# ENVIRONMENTAL PRODUCT DECLARATION

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

Elaproof Pro S
Build Care Oy


**EPD HUB, HUB-3052**
Published on 14.03.2025, last updated on 14.03.2030

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.

Created with One Click LCA

# GENERAL INFORMATION

## MANUFACTURER

| | |
|---|---|
| Manufacturer | Build Care Oy |
| Address | Kelatie 6, 01450 Vantaa, Finland |
| Contact details | info@buildcare.fi |
| Website | https://www.elaproof.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 | Virpi Rahikkala Build Care Oy |
| EPD verification | Independent verification of this EPD and data, according to ISO 14025:<br>☐ Internal verification ☑ External verification |
| EPD verifier | Sarah Curpen, 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 | Elaproof Pro S |
| Additional labels | Elaproof Pro S & Elaproof Indoor Pro S |
| Product reference | 1150, 1150G, 1150W, 1150R, 1150RR11, 1150RR32, 1150RR32, 2160, 2160G, 2160W, 2160R, 2160RR11, 2160RR32, 2160RR32, 3100W, 3100G, 4160, 4160W, 4160G |
| Place of production | Lohja, Finland |
| Period for data | Jan2024- Dec2024 |
| Averaging in EPD | No averaging |
| Variation in GWP-fossil for A1-A3 | 0 % |

## ENVIRONMENTAL DATA SUMMARY

| | |
|---|---|
| **Declared unit** | 1 kg |
| **Declared unit mass** | 1 kg |
| **GWP-fossil, A1-A3 ($kgCO_2e$)** | 1,60 |
| **GWP-total, A1-A3 ($kgCO_2e$)** | 1,57 |
| **Secondary material, inputs (%)** | 2,43 |
| **Secondary material, outputs (%)** | 58,1 |
| **Total energy use, A1-A3 (kWh)** | 6,12 |
| **Net freshwater use, A1-A3 ($m^3$)** | 0,03 |

# PRODUCT AND MANUFACTURER

## ABOUT THE MANUFACTURER

Build Care Ltd. manufactures patented ElaProof products from REACH-certified raw materials for professional and consumer use. Our highest quality environmentally friendly products are designed for protection and coating of structures and different building materials both indoor and outdoor. The product offering includes, among others, radon and indoor air leak protection, coating of roofs, terraces, balconies, concrete structures and protecting various materials e.g., bitumen, brick, concrete, metal, and wood.

## PRODUCT DESCRIPTION

This EPD is an updated versio of the ElaProof S (HUB-0614) EPD due the name change and more accurate datapoints, and it covers ElaProof Pro S range of roof coatings both outdoor and indoor use for professionals and DIY types. With the use as of an indoor (ElaProof Indoor Pro S, housing, DIY) product for a wall or a floor coating is recommended not to leave it as a top cover. ElaProof Pro S use on the roof is to extend the life of the existing roof coating instead of completely renewing the roof, which makes it both economically and environmentally highly recommended option.

Elaproof Pro S is water-based polyacrylic emulsion, an economical one-component product, which makes is easy to use with high-pressure sprayer. It is iso-cyanate- and solvent free, with viscosity level around 5t to 15t mPaS. Elaproof Pro S has pH around 8, so it is neutral with very low odor. Our product is listed in the Nordic Ecolabelling construction product database and can be used in Swan-labelled buildings.

The range of Elaproof Pro S is ideal for a long-lasting and a waterproofing protective layer, sealing indoor air leaks and radon, and as an indoor form it is M1 approved with an EMICODE EC 1+. Elaproof Pro S is also CE marked construction product based to EN 13813 and EN 1504-2. Elaproof Pro S has classified with reaction to fire as C-s1 d0, and as a roof coating Broof(t2) which makes it suitable for the most of the roofings.

