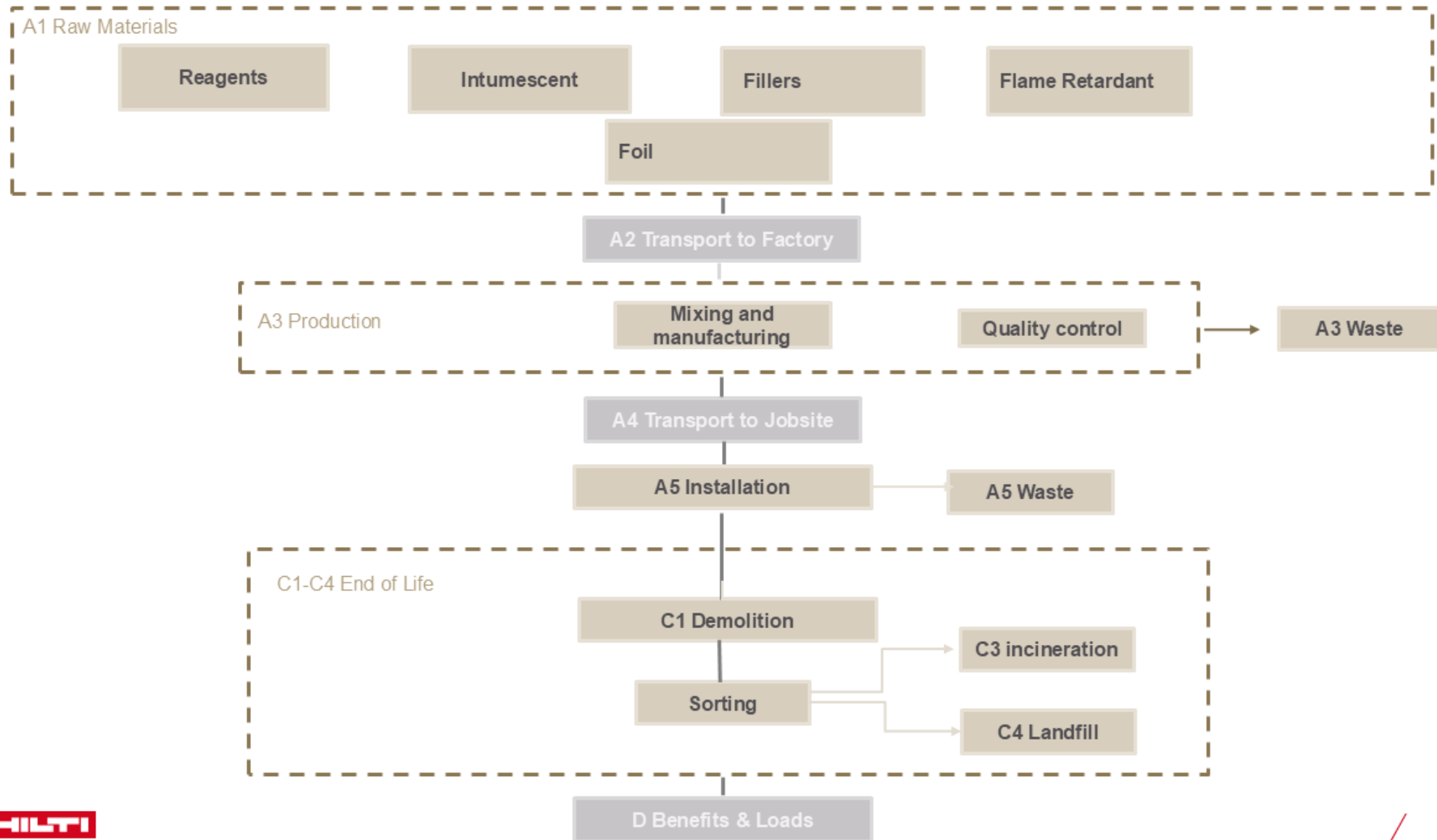
In the case of end of life of the product itself, a polymer end of life scenario process have been considered: 73% in recycling and recovery (7.5% recycling rate, 65.5% incineration rate) (C3), and the remaining 27% is disposed of in a landfill (C4) from Plastics Europe (<https://plasticseurope.org/knowledge-hub/plastics-the-facts-2020/>)

Regarding end of life of packaging, end of life share from Eurostat for cardboard and paper has been adopted, considering 83% of cardboard and paper recycled, 8% incinerated, and 9% landfilled (https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519259/default/table?lang=en).

In relation to plastic packaging end of life, Eurostat states 40% of the plastic waste is recycled, 37% is incinerated, and 23% is incinerated (https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519242/default/table?lang=en)).

The benefits and loads of incineration and recycling are included 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.

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 characterization 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 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 material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	-

The insulation products are manufactured at the Hilti location in Bavaria, Germany.

