ENVIRONMENTAL PRODUCT DECLARATION

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

Pass-through seals
VILPE Oy

EPD HUB, HUB-3109
Published on 28.03.2025, last updated on 28.03.2025, valid until 27.03.2030

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GENERAL INFORMATION

MANUFACTURER

Manufacturer	VILPE Oy
Address	Kauppatie 9, FI-65610 Mustasaari
Contact details	sales@vilpe.com
Website	https://www.vilpe.com/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
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	Milja Sarapaa, VILPE Oy
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

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	Pass-through seals
Additional labels	
Product reference	
Place of production	Mustasaari, Finland
Period for data	2023 (Calendar year)
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	-31% +19%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	4,34E+00
GWP-total, A1-A3 ($kgCO_2e$)	3,65E+00
Secondary material, inputs (%)	8,04
Secondary material, outputs (%)	23
Total energy use, A1-A3 (kWh)	27,5
Net freshwater use, A1-A3 (m^3)	0,08

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

VILPE Oy is a Finnish family-owned company that develops and manufactures ventilation and roofing solutions for the construction industry. The company's operations are based on customer-oriented and innovative product development. Our high quality VILPE® products bring better indoor air quality, energy efficiency and longevity of structures to all spaces and thus improve people's quality of life. VILPE represents safe construction and living, which reinforces the company's commitment to quality and reliability.

PRODUCT DESCRIPTION

Aerial Sleeve 12-100: Pass-through seal for a Ø 12/19/25/38/50/60/75/90/100 mm aerial pipe, mast, cable or roof bollard installed on a roof. In addition to the stepped EPDM rubber seal, the set contains a plastic collar and a clamp. The plastic collar should be installed onto a VILPE pass-through set which has been selected according to the roofing material. The flexible rubber cone permits some movement of the aerial pipe, and ensures a watertight seal between the pass-through and the roof. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas.

Pipe Sealing 110–155: Pass-through seal for a Ø 110-155 mm pipe, mast, cable or roof bollard installed on a roof. In addition to the stepped EPDM rubber sealing, the set contains a plastic collar and a clamp. The plastic collar should be installed onto a VILPE pass-through set which has been selected according to the roofing material. The flexible rubber cone permits some movement of the pipe, and ensures a watertight seal between the pass-through and the roof. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas.

Felt Roof Seal: Pass-through seal for round pipes installed on a felt roof. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with hot bitumen or open flame between two felt layers. A separately available Clamp should also purchased, and selected based on the size of the pipe. Pass-through seals are recommended to use on flat roofs (max. 11,5° slope).

R-Felt Set: Pass-through seal for round pipes installed on a felt roof while retrofitting. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with hot bitumen or open flame between two felt layers. Pass-through seals are recommended to use on flat roofs (< 11,5° slope)

RHS Seal: Pass-through seal for square pipes installed on a felt roof. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with hot bitumen or open flame between two felt layers. A separately available RHS Clamp RST A2 should also purchased, and selected based on the size of the pipe. Pass-through seals are recommended to use on flat roofs (< 11,5° slope).

Roof Seal Set: Pass-through seal for different kinds of pipes (e.g. mountings for billboards and flagpoles or electrical wires) installed on a metal roof. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with hot bitumen or open flame between two felt layers. Pass-through seals are recommended