Elaproof Pro S is very elastic and therefore withstands structure movements, both moisture and temperature, with crack bridging ability of outstanding values 10,1 - 13,9 mm (EN 1062-7). For the very large cracks is recommended to use together with ElaProof Classic H and ribbons. The reason the product has solid contain around 65 v/v% added the fact it is air drying with water evaporation, is then recommended to spread wet layer as 2 to 3 mm thickness (around 2,5 L/m2) to get at least 1,0 mm thick dry layer. The needed thickness can be spread with 2 layers with the product density around 1,17g/cm3.

ElaProof Pro S comes with seven different colors and ElaProof Indoor Pro S with three different colors, both can be customized by color when needed.

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

## PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|---|---|---|
| Metals | 0 | - |
| Minerals | 21 | Europa |
| Fossil materials | 44 | Europa |
| Bio-based materials | 35 | Europa |

## BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

| | |
|---|---|
| Biogenic carbon content in product, kg C | 0 |
| Biogenic carbon content in packaging, kg C | 0,011 |

## FUNCTIONAL UNIT AND SERVICE LIFE

| | |
|---|---|
| Declared unit | 1 kg |
| 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.

The raw materials are delivered to the Build Care production factory in Finland. The raw materials are then mixed together for roughly 3 hours at room temperature. Subsequently, Elaproof Pro S is batched and packaged. After manufacturing and packaging the equipments are cleaned by washing with water and after treated as municipal wastewater waste. The packaging materials used consist of HDPE barrels (made of 50% recycled PE) on a wooden EUR -pallet.

## 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 transportation distance is determined according to the EPD Hub PCR. The average transportation distance from the production site to the construction site is assumed to be 200 km, and it is assumed that the transport will be carried out by lorry. There is no loss in transportation as the products are properly packaged (A4).

The Elaproof Pro S product is recommended to install by professionals using high-pressure spray-gun for spraying 1-2 layers approximately 1,5 - 2,0 mm each to produce around 1,0 - 1,5 mm thick dry-film thickness (ds-% of the product is around 66). Before installation the coated area should be cleaned off from dust and external items, mainly only with water and/or dry brushing. Depending on the surface, it is recommended to open up the surface with light grinding and especially when there is problems with the old surface attachments (floors) those loose parts should be removed or fixed first.

The installation mainly consists of roofings on to bitumin, aluminium and brick roofs from which aluminium is major.
After installation the equipments are recommended to clean by washing only with water and after treated as municipal wastewater waste. The installation

material loss is calculated of the amount which is left on a spray-gun or on other installation equipment, from installation itself the material loss is negligible.