The information contained in the inventory is considered as representative for the following references under CP648 product naming: 304303, 304304, 304305, 304306, 304307, 304308, 304309, 429549,

429550, 429552, 429553, 429554, 429555, 429556, 304296, 304297,
304298, 304300, 304301, 304302, 304310, 2133384

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'.

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 – total ¹⁾	kg CO ₂ e	1,46E+00	1,42E-01	6,98E-02	1,67E+00	1,92E-01	1,22E-01	ND	ND	ND	ND	ND	ND	ND	3,61E-03	2,54E-02	1,83E+00	2,69E-02	-7,55E-01
GWP – fossil	kg CO ₂ e	1,46E+00	1,42E-01	1,77E-01	1,78E+00	1,92E-01	7,53E-03	ND	ND	ND	ND	ND	ND	ND	3,60E-03	2,54E-02	1,83E+00	2,69E-02	-7,37E-01
GWP – biogenic	kg CO ₂ e	1,28E-03	2,78E-05	-1,14E-01	-1,13E-01	3,84E-05	1,15E-01	ND	ND	ND	ND	ND	ND	ND	3,68E-07	5,03E-06	-1,34E-04	-1,83E-05	-1,11E-02
GWP – LULUC	kg CO ₂ e	2,34E-03	6,92E-05	7,05E-03	9,46E-03	9,27E-05	3,37E-06	ND	ND	ND	ND	ND	ND	ND	3,69E-07	8,97E-06	2,06E-05	3,93E-06	-6,92E-03
Ozone depletion pot.	kg CFC ₁₁ e	4,47E-08	2,07E-09	1,06E-08	5,73E-08	2,81E-09	6,17E-11	ND	ND	ND	ND	ND	ND	ND	5,52E-11	5,05E-10	1,65E-09	8,68E-11	-1,77E-08
Acidification potential	mol H ⁺ e	1,93E-02	2,07E-03	9,27E-04	2,23E-02	2,54E-03	2,47E-05	ND	ND	ND	ND	ND	ND	ND	3,25E-05	7,94E-05	1,89E-03	3,39E-05	-4,75E-03
EP-freshwater ²⁾	kg Pe	3,97E-04	8,21E-06	8,31E-05	4,88E-04	1,16E-05	1,36E-06	ND	ND	ND	ND	ND	ND	ND	1,04E-07	1,68E-06	9,19E-06	6,92E-07	-2,85E-04
EP-marine	kg Ne	1,17E-03	5,37E-04	2,99E-04	2,01E-03	6,65E-04	3,96E-05	ND	ND	ND	ND	ND	ND	ND	1,51E-05	2,68E-05	2,34E-03	5,59E-03	-7,66E-04
EP-terrestrial	mol Ne	1,47E-02	5,95E-03	2,27E-03	2,29E-02	7,35E-03	7,86E-05	ND	ND	ND	ND	ND	ND	ND	1,65E-04	2,91E-04	1,06E-02	1,35E-04	-7,67E-03
POCP (“smog”) ³⁾	kg NMVOCe	6,60E-03	1,75E-03	7,48E-04	9,10E-03	2,20E-03	2,99E-05	ND	ND	ND	ND	ND	ND	ND	4,93E-05	1,24E-04	2,52E-03	4,16E-05	-2,76E-03
ADP-minerals & metals ⁴⁾	kg Sbe	2,48E-05	2,85E-07	2,80E-06	2,79E-05	4,04E-07	3,94E-08	ND	ND	ND	ND	ND	ND	ND	1,29E-09	8,30E-08	2,05E-07	8,39E-09	-6,30E-06
ADP-fossil resources	MJ	2,85E+01	1,92E+00	2,74E+00	3,32E+01	2,62E+00	5,57E-02	ND	ND	ND	ND	ND	ND	ND	4,72E-02	3,56E-01	1,04E+00	8,06E-02	-1,60E+01
Water use ⁵⁾	m ³ e depr.	1,66E+00	7,88E-03	7,44E-02	1,75E+00	1,10E-02	1,55E-03	ND	ND	ND	ND	ND	ND	ND	1,18E-04	1,75E-03	1,30E-01	6,83E-04	-3,48E-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, 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	9,65E-08	9,90E-09	9,60E-09	1,16E-07	1,41E-08	3,32E-10	ND	ND	ND	ND	ND	ND	ND	9,25E-10	2,00E-09	3,38E-08	5,80E-10	-4,27E-08
Ionizing radiation ⁶⁾	kBq 11235a	1,29E-01	1,36E-03	1,80E-02	1,48E-01	1,91E-03	3,64E-04	ND	ND	ND	ND	ND	ND	ND	2,09E-05	4,55E-04	9,62E-04	1,81E-04	-3,89E-01
Ecotoxicity (freshwater)	CTUe	6,73E+00	2,21E-01	1,62E+00	8,57E+00	3,11E-01	1,97E-01	ND	ND	ND	ND	ND	ND	ND	2,60E-03	4,68E-02	4,70E+00	1,25E+00	-2,08E+01
Human toxicity, cancer	CTUh	7,19E-10	2,63E-11	9,56E-11	8,41E-10	3,51E-11	4,44E-12	ND	ND	ND	ND	ND	ND	ND	3,71E-13	4,33E-12	3,60E-10	3,33E-12	-1,22E-09
Human tox. non-cancer	CTUh	4,42E-08	9,42E-10	3,02E-09	4,82E-08	1,34E-09	2,35E-10	ND	ND	ND	ND	ND	ND	ND	5,87E-12	2,24E-10	6,12E-09	6,60E-10	-9,79E-09
SQP ⁷⁾	-	1,05E+01	1,24E+00	4,22E+00	1,59E+01	1,81E+00	4,14E-02	ND	ND	ND	ND	ND	ND	ND	3,30E-03	2,12E-01	1,86E-01	1,59E-01	-6,60E+00