to use on flat roofs (< 11,5° slope). Dimensions: Available in 6 different sizes with diameters 12-521 mm.
Roof Seal Retrofitting Set: Pass-through seal for different kinds of pipes (e.g. mountings for billboards and flagpoles or electrical wires) installed on a metal roof while retrofitting. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with hot bitumen or open flame between two felt layers. Pass-through seals are recommended to use on flat roofs (< 11,5° slope). Dimensions: Available in 2 sizes with diameters of 10-100 and 100-230 mm.
Vapour Barrier Seal: Vapour barrier seal for pipes installed through the vapour barrier on an inclined or low-pitched roof. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with bitumen or open flame if a roof's vapour barrier is made of bitumen, and with a board made of hard material on top of the vapour barrier valve if a roof's underlay material is made of profiled sheet metal. Pass-through seals are recommended to use on flat roofs (< 11,5° slope). Dimensions: Height 33 mm.
Tall Vapour Barrier Seal: Tall vapour barrier seal for pipes installed through the vapour barrier on an inclined or low-pitched roof. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with bitumen or open flame if a roof's vapour barrier is made of bitumen, and with a board made of hard material on top of the vapour barrier valve if a roof's underlay material is made of profiled sheet metal. Pass-through seals are recommended to use on flat roofs (< 11,5° slope). Dimensions: Height 133 mm.
PVC Roof Seal: Optimal for sealing round pipes on PVC roofs. Examples of applications are ventilation discharge pipes, roof poles, sewerage vent pipes, signboard or flagpole bases, aerial sleeves, the external suspension tie-rods of the roof as well as railings. Made of coloured polyvinyl chloride (PVC). Should be installed with hot air welding. Pass-through seals are recommended to use on flat roofs (< 11,5° slope). Dimensions: For duct sizes Ø 12-100 mm and 110-160 mm.
RHS-Felt Retrofitting Seal 80-150: Pass-through seal for square pipes installed on a felt roof while retrofitting. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with hot bitumen or open flame between two felt layers. Pass-through seals are recommended to use on flat roofs (< 11,5° slope).
Roofseal: Pass-through seal for different kinds of pipes (e.g. mountings for billboards and flagpoles or electrical wires) installed on a metal roof. The weather- and ozone-resistant properties of EPDM rubber are the best possible, and it can endure continuous heat stress of +90°C (and intermittently up to +150°C). EPDM rubber also tolerates the acids and alkalis often found in the air in industrial areas. Should be installed with hot bitumen or open flame between two felt layers. Pass-through seals are recommended to use on flat roofs (< 11,5° slope). Dimensions: Available in 6 different sizes with diameters 12-521 mm.
XL Pipe sealing 175–250: For leading antennas, flagpoles and other pipes and bollards through the roof. Stepped EPDM rubber, installed on a separately available VILPE XL pass-through. The pass-through is chosen according to the roofing material. Dimensions: For duct sizes Ø 175/200/225/250 mm.

Further information can be found at https://www.vilpe.com/.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	23 %	China
Minerals		
Fossil materials	77 %	EU
Bio-based materials		

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	
Biogenic carbon content in packaging, kg C	0,19091

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
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	MND	MND	MND	MND	MND	MND	MND	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

Modules not declared = MND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Pass-throuhg seals of VILPE Oy are packed at the Mustasaari site in Finland. Some product components are manufactured at the factory using injection molding and most of the components are sourced from subcontractors. The production process consists of raw material delivery, injection molding, quality inspection, and packaging. During injection molding, the raw material is plasticized, injected into the mold, cooled, and removed from the mold. Some assembly is automated. Production requires electricity, heat, and water. Slightly less than 10% of the electricity comes from the production facility's own solar power plant, and until the end of 2023, the rest is from general electricity, after which it will be nuclear electricity. The waste heat from the machines is directed to a heat recovery center and used for building heating. The cooling water is in a closed loop. The material requirement and generated waste vary depending on the size of the product. Production waste is recycled in the process for other products.

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.

The average distribution distance is calculated as a weighted average of the significant sales volumes. Products are transported in full pallets. During installation, the disposal of packaging material is included in the estimate. Pass-throuhg seals are packed in cardboard boxes and some also in plastic bags. The amount of packaging material varies slightly depending on the type and size of the pass-throuhg seal. After installation, the packaging material is transported by truck to a recycling facility. The average distance to a recycling facility in Finland has been used. Scenario estimates have employed average recycling methods and practices. The energy consumption during installation, mainly consisting of the use of a drill, has been excluded from the calculations as it is assumed to be insignificant per examined product unit.