## 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)

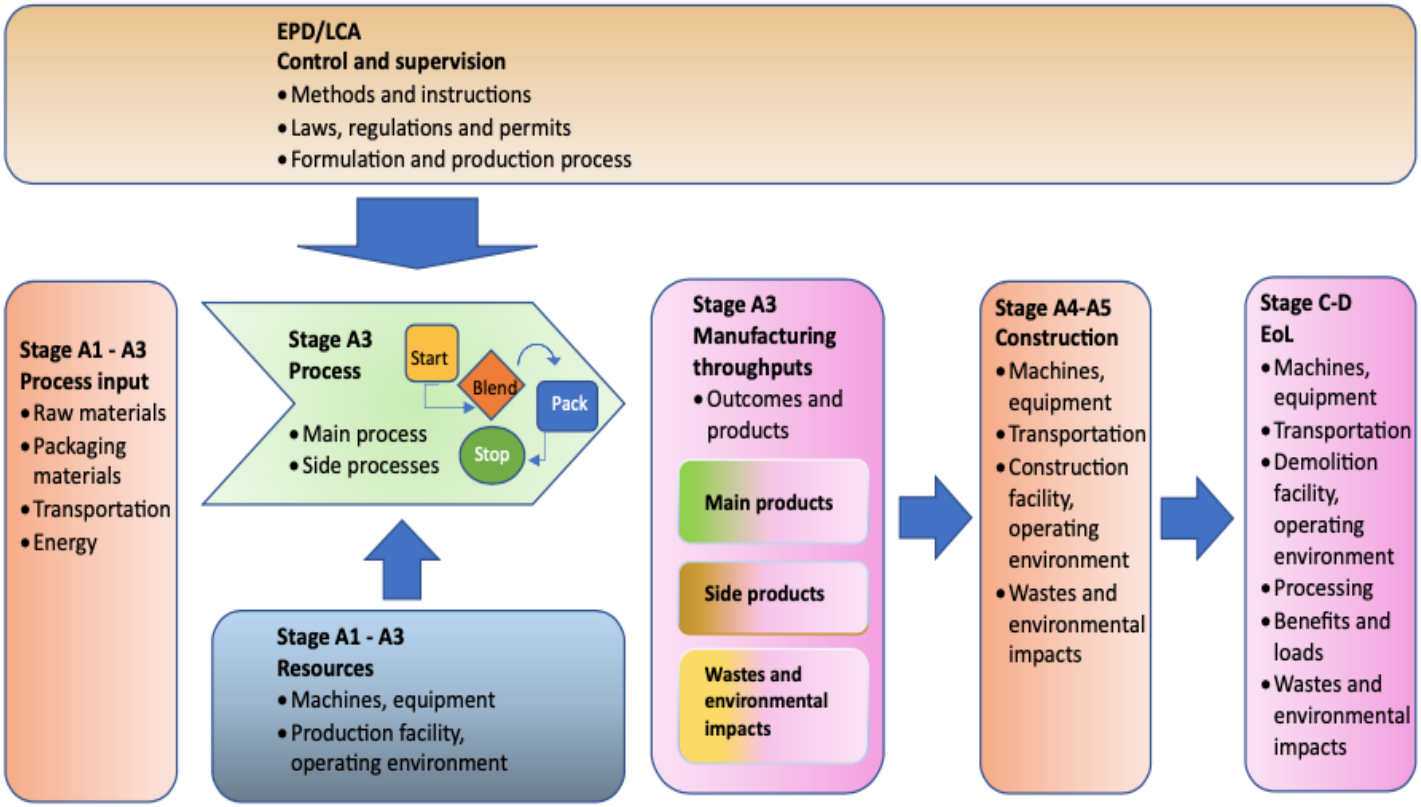
At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected as separate construction waste from which the product itself can not be separated manually. The consumption of energy and natural resources varies depending the demolition type; for this it is assumed to be the same as what the bitumen, metal or brick roofings would take and then for the product itself the impacts of demolition are assumed zero. The product itself as an unused product, when it is dried out first, can be treated as a household waste (C1). This part of the product waste has in these calculations been included as part of installation lost.

All end-of-life product is assumed to be sent to the closest facilities, and is assumed to be in average of 150km distance from the demolition site (C2). Elaproof Pro S end-of-life treatment was modeled based on the roofing material it would be applied to, considering brick, metal and bitumen roofs in Finland. This considered a mix of recycling, re-use, incineration and landfill, for example bitumin after treatment consists of as from 100% bitumen is crushed to recycling for the asphalt production (C3-C4).

Benefits and load for the system is calculated as EU scenarios for plastic and wood packaging. The energy generated by burning packaging materials replaces fossil fuel, which is assumed to be oil. Packaging materials are re-used and recycled as many times as possible. The barrels and other plastic packaging materials are re-used or collected for recycling separately as plastic waste. The calculation assumes that the waste incineration plant has co-generation of electricity and heat (Finland)(D).

