

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

FS One Max / CFS-FIL Intumescent Firestop Sealant
Hilti AG





EPD HUB, HUB-3482

Published on 10.06.2026, last updated on 10.06.2026, valid until 09.06.2031

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	Siti Nur Syaza Abdul Rahman, Hilti AG
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour 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	FS One Max / CFS-FIL Intumescent Firestop Sealant
Additional labels	-
Product reference	2101535, 2101534, 2101536, 2052899
Place(s) of raw material origin	Germany
Place of production	Kaufering, Germany
Place(s) of installation and use	Global
Period for data	Calendar year 2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	+/- 48%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	7,32

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of FS One Max / CFS-FIL Intumescent Firestop Sealant
Declared unit mass	1 kg
Mass of packaging	0,019 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	0,99
GWP-total, A1-A3 ($kgCO_2e$)	0,98
Secondary material, inputs (%)	1,51
Total energy use, A1-A3 (kWh)	4,42
Net freshwater use, A1-A3 (m^3)	0,02

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

FS One Max/CFS-FIL is a water-based, intumescent firestop sealant designed to protect both combustible and non-combustible penetrations for up to four hours. Suitable for a wide range of applications, it effectively seals common through penetrations in concrete, masonry, and drywall, including metal pipes (copper, steel, EMT), insulated metal pipes, and plastic pipes, whether closed or vented. This versatile, easy-to-use, and cost-effective solution is paintable, ethylene glycol-free, and offers industry-leading low VOC emissions.

FS-One Max and CFS-FIL have been assessed and are certified according to the Cradle to Cradle Certification Scheme achieving rating Bronze. They have also been tested and fulfil requirements for VOC Emissions according to California Department of Public Health (CDPH) Standard Method v1.2-2017, VOC Content according to SCAQMD Rule 1168 (fulfilling VOC Limit Value for "All Other Architectural Sealants), AgBB (Auschuß für die gesundheitliche Bewertung von Bauprodukten (Stand:2018), Belgian Royal Decree establishing threshold levels for the emissions to the indoor environment from construction products for specific purposes and achieved Class A+ according to the French VOC Labelling and CMR Emissions regulation.

The product density is 1,35 ±1 g/cm³.

Further information can be found at www.hilti.group

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	1,5	Germany
Minerals	39,6	Germany
Fossil materials	58	Germany
Bio-based materials	0,3	Germany

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,00158
Biogenic carbon content in packaging, kg C	0,00

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of FS One Max / CFS-FIL
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		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

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 product is a proprietary chemical formulation packaged in foil packaging (that comprises oriented polypropylene (OPP) film laminated with aluminum foil bonded using laminating adhesive and complemented by aluminum clips) or plastic. The raw materials are sourced throughout Germany (transport assumed to be 400 km by truck), except for graphite from a third party (assumed distance of 400 km by truck and 1,200 km by ship) prior to transport to Hilti's production facility in Kaufering, Germany, where the main manufacturing processes include mixing, assembly and packaging. The finished product is packaged before being sent to the installation site.

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 distance is defined according to the PCR. A sales-weighted average transport distance from the production plant in southern Germany to a representative place of installation in each sales region is used for A4 (equating to 950 km by truck and 6,076 km by container ship for this product due to its global distribution). Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. To be conservative, empty returns are included in this study as implemented through an average load factor in the Ecoinvent transport datapoints. Transportation does not cause losses as products are

packaged properly. Also, volume capacity utilization factor is assumed to be 1 for the nested packaged products. Disposal of the packaging, including some residual product within, is accounted for in A5. Emissions due to installation are assumed to be negligible as they are typically performed using simple manual tools which do no consume energy.