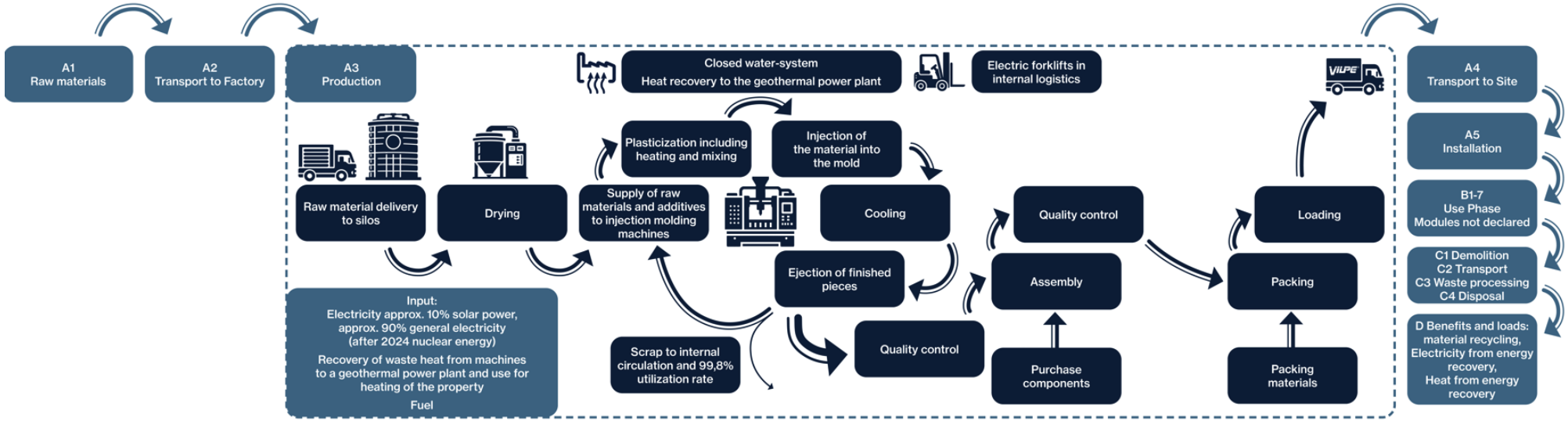
PRODUCT USE AND MAINTENANCE (B1-B7)

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)

The end-of-life stage consists of the following modules:
C1: Deconstruction of the product
C2: Transportation of the discarded product
C3: Waste processing
C4: Disposal
The end-of-life scenario represents the most likely option in Finland. The average distance to waste treatment facilities in Finland has been used for waste transportation distance. The end-of-life scenario is based on the recycling practices available in Finland. After disposal, it is assumed that the polypropylene of the exhaust ventilation will be incinerated and metal parts are recycled. Due to the energy usage possibilities of the product and packaging, recycled raw material leads to the avoidance of virgin material while energy recovery at the incineration plant displaces electricity and heat production.

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.

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

AVERAGES AND VARIABILITY

Type of average	Multiple products
Averaging method	Representative product
Variation in GWP-fossil for A1-A3	-31% +19%

The average was calculated for 49 pass through seals, and to ensure adequate precision in the range of variation, 11 products were selected for the analysis. These products represent different size categories and the extremes in terms of packaging content scope. The product that most accurately reflected the average characteristics was designated as the representative product.

The majority of the products are sourced through subcontracting and packaged in Mustasaari. However, the primary material is comparable across the products, with the most significant differences arising in size, weight, and packaging materials. The intended use of the products is consistent, aligning with the requirements of the averaging methodology.

The transportable mass, including packaging materials, varies across the products due to differences in their dimensions. While the end-of-life stages are broadly similar, variations occur based on the quantity of packaging material, product size, and specific components included with the products.

The analysis concluded that all products fall within the same average range for A1–A3 Global Warming Potential (GWP).