# MANUFACTURING PROCESS

Description of the EPD process of the production:



# 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 | Partly allocated by mass or volume |
| Packaging material | Allocated by mass or volume |
| Ancillary materials | No allocation |
| Manufacturing energy and waste | Allocated by mass or volume |

## AVERAGES AND VARIABILITY

| | |
|---|---|
| Type of average | No averaging |
| Averaging method | Not applicable |
| Variation in GWP-fossil for A1-A3 | 0 % |

Covers all different colors of an indoor and an outdoor spray ElaProof Pro S and ElaProof Indoor Pro S products.
EPD HUB-0614, formally ElaProof S calculation, has been made for the color black and this updated version is calculated for the color gray.
Slight differences between colors are negligible including the fact that changes in regulations; the recipe undergoes variations on for example biocides and additives.

## 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 v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

# 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 | 1,49E+00 | 5,99E-02 | 1,58E-02 | 1,57E+00 | 6,17E-02 | 1,07E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,50E-02 | 6,80E-03 | 8,42E-04 | -2,74E+00 |
| GWP – fossil | kg $CO_2$e | 1,49E+00 | 5,99E-02 | 5,40E-02 | 1,60E+00 | 6,17E-02 | 6,81E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,50E-02 | 9,26E-03 | 8,88E-04 | -2,66E+00 |
| GWP – biogenic | kg $CO_2$e | 2,54E-03 | 0,00E+00 | -3,85E-02 | -3,59E-02 | 0,00E+00 | 3,84E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,05E-06 | -2,47E-03 | -4,73E-05 | -1,89E-02 |
| GWP – LULUC | kg $CO_2$e | 4,97E-04 | 2,69E-05 | 2,34E-04 | 7,58E-04 | 2,72E-05 | 1,83E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 6,66E-06 | 1,15E-05 | 1,22E-06 | -5,73E-02 |
| Ozone depletion pot. | kg $CFC_{-11}$e | 2,07E-08 | 8,83E-10 | 1,91E-09 | 2,35E-08 | 2,96E-09 | 5,62E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,25E-10 | 1,03E-10 | 1,65E-11 | -2,15E-08 |
| Acidification potential | mol $H^+$e | 1,29E-02 | 2,48E-04 | 1,96E-04 | 1,33E-02 | 2,32E-04 | 2,85E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 5,10E-05 | 9,58E-05 | 5,17E-06 | -2,14E-02 |
| EP-freshwater[2)] | kg Pe | 2,65E-04 | 4,58E-06 | 1,50E-05 | 2,85E-04 | 4,15E-06 | 6,69E-06 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,16E-06 | 4,84E-06 | 1,37E-07 | -8,14E-04 |
| EP-marine | kg Ne | 1,37E-03 | 7,76E-05 | 4,38E-05 | 1,50E-03 | 7,77E-05 | 4,82E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,68E-05 | 2,21E-05 | 2,20E-06 | -2,74E-03 |
| EP-terrestrial | mol Ne | 1,19E-02 | 8,47E-04 | 4,46E-04 | 1,32E-02 | 8,48E-04 | 3,37E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,83E-04 | 2,48E-04 | 1,96E-05 | -2,82E-02 |
| POCP ("smog")[3)] | kg NMVOCe | 6,39E-03 | 3,30E-04 | 2,69E-04 | 6,99E-03 | 3,23E-04 | 1,63E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,54E-05 | 7,34E-05 | 6,18E-06 | -1,04E-02 |
| ADP-minerals & metals[4)] | kg Sbe | 5,82E-06 | 1,64E-07 | 4,17E-07 | 6,40E-06 | 1,78E-07 | 1,43E-07 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,22E-08 | 4,99E-07 | 2,35E-09 | -4,39E-06 |
| ADP-fossil resources | MJ | 2,55E+01 | 8,65E-01 | 1,64E+00 | 2,80E+01 | 9,01E-01 | 6,07E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,18E-01 | 1,12E-01 | 1,52E-02 | -2,56E+01 |
| Water use[5)] | $m^3$e depr. | 9,54E-01 | 4,22E-03 | 3,39E-02 | 9,92E-01 | 4,43E-03 | 2,13E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,07E-03 | 1,68E-03 | 3,56E-04 | -2,18E+00 |