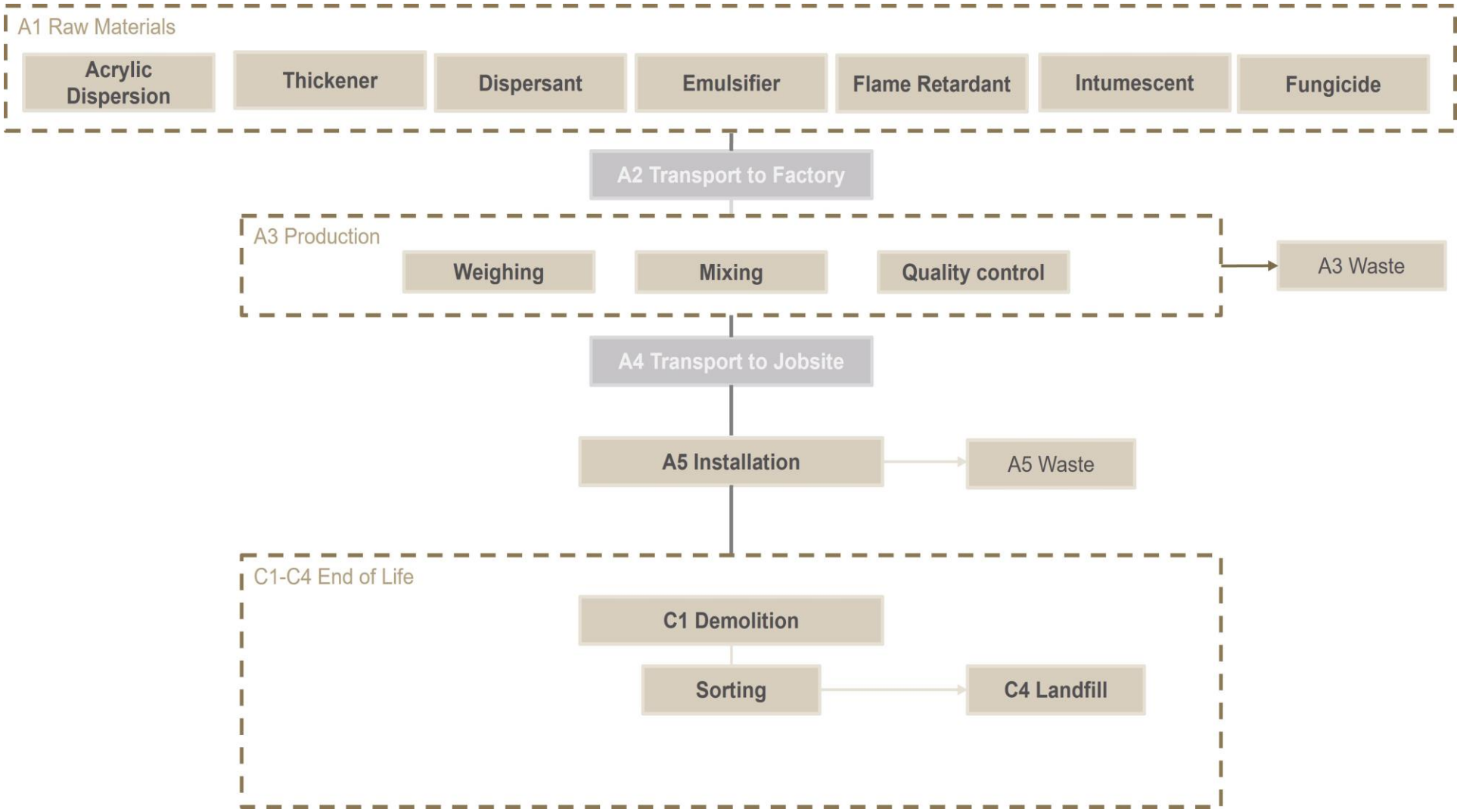
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Consumption of energy and natural resources in demolition process is assumed to be negligible. As a wet-applied chemical formulation which cannot be economically separated from the concrete to which it is applied, it is assumed that the product must be disposed of entirely in landfill. Transportation distance to landfill is assumed as 50 km and the transportation method is assumed to be lorry (C2). The benefits and loads of packaging recycling are included in Model 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.

This LCA study includes the provision of all materials, transportation, energy, and emission flows, and end-of-life processing of product. All industrial processes from raw material acquisition, pre-processing, production, product distribution, installation and end-of-life management are included. Due to lack of data, no ancillary materials data are included in the model, but they do not exceed the 1% cut-off criteria. These include materials which are used in the product manufacturing only in very small amounts and have a negligible impact on the emissions of the product. The production of capital equipment, construction activities, 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	No allocation
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	+/- 48%