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

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	1,65E+00	2,18E-02	3,80E-01	2,05E+00	3,05E-02	-2,65E+00	ND	ND	ND	ND	ND	ND	ND	2,99E-04	6,16E-03	2,21E-02	2,50E-03	-3,46E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,04E+00	1,04E+00	0,00E+00	-1,04E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,02E-01
Total use of renew. PER	MJ	1,65E+00	2,18E-02	1,42E+00	3,10E+00	3,05E-02	-3,69E+00	ND	ND	ND	ND	ND	ND	ND	2,99E-04	6,16E-03	2,21E-02	2,50E-03	-3,36E+00
Non-re. PER as energy	MJ	2,15E+01	1,92E+00	2,62E+00	2,60E+01	2,62E+00	7,14E-03	ND	ND	ND	ND	ND	ND	ND	4,72E-02	3,56E-01	-2,15E+01	-8,22E+00	-1,67E+01
Non-re. PER as material	MJ	1,48E+01	0,00E+00	6,56E-02	1,48E+01	0,00E+00	-6,56E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,08E+01	-3,98E+00	2,32E+00
Total use of non-re. PER	MJ	3,62E+01	1,92E+00	2,69E+00	4,08E+01	2,62E+00	-5,85E-02	ND	ND	ND	ND	ND	ND	ND	4,72E-02	3,56E-01	-3,23E+01	-1,22E+01	-1,44E+01
Secondary materials	kg	1,33E-02	8,56E-04	7,39E-02	8,80E-02	1,16E-03	9,29E-05	ND	ND	ND	ND	ND	ND	ND	1,96E-05	1,63E-04	4,12E-04	2,69E-05	7,72E-02
Renew. secondary fuels	MJ	7,16E-05	7,12E-06	7,00E-03	7,08E-03	1,03E-05	5,29E-07	ND	ND	ND	ND	ND	ND	ND	5,12E-08	2,06E-06	1,38E-05	4,72E-07	-3,60E-06
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	3,89E-02	2,24E-04	1,87E-03	4,10E-02	3,16E-04	-3,17E-05	ND	ND	ND	ND	ND	ND	ND	3,12E-06	4,80E-05	2,61E-03	-9,96E-04	-1,17E-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	1,24E-01	2,98E-03	1,18E-02	1,39E-01	4,11E-03	9,46E-04	ND	ND	ND	ND	ND	ND	ND	5,25E-05	5,11E-04	3,27E-02	1,95E-04	-5,62E-02
Non-hazardous waste	kg	3,51E+00	5,01E-02	3,33E-01	3,89E+00	7,02E-02	1,07E-01	ND	ND	ND	ND	ND	ND	ND	7,15E-04	1,08E-02	8,40E-01	1,35E+00	-1,82E+00
Radioactive waste	kg	3,18E-05	3,32E-07	4,53E-06	3,66E-05	4,67E-07	9,29E-08	ND	ND	ND	ND	ND	ND	ND	5,12E-09	1,13E-07	2,42E-07	4,43E-08	-8,60E-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 re-use	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	8,10E-04	8,10E-04	0,00E+00	1,39E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,50E-02	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	2,32E-03	2,32E-03	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
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,33E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,63E+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	3,03E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,21E+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	4,30E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	4,42E+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 ₂ e	1,45E+00	1,41E-01	1,88E-01	1,78E+00	1,91E-01	2,44E-02	ND	ND	ND	ND	ND	ND	ND	3,59E-03	2,52E-02	1,82E+00	2,58E-02	-7,40E-01
Ozone depletion Pot.	kg CFC ₁₁ e	3,68E-08	1,65E-09	8,01E-09	4,65E-08	2,23E-09	5,05E-11	ND	ND	ND	ND	ND	ND	ND	4,37E-11	4,02E-10	1,39E-09	6,97E-11	-1,53E-08
Acidification	kg SO ₂ e	1,69E-02	1,64E-03	7,31E-04	1,93E-02	2,02E-03	1,89E-05	ND	ND	ND	ND	ND	ND	ND	2,29E-05	6,03E-05	1,30E-03	2,41E-05	-3,95E-03
Eutrophication	kg PO ₄ ³ e	7,46E-02	2,09E-04	4,42E-04	7,52E-02	2,63E-04	2,80E-05	ND	ND	ND	ND	ND	ND	ND	5,34E-06	1,53E-05	6,66E-04	2,06E-04	-6,66E-03
POCP (“smog”)	kg C ₂ H ₄ e	1,20E-03	8,98E-05	6,45E-05	1,35E-03	1,12E-04	5,53E-06	ND	ND	ND	ND	ND	ND	ND	1,71E-06	5,75E-06	9,42E-05	5,15E-06	-3,76E-04
ADP-elements	kg Sbe	3,38E-05	2,79E-07	2,79E-06	3,69E-05	3,95E-07	3,86E-08	ND	ND	ND	ND	ND	ND	ND	1,26E-09	8,11E-08	1,63E-07	8,16E-09	-5,15E-06
ADP-fossil	MJ	2,64E+01	1,90E+00	2,43E+00	3,07E+01	2,59E+00	4,94E-02	ND	ND	ND	ND	ND	ND	ND	4,68E-02	3,49E-01	1,02E+00	7,77E-02	-1,04E+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 ⁹⁾	kg CO ₂ e	1,46E+00	1,42E-01	1,84E-01	1,79E+00	1,92E-01	7,53E-03	ND	ND	ND	ND	ND	ND	ND	3,61E-03	2,54E-02	1,83E+00	2,69E-02	-7,44E-01

