# ENVIRONMENTAL PRODUCT DECLARATION

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

S-Series Exhaust Vents
VILPE Oy

**EPD HUB, HUB-2295**
Published on 28.11.2024,
last updated on 28.11.2024,
valid until 28.11.2029

Created with One Click LCA

# 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 |
| 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:<br>☐ Internal verification ☑ External verification |
| EPD verifier | Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited |

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different 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 | S-Series Exhaust Vents |
| 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 | -2,7% +4,2% |

## ENVIRONMENTAL DATA SUMMARY

| | |
|---|---|
| **Declared unit** | 1 kg |
| **Declared unit mass** | 1 kg |
| **GWP-fossil, A1-A3 ($kgCO_2e$)** | 3,04E+00 |
| **GWP-total, A1-A3 ($kgCO_2e$)** | 1,85E+00 |
| **Secondary material, inputs (%)** | 5.63 |
| **Secondary material, outputs (%)** | 16.4 |
| **Total energy use, A1-A3 (kWh)** | 19 |
| **Net freshwater use, A1-A3 ($m^3$)** | 0.04 |

# 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

VILPE's exhaust ventilation pipes effectively remove dirty and humid air from the building. This product category includes sewer ventilation pipes, cowls, and other ventilation pipes for optimal ventilation. VILPE FLOW exhaust ventilation pipes are suitable for buildings with passive ventilation systems or those with mechanical intake and exhaust ventilation systems. The exhaust air is directed straight towards the sky, so all dirt particles are pushed far away from air intakes. In addition, VILPE FLOW exhaust ventilation pipes effectively keep rain water out. Their low pressure loss also ensures that VILPE FLOW exhaust ventilation pipes are energy-efficient. This reduces the energy consumed by the ventilation system as a whole – which is important not only because it reduces electricity bills, but also because of the corresponding reduction in the system's environmental impact.

The S-series exhaust vents are designed to be installed in the ventilation shaft, onto a silencer or in or other horizontal surface. The S-series exhaust vents are used, for example, in blocks of flats and terraced houses, when flat-specific ventilation is required.

125S FLOW Exhaust Vent 250 X 250: Exhaust vent for a flat surface with FLOW cowl. Duct size Ø 125 mm; installation set 250 x 250 mm, installation area must be at least the same size.
160S FLOW Exhaust Vent 300 X 300: Exhaust vent for a flat surface with FLOW cowl. Duct size Ø 160 mm; installation set 300 x 300 mm, installation area must be at least the same size.
200S FLOW Exhaust Vent 400 X 400: Exhaust vent for a flat surface with Flow cowl. Duct size Ø 200 mm; installation set 400 x 400 mm, installation area must be at least the same size.
250S FLOW Exhaust Vent 400 X 400: Exhaust vent for a flat surface with FLOW cowl. Duct size Ø 250 mm; installation set 400 x 400 mm, installation area must be at least the same size.

The average consists of different size S-series exhaust vents.

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

## PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|---|---|---|
| Metals | 16,45% | EU, China |
| Minerals | | |
| Fossil materials | 83,55% | EU, China |
| Bio-based materials | | |

## BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

| | |
|---|---|
| Biogenic carbon content in product, kg C | 0 |
| Biogenic carbon content in packaging, kg C | 0.32455 |

## 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.

Exhaust ventilation pipes of VILPE Oy are manufactured at the Mustasaari site in Finland. 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 of the metal inner pipes for specific exhaust systems are delivered pre-assembled, while others are rolled and sealed on-site. 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. Exhaust ventilation pipes are packed in cardboard boxes. The amount of packaging material varies slightly depending on the type and size of the exhaust ventilation pipe. 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. There is no material waste during installation. 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.