FS One Max/CFS-FIL is available in multiple packaging variants: a foil packing, plastic cartridge or plastic pail. The chemical formulation, manufacturing

processes and locations remain identical in every case. The version in a foil packing is used as the representative product for this EPD as it accounts for the clear majority of sales, and the variability in GWP-fossil for A1-A3 is within the allowed range. All product variants were assessed separately and in full in order to document this.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 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_2e	8,60E-01	4,37E-02	8,06E-02	9,85E-01	2,49E-01	1,47E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,39E-03	0,00E+00	1,21E-02	-3,84E-02
GWP – fossil	kg CO_2e	8,62E-01	4,37E-02	8,04E-02	9,86E-01	2,48E-01	1,46E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,38E-03	0,00E+00	6,24E-03	-3,76E-02
GWP – biogenic	kg CO_2e	-3,35E-03	9,83E-06	1,25E-04	-3,22E-03	4,67E-05	6,69E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,22E-06	0,00E+00	5,81E-03	0,00E+00
GWP – LULUC	kg CO_2e	1,35E-03	1,96E-05	3,29E-05	1,40E-03	9,96E-05	1,52E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,41E-06	0,00E+00	3,57E-06	-8,13E-04
Ozone depletion pot.	kg CFC-$_{11}$e	1,71E-08	6,45E-10	4,59E-10	1,82E-08	4,62E-09	2,35E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,95E-11	0,00E+00	1,81E-10	-2,98E-10
Acidification potential	mol H^+e	1,37E-02	1,61E-04	3,00E-04	1,42E-02	2,86E-03	1,73E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,84E-05	0,00E+00	4,43E-05	-3,04E-04
EP-freshwater[2)]	kg Pe	2,61E-04	3,38E-06	5,47E-06	2,70E-04	1,43E-05	2,91E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,19E-07	0,00E+00	5,13E-07	-1,15E-05
EP-marine	kg Ne	6,77E-04	5,18E-05	6,72E-05	7,96E-04	8,85E-04	1,84E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,03E-06	0,00E+00	1,69E-05	-3,88E-05
EP-terrestrial	mol Ne	6,75E-03	5,64E-04	7,23E-04	8,04E-03	9,74E-03	1,85E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,56E-05	0,00E+00	1,84E-04	-3,99E-04
POCP ("smog")[3)]	kg NMVOCe	4,42E-03	2,27E-04	2,31E-04	4,88E-03	2,92E-03	8,07E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,70E-05	0,00E+00	6,60E-05	-1,46E-04
ADP-minerals & metals[4)]	kg Sbe	1,12E-05	1,21E-07	1,92E-07	1,16E-05	6,68E-07	1,25E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,50E-08	0,00E+00	9,92E-09	-6,14E-08
ADP-fossil resources	MJ	1,60E+01	6,33E-01	1,15E+00	1,77E+01	3,39E+00	2,17E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,81E-02	0,00E+00	1,53E-01	-3,60E-01
Water use[5)]	m^3e depr.	7,31E-01	3,12E-03	2,61E-02	7,60E-01	1,50E-02	7,83E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,86E-04	0,00E+00	4,42E-04	-3,08E-02

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	7,43E-08	4,34E-09	9,29E-10	7,96E-08	2,16E-08	1,06E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,39E-10	0,00E+00	1,01E-09	-4,13E-09
Ionizing radiation[6]	kBq U235e	1,01E-01	5,49E-04	1,21E-03	1,03E-01	3,68E-03	1,08E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,80E-05	0,00E+00	9,63E-05	-3,22E-03
Ecotoxicity (freshwater)	CTUe	8,16E+00	8,92E-02	2,92E-01	8,54E+00	4,01E-01	9,28E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,10E-02	0,00E+00	1,29E-02	-9,10E-02
Human toxicity, cancer	CTUh	4,81E-10	7,23E-12	1,26E-11	5,01E-10	8,36E-11	6,11E-12	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,88E-13	0,00E+00	1,15E-12	-4,62E-11
Human tox. non-cancer	CTUh	2,05E-08	4,08E-10	2,06E-10	2,12E-08	2,27E-09	2,45E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,06E-11	0,00E+00	2,64E-11	-3,21E-10
SQP[7]	-	6,32E+00	6,32E-01	1,02E-01	7,05E+00	1,61E+00	9,78E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,87E-02	0,00E+00	3,02E-01	-4,79E-02