9) 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 – CH₄ fossil, CH₄ 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 CO₂ is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Heat and power co-generation, natural gas, 1MW electrical, lean burn, Germany, Ecoinvent, 0.63 kgCO₂e/kWh
2. Electricity production, wind, 1-3MW turbine, onshore, Italy, Ecoinvent, 0.0203 kgCO₂e/kWh
3. Market for transmission network, electricity, high voltage direct current aerial line, Europe, Ecoinvent, 222932.68 kgCO₂e/km

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, sea, container ship, 6070,70 km
2. Market for transport, freight, lorry >32 metric ton, EURO5, 950 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	5,35E+03
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.062 kg
2. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.071 kg
3. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 0.0059 kg
4. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 5.8E-4 kg
5. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 0.0068 kg
6. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 0.0067 kg

7. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 6.5E-4 kg
8. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 0.0077 kg
9. Exported Energy: Electricity, Ecoinvent, 0.012 MJ
10. Exported Energy: Electricity, Ecoinvent, 0.003 MJ
11. Exported Energy: Electricity, Ecoinvent, 0.0013 MJ
12. Exported Energy: Electricity, Ecoinvent, 0.014 MJ
13. Exported Energy: Thermal, Ecoinvent, 0.017 MJ
14. Exported Energy: Thermal, Ecoinvent, 0.0042 MJ
15. Exported Energy: Thermal, Ecoinvent, 0.0018 MJ
16. Exported Energy: Thermal, Ecoinvent, 0.02 MJ
17. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 4.8E-4 kg
18. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 4.4E-4 kg
19. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 2.8E-4 kg
20. Treatment of waste paper, unsorted, sorting, Ecoinvent, Materials for recycling, 0.006 kg

End-of-life scenario documentation - C1-C4 (Data source)

Scenario information	Value
Collection process – kg collected separately	-
Collection process – kg collected with mixed waste	-
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0.075
Recovery process – kg for energy recovery	0.66
Disposal (total) – kg for final deposition	0.27
Scenario assumptions e.g. transportation	Transport to waste processing by 16-32 metric ton lorry (Euro 5), assumes 250 km to recycling, 150 km to incineration, and 50 km to landfill

1. Market for diesel, burned in building machine, Ecoinvent 3.10.1, 0.01 kWh
2. Treatment of waste polyurethane seal, sorting plant, Ecoinvent, Materials for recycling, 0.075 kg
3. Treatment of waste polyurethane, municipal incineration, Ecoinvent, 0.66 kg
4. Exported Energy: Electricity, Ecoinvent, 3.21 MJ
5. Exported Energy: Thermal, Ecoinvent, 4.42 MJ
6. Treatment of waste polyurethane, sanitary landfill, Ecoinvent, 0.27 kg

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 is not able to 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

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
17.04.2026