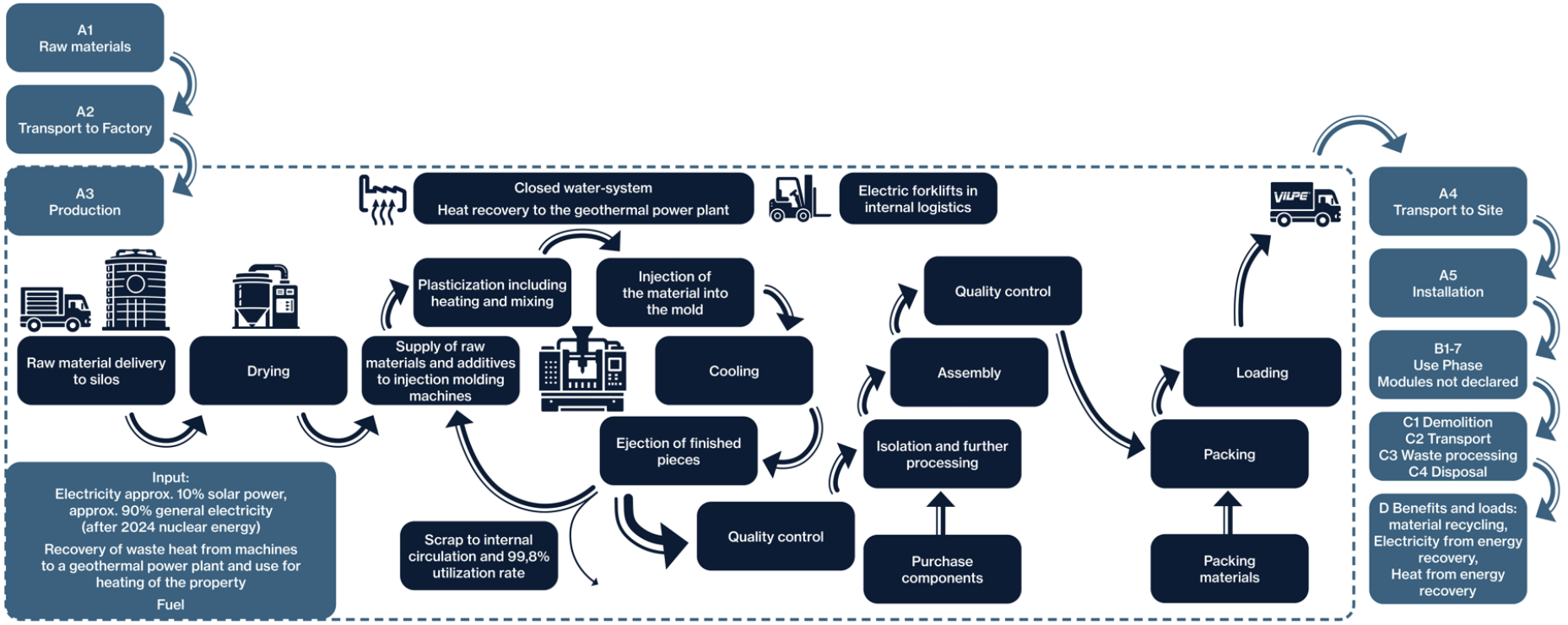
## PRODUCT USE AND MAINTENANCE (B1-B7)

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 | -2,7% +4,2% |

The average consists of 125S, 160S, 200S and 250S FLOW Exhaust vents. For the calculation, the smallest product, a medium-sized item which serves as the representative product, and the largest product were selected. All products are comparable in terms of their primary material composition. The differences between them arise primarily from variations in weight and size, as well as the amount of packaging and transportation material required per kilogram of product. All products were manufactured at the same location in Mustasaari, and their intended uses are similar and comparable. In the averaging method, raw materials, packaging, and transportation materials, including transportation distances, were allocated on a per-kilogram basis. Additionally, the energy consumption during manufacturing was allocated per kilogram of product. The transportable mass of the product, end-of-life considerations, and any resulting benefits or drawbacks are specific to each product. The resulting calculations were compared across the products, ensuring that the range of variation remains sufficiently narrow.