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	1,21E+00	8,64E-03	9,31E-01	2,15E+00	5,10E-02	2,23E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-03	0,00E+00	1,48E-03	-2,82E-01
Renew. PER as material	MJ	4,26E-02	0,00E+00	0,00E+00	4,26E-02	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-4,26E-02	0,00E+00
Total use of renew. PER	MJ	1,26E+00	8,64E-03	9,31E-01	2,20E+00	5,10E-02	2,23E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-03	0,00E+00	-4,12E-02	-2,82E-01
Non-re. PER as energy	MJ	1,21E+01	6,33E-01	1,02E+00	1,38E+01	3,39E+00	1,75E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,81E-02	0,00E+00	1,53E-01	-3,60E-01
Non-re. PER as material	MJ	6,87E+00	0,00E+00	1,30E-01	7,00E+00	0,00E+00	-1,30E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-6,87E+00	1,70E-03
Total use of non-re. PER	MJ	1,90E+01	6,33E-01	1,15E+00	2,08E+01	3,39E+00	-1,13E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,81E-02	0,00E+00	-6,72E+00	-3,58E-01
Secondary materials	kg	1,51E-02	2,70E-04	2,50E-04	1,56E-02	1,56E-03	1,76E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,32E-05	0,00E+00	3,85E-05	4,93E-03
Renew. secondary fuels	MJ	8,51E-05	3,40E-06	1,23E-04	2,11E-04	1,59E-05	2,42E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,22E-07	0,00E+00	7,97E-07	-1,26E-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	1,94E-02	9,31E-05	4,81E-04	2,00E-02	4,04E-04	1,95E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,15E-05	0,00E+00	1,59E-04	-6,62E-04

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	8,36E-02	1,07E-03	1,65E-03	8,63E-02	4,76E-03	9,44E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,32E-04	0,00E+00	1,69E-04	-1,22E-02
Non-hazardous waste	kg	4,64E+00	1,98E-02	7,87E-02	4,74E+00	9,27E-02	6,55E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,45E-03	0,00E+00	3,87E-03	-4,88E-02
Radioactive waste	kg	3,11E-05	1,34E-07	4,30E-05	7,43E-05	9,12E-07	7,56E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,67E-08	0,00E+00	2,35E-08	-7,01E-07

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	0,00E+00	0,00E+00	0,00E+00	4,77E-03	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	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	7,30E-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 – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,10E-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 –	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,20E-03	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	1,09E+00	4,35E-02	7,91E-02	1,21E+00	2,47E-01	1,69E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,35E-03	0,00E+00	6,19E-03	-3,79E-02
Ozone depletion Pot.	kg $CFC_{-11}e$	1,79E-08	5,15E-10	3,88E-10	1,88E-08	3,68E-09	2,30E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,34E-11	0,00E+00	1,44E-10	-2,56E-10
Acidification	kg SO_2e	2,99E-02	1,23E-04	2,47E-04	3,03E-02	2,21E-03	3,26E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,40E-05	0,00E+00	3,28E-05	-2,61E-04
Eutrophication	kg PO_4^3e	6,83E-03	2,86E-05	3,85E-04	7,25E-03	3,49E-04	7,65E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,41E-06	0,00E+00	1,04E-05	-1,87E-05
POCP (“smog”)	kg C_2H_4e	2,02E-03	1,06E-05	1,87E-05	2,05E-03	1,35E-04	2,20E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,25E-06	0,00E+00	3,10E-06	-2,42E-05
ADP-elements	kg Sbe	1,43E-05	1,18E-07	1,84E-07	1,46E-05	6,53E-07	1,56E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,46E-08	0,00E+00	9,72E-09	-5,17E-08

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-fossil	MJ	1,88E+01	6,24E-01	1,05E+00	2,05E+01	3,33E+00	2,44E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,70E-02	0,00E+00	1,52E-01	-3,13E-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_2e	8,64E-01	4,37E-02	8,05E-02	9,88E-01	2,48E-01	1,46E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,38E-03	0,00E+00	6,25E-03	-3,84E-02

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. Electricity production, wind, 1-3MW turbine, onshore, Norway, Ecoinvent, 0.0151 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry 16-32 metric ton, EURO3, 950 km
2. Market for transport, freight, sea, container ship, 6076 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Volume capacity utilization factor	1

Installation at the building site (A5) - Scenario documentation

1. Treatment of metal scrap, mixed, for recycling, unsorted, sorting, Ecoinvent, 0.0044 kg
2. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.001 kg
3. Treatment of inert waste, inert material landfill, Ecoinvent, 0.01 kg
4. Exported energy: Thermal, Ecoinvent, 0.0042 MJ
5. Exported energy: Electricity, Ecoinvent, 0.0031 MJ
6. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.0032 kg
7. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 0.00049 kg
8. Treatment of waste polyethylene, recycling, unsorted, sorting, Ecoinvent, 0.00037 kg

End of life (C1-C4) - Scenario documentation

1. Treatment of inert waste, inert material landfill, Ecoinvent, 1 kg

Scenario information	Value
Scenario assumptions e.g. transportation (mode, km) & other	Transported 50 km by truck to local recycling station

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

Yazan Badour as an authorized verifier for EPD Hub Limited 10.06.2026