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. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases 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 – total[1)]	kg CO_2e	3,87E+00	2,27E-01	-4,51E-01	3,65E+00	1,59E-01	7,10E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,69E-03	2,44E+00	0,00E+00	1,14E+00
GWP – fossil	kg CO_2e	3,87E+00	2,27E-01	2,47E-01	4,34E+00	1,59E-01	1,03E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,69E-03	2,44E+00	0,00E+00	1,25E+00
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-7,00E-01	-7,00E-01	0,00E+00	7,00E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,15E-01
GWP – LULUC	kg CO_2e	1,90E-03	1,02E-04	1,32E-03	3,32E-03	6,52E-05	6,43E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,73E-06	1,77E-05	0,00E+00	-7,01E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1,36E-07	5,02E-08	3,13E-08	2,17E-07	3,51E-08	1,31E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,08E-09	5,38E-09	0,00E+00	-6,85E-08
Acidification potential	mol H^+e	1,41E-02	2,32E-03	1,30E-03	1,77E-02	6,78E-04	5,96E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,99E-05	3,76E-04	0,00E+00	-9,76E-03
EP-freshwater[2)]	kg Pe	8,84E-05	1,64E-06	1,38E-05	1,04E-04	1,34E-06	2,12E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,84E-08	6,75E-07	0,00E+00	-8,64E-05
EP-marine	kg Ne	2,54E-03	6,08E-04	5,16E-04	3,67E-03	1,97E-04	4,49E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,90E-06	1,43E-04	0,00E+00	-1,35E-03
EP-terrestrial	mol Ne	2,77E-02	6,74E-03	3,81E-03	3,82E-02	2,17E-03	2,25E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,51E-05	1,54E-03	0,00E+00	-1,58E-02
POCP ("smog")[3)]	kg NMVOCe	8,87E-03	1,89E-03	1,10E-03	1,19E-02	6,59E-04	7,04E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,08E-05	3,80E-04	0,00E+00	-5,06E-03
ADP-minerals & metals[4)]	kg Sbe	1,22E-05	5,27E-07	2,31E-06	1,50E-05	5,53E-07	6,17E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,10E-08	3,50E-07	0,00E+00	-6,31E-06
ADP-fossil resources	MJ	9,53E+01	3,26E+00	1,20E+01	1,10E+02	2,31E+00	1,20E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,05E-02	3,84E-01	0,00E+00	-1,75E+01
Water use[5)]	m^3e depr.	7,91E-01	1,36E-02	2,26E-01	1,03E+00	1,01E-02	9,43E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,15E-04	6,97E-02	0,00E+00	-1,07E-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, 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	1,98E-07	2,09E-08	2,31E-08	2,42E-07	1,35E-08	8,79E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,41E-10	2,10E-09	0,00E+00	-9,60E-08
Ionizing radiation[6)]	kBq U235e	3,07E-01	1,54E-02	4,77E-01	8,00E-01	1,07E-02	1,15E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,36E-04	2,23E-03	0,00E+00	-1,33E-01
Ecotoxicity (freshwater)	CTUe	5,08E+01	2,79E+00	1,00E+01	6,36E+01	2,12E+00	2,35E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,34E-02	4,67E+00	0,00E+00	-3,44E+01
Human toxicity, cancer	CTUh	4,87E-09	8,97E-11	7,10E-10	5,67E-09	5,98E-11	1,65E-11	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,56E-12	3,74E-11	0,00E+00	2,15E-09
Human tox. non-cancer	CTUh	2,68E-08	2,59E-09	4,28E-09	3,37E-08	1,97E-09	4,18E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,27E-11	1,80E-09	0,00E+00	-1,76E-08
SQP[7)]	-	8,97E+00	2,90E+00	4,51E+01	5,70E+01	1,59E+00	1,47E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,12E-02	3,23E-01	0,00E+00	-2,95E+01