## 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 $CO_2$e | 2,34E+00 | 1,35E-01 | -6,26E-01 | 1,85E+00 | 7,83E-02 | 1,21E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,69E-03 | 2,14E+00 | 0,00E+00 | 1,65E-01 |
| GWP – fossil | kg $CO_2$e | 2,34E+00 | 1,35E-01 | 5,64E-01 | 3,04E+00 | 7,83E-02 | 1,65E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,69E-03 | 2,14E+00 | 0,00E+00 | 3,70E-01 |
| GWP – biogenic | kg $CO_2$e | 0,00E+00 | 0,00E+00 | -1,19E+00 | -1,19E+00 | 0,00E+00 | 1,19E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | -2,02E-01 |
| GWP – LULUC | kg $CO_2$e | 1,03E-03 | 6,03E-05 | 2,08E-03 | 3,17E-03 | 2,90E-05 | 1,18E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,73E-06 | 1,05E-05 | 0,00E+00 | -2,99E-03 |
| Ozone depletion pot. | kg $CFC\text{-}_{11}$e | 7,31E-08 | 3,01E-08 | 5,02E-08 | 1,53E-07 | 1,80E-08 | 2,09E-09 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,08E-09 | 1,96E-09 | 0,00E+00 | -9,48E-08 |
| Acidification potential | mol $H^+$e | 2,03E-02 | 1,40E-03 | 4,97E-03 | 2,67E-02 | 3,37E-04 | 1,06E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,99E-05 | 2,99E-04 | 0,00E+00 | -1,27E-02 |
| EP-freshwater[2)] | kg Pe | 5,30E-05 | 9,69E-07 | 1,01E-04 | 1,55E-04 | 6,40E-07 | 4,26E-07 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,84E-08 | 4,02E-07 | 0,00E+00 | -7,26E-05 |
| EP-marine | kg Ne | 1,98E-03 | 3,66E-04 | 1,05E-03 | 3,40E-03 | 9,99E-05 | 7,30E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 5,90E-06 | 1,39E-04 | 0,00E+00 | -1,47E-03 |
| EP-terrestrial | mol Ne | 6,90E-02 | 4,06E-03 | 1,39E-02 | 8,70E-02 | 1,10E-03 | 3,96E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 6,51E-05 | 1,48E-03 | 0,00E+00 | -1,73E-02 |
| POCP ("smog")[3)] | kg NMVOCe | 7,89E-03 | 1,14E-03 | 2,53E-03 | 1,16E-02 | 3,51E-04 | 1,21E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,08E-05 | 3,60E-04 | 0,00E+00 | -5,39E-03 |
| ADP-minerals & metals[4)] | kg Sbe | 5,54E-05 | 2,88E-07 | 4,97E-06 | 6,07E-05 | 1,83E-07 | 9,20E-08 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,10E-08 | 1,90E-07 | 0,00E+00 | -4,39E-06 |
| ADP-fossil resources | MJ | 6,74E+01 | 1,95E+00 | 1,53E+01 | 8,47E+01 | 1,18E+00 | 2,09E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,05E-02 | 2,33E-01 | 0,00E+00 | -2,16E+01 |
| Water use[5)] | $m^3$e depr. | 9,98E-01 | 8,19E-03 | 1,44E+00 | 2,45E+00 | 5,26E-03 | 1,96E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,15E-04 | 7,34E-02 | 0,00E+00 | -1,93E-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 | 7,48E-08 | 1,31E-08 | 4,60E-08 | 1,34E-07 | 9,01E-09 | 1,54E-09 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 5,41E-10 | 1,73E-09 | 0,00E+00 | -1,27E-07 |
| Ionizing radiation[6)] | kBq U235e | 9,92E-02 | 9,24E-03 | 4,37E-01 | 5,45E-01 | 5,60E-03 | 1,92E-03 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,36E-04 | 8,53E-04 | 0,00E+00 | -3,90E-01 |
| Ecotoxicity (freshwater) | CTUe | 1,58E+01 | 1,66E+00 | 1,74E+01 | 3,49E+01 | 1,06E+00 | 4,46E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 6,34E-02 | 1,03E+00 | 0,00E+00 | -4,30E+01 |
| Human toxicity, cancer | CTUh | 1,26E-09 | 5,26E-11 | 1,30E-09 | 2,61E-09 | 2,60E-11 | 2,47E-11 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,56E-12 | 8,68E-11 | 0,00E+00 | 1,15E-09 |
| Human tox. non-cancer | CTUh | 1,38E-08 | 1,56E-09 | 9,18E-09 | 2,46E-08 | 1,05E-09 | 8,46E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 6,27E-11 | 3,05E-09 | 0,00E+00 | -1,64E-08 |
| SQP[7)] | - | 2,13E+00 | 1,88E+00 | 8,01E+01 | 8,41E+01 | 1,35E+00 | 2,29E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 8,12E-02 | 2,05E-01 | 0,00E+00 | -5,08E+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 | 1,60E+00 | 2,04E-02 | 9,42E+00 | 1,10E+01 | 1,32E-02 | 1,21E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,94E-04 | 9,21E-03 | 0,00E+00 | -8,23E+00 |
| Renew. PER as material | MJ | 0,00E+00 | 0,00E+00 | 1,04E+01 | 1,04E+01 | 0,00E+00 | -1,04E+01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | -2,61E+00 |
| Total use of renew. PER | MJ | 1,60E+00 | 2,04E-02 | 1,99E+01 | 2,15E+01 | 1,32E-02 | -1,04E+01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,94E-04 | 9,21E-03 | 0,00E+00 | -1,08E+01 |
| Non-re. PER as energy | MJ | 4,05E+01 | 1,95E+00 | 1,48E+01 | 5,72E+01 | 1,18E+00 | 2,09E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,05E-02 | 2,33E-01 | 0,00E+00 | -2,16E+01 |
| Non-re. PER as material | MJ | 2,74E+01 | 0,00E+00 | 5,41E-01 | 2,80E+01 | 0,00E+00 | -5,41E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | -2,74E+01 | 0,00E+00 | -3,36E-04 |
| Total use of non-re. PER | MJ | 6,79E+01 | 1,95E+00 | 1,53E+01 | 8,52E+01 | 1,18E+00 | -3,32E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,05E-02 | -2,72E+01 | 0,00E+00 | -2,16E+01 |
| Secondary materials | kg | 5,63E-02 | 6,08E-04 | 2,29E-01 | 2,86E-01 | 3,27E-04 | 2,14E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,96E-05 | 3,99E-04 | 0,00E+00 | 1,02E-01 |
| Renew. secondary fuels | MJ | 1,74E-04 | 4,89E-06 | 2,80E-01 | 2,80E-01 | 3,29E-06 | 1,55E-06 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,97E-07 | 5,54E-06 | 0,00E+00 | -2,61E-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 | $m^3$ | 2,50E-02 | 2,29E-04 | 1,55E-02 | 4,08E-02 | 1,52E-04 | 8,85E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 9,13E-06 | 1,74E-04 | 0,00E+00 | -1,61E-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 | 2,40E-01 | 2,60E-03 | 3,37E-02 | 2,76E-01 | 1,56E-03 | 6,28E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 9,34E-05 | 3,56E-04 | 0,00E+00 | -1,85E-01 |
| Non-hazardous waste | kg | 2,16E+00 | 3,86E-02 | 8,69E-01 | 3,07E+00 | 2,56E-02 | 4,86E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,54E-03 | 8,47E-01 | 0,00E+00 | -4,21E+00 |
| Radioactive waste | kg | 5,18E-05 | 1,32E-05 | 1,73E-04 | 2,38E-04 | 7,87E-06 | 7,60E-07 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,71E-07 | 1,59E-07 | 0,00E+00 | -1,14E-04 |

## 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 | 3,58E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 1,64E-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 | 2,92E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 2,00E+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 $CO_2$e | 2,24E+00 | 1,34E-01 | 5,91E-01 | 2,96E+00 | 7,75E-02 | 5,73E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,64E-03 | 2,14E+00 | 0,00E+00 | 4,07E-01 |
| Ozone depletion Pot. | kg $CFC_{-11}$e | 6,59E-08 | 2,38E-08 | 4,18E-08 | 1,32E-07 | 1,43E-08 | 1,69E-09 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 8,55E-10 | 1,70E-09 | 0,00E+00 | -7,94E-08 |
| Acidification | kg $SO_2$e | 1,34E-02 | 1,11E-03 | 3,67E-03 | 1,82E-02 | 2,62E-04 | 7,98E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,54E-05 | 2,11E-04 | 0,00E+00 | -1,08E-02 |
| Eutrophication | kg $PO_4^3$e | 3,82E-03 | 1,64E-04 | 1,45E-03 | 5,43E-03 | 5,91E-05 | 6,71E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,52E-06 | 1,95E-04 | 0,00E+00 | -2,38E-03 |
| POCP (“smog”) | kg $C_2H_4$e | 5,66E-04 | 3,31E-05 | 2,28E-04 | 8,27E-04 | 1,02E-05 | 1,26E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 6,03E-07 | 4,86E-06 | 0,00E+00 | -5,75E-04 |
| ADP-elements | kg Sbe | 5,53E-05 | 2,79E-07 | 4,76E-06 | 6,04E-05 | 1,78E-07 | 8,93E-08 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,07E-08 | 1,78E-07 | 0,00E+00 | -4,39E-06 |
| ADP-fossil | MJ | 6,79E+01 | 1,95E+00 | 1,53E+01 | 8,51E+01 | 1,18E+00 | 2,09E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,05E-02 | 2,33E-01 | 0,00E+00 | -2,12E+01 |

# 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 acting for EPD Hub Limited
28.11.2024

# APPENDIX

## PRODUCT PORTFOLIO INCLUDED IN SCOPE

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

| Product number | Product name |
|---|---|
| 350011, 350012, 350014, 350016, 350017, 350018, 350019 | 125S FLOW Exhaust Vent 250 X250 |
| 350031, 350032, 350034, 350036, 350037, 350038, 350039 | 160S FLOW Exhaust Vent 300 X300 |
| 350162, 350164, 350167, 350168, 350169 | 200S FLOW Exhaust Vent 400 X400 |
| 350172, 350174, 350177, 350178, 350179 | 250S FLOW Exhaust Vent 400 X400 |