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	3,18E+00	3,43E-02	4,27E+00	7,49E+00	2,70E-02	1,00E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,94E-04	2,30E-02	0,00E+00	-4,07E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	6,13E+00	6,13E+00	0,00E+00	-6,13E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,44E+00
Total use of renew. PER	MJ	3,18E+00	3,43E-02	1,04E+01	1,36E+01	2,70E-02	-6,12E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,94E-04	2,30E-02	0,00E+00	-5,51E+00
Non-re. PER as energy	MJ	7,66E+01	3,26E+00	1,17E+01	9,15E+01	2,31E+00	1,20E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,05E-02	3,84E-01	0,00E+00	-1,75E+01
Non-re. PER as material	MJ	1,87E+01	0,00E+00	3,01E-01	1,90E+01	0,00E+00	-3,01E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,87E+01	0,00E+00	-2,35E-04
Total use of non-re. PER	MJ	9,52E+01	3,26E+00	1,20E+01	1,10E+02	2,31E+00	-1,82E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,05E-02	-1,83E+01	0,00E+00	-1,75E+01
Secondary materials	kg	8,04E-02	1,04E-03	1,55E-01	2,36E-01	7,60E-04	1,27E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,96E-05	4,16E-04	0,00E+00	1,68E-01
Renew. secondary fuels	MJ	1,99E-02	8,98E-06	1,56E-01	1,76E-01	9,81E-06	9,70E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,97E-07	1,76E-05	0,00E+00	-1,85E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	7,34E-02	3,77E-04	5,19E-03	7,89E-02	2,72E-04	6,70E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,13E-06	3,16E-03	0,00E+00	-5,16E-03

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	4,59E-01	4,41E-03	1,59E-02	4,79E-01	3,32E-03	3,89E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,34E-05	4,98E-04	0,00E+00	-2,22E-01
Non-hazardous waste	kg	7,05E+00	6,53E-02	2,78E-01	7,39E+00	5,29E-02	2,73E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,54E-03	7,86E-01	0,00E+00	-4,02E+00
Radioactive waste	kg	3,52E-04	2,20E-05	1,21E-04	4,95E-04	1,52E-05	4,38E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,71E-07	2,23E-07	0,00E+00	-5,51E-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	MND	MND	MND	MND	MND	MND	MND	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	2,21E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,30E-01	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	MND	MND	MND	MND	MND	MND	MND	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	1,61E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,36E+01	0,00E+00	0,00E+00

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	3,81E+00	2,24E-01	2,52E-01	4,29E+00	1,58E-01	3,76E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,64E-03	2,44E+00	0,00E+00	1,29E+00
Ozone depletion Pot.	kg CFC_{-11}e	1,23E-07	3,98E-08	2,59E-08	1,88E-07	2,78E-08	1,08E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,55E-10	4,87E-09	0,00E+00	-5,82E-08
Acidification	kg SO_2e	1,17E-02	1,84E-03	9,69E-04	1,45E-02	5,29E-04	4,48E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,54E-05	2,78E-04	0,00E+00	-8,23E-03
Eutrophication	kg PO_4^3e	3,97E-03	2,73E-04	6,19E-04	4,87E-03	1,19E-04	4,40E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,52E-06	2,25E-04	0,00E+00	-2,69E-03
POCP (“smog”)	kg C_2H_4e	7,91E-04	5,52E-05	8,62E-05	9,32E-04	2,12E-05	7,76E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,03E-07	8,60E-06	0,00E+00	-4,86E-04
ADP-elements	kg Sbe	1,21E-05	5,12E-07	2,19E-06	1,48E-05	5,40E-07	5,91E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,07E-08	2,94E-07	0,00E+00	-6,36E-06
ADP-fossil	MJ	9,51E+01	3,26E+00	1,19E+01	1,10E+02	2,31E+00	1,20E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,05E-02	3,84E-01	0,00E+00	-1,75E+01

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

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	3,87E+00	2,27E-01	2,48E-01	4,35E+00	1,59E-01	1,03E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,69E-03	2,44E+00	0,00E+00	1,25E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

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.

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
28.03.2025

APPENDIX

PRODUCT PORTFOLIO INCLUDED IN SCOPE

The following list of products are included in the scope of declaration.

Product number
70040
70060
70090
70125
70130
70175
70250
70325
70510
70514
70518
70601
70602
70611
70612
71090
71094
71205
71207
71211
71212
71213
71216

Product number
71716
71717
71718
71720
71726
71727
71728
71742
71744
71745
71746
717704
717705
717706
717802
717803
740896
74092
741002
757311
870060
870090
870125
870175
870250
870300