*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 | 8,42E-08 | 5,88E-09 | 1,93E-09 | 9,20E-08 | 6,28E-09 | 2,16E-09 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,49E-09 | 1,81E-09 | 9,58E-11 | -2,91E-07 |
| Ionizing radiation[6] | kBq U235e | 5,35E-02 | 7,44E-04 | 2,82E-02 | 8,25E-02 | 1,40E-03 | 1,79E-03 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,93E-04 | 4,19E-04 | 3,20E-05 | -2,30E-01 |
| Ecotoxicity (freshwater) | CTUe | 6,78E+00 | 1,21E-01 | 1,60E-01 | 7,06E+00 | 2,26E-01 | 1,80E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,07E-02 | 6,17E-02 | 5,99E+00 | -6,40E+00 |
| Human toxicity, cancer | CTUh | 3,26E-10 | 9,95E-12 | 4,98E-11 | 3,85E-10 | 1,32E-11 | 1,03E-11 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,48E-12 | 6,94E-12 | 6,47E-13 | -3,26E-09 |
| Human tox. non-cancer | CTUh | 1,31E-07 | 5,52E-10 | 5,18E-10 | 1,32E-07 | 6,24E-10 | 2,77E-09 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,41E-10 | 4,39E-10 | 1,37E-10 | -2,27E-08 |
| SQP[7] | - | 3,21E+00 | 8,52E-01 | 3,42E+00 | 7,48E+00 | 8,88E-01 | 2,01E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,16E-01 | 1,97E-01 | 2,37E-02 | -3,42E+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 | 9,37E-01 | 1,17E-02 | 4,34E-01 | 1,38E+00 | 1,25E-02 | -2,87E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,01E-03 | 1,61E-02 | 4,63E-04 | -1,98E+01 |
| Renew. PER as material | MJ | 0,00E+00 | 0,00E+00 | 3,40E-01 | 3,40E-01 | 0,00E+00 | -3,40E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 8,70E-02 |
| Total use of renew. PER | MJ | 9,37E-01 | 1,17E-02 | 7,73E-01 | 1,72E+00 | 1,25E-02 | -6,26E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,01E-03 | 1,61E-02 | 4,63E-04 | -1,98E+01 |
| Non-re. PER as energy | MJ | 1,95E+01 | 8,65E-01 | 3,07E-01 | 2,06E+01 | 9,01E-01 | -8,05E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,18E-01 | 1,12E-01 | 1,52E-02 | -2,57E+01 |
| Non-re. PER as material | MJ | 6,04E+00 | 0,00E+00 | 1,06E+00 | 7,10E+00 | 0,00E+00 | -1,18E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | -5,82E+00 | -1,07E-01 | 2,46E-01 |
| Total use of non-re. PER | MJ | 2,55E+01 | 8,65E-01 | 1,36E+00 | 2,77E+01 | 9,01E-01 | -1,98E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,18E-01 | -5,71E+00 | -9,14E-02 | -2,54E+01 |
| Secondary materials | kg | 2,43E-02 | 3,68E-04 | 1,60E-02 | 4,06E-02 | 3,71E-04 | 8,72E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 9,29E-05 | 1,20E-04 | 5,97E-06 | 3,51E-01 |
| Renew. secondary fuels | MJ | 1,28E-04 | 4,59E-06 | 1,18E-02 | 1,19E-02 | 4,60E-06 | 2,39E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,18E-06 | 5,27E-06 | 8,39E-08 | -8,73E-05 |
| 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 | $m^3$ | 2,91E-02 | 1,26E-04 | 9,12E-04 | 3,02E-02 | 1,31E-04 | 2,29E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,21E-05 | 1,92E-05 | -1,29E-04 | -4,68E-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 | 1,31E-01 | 1,46E-03 | 2,56E-03 | 1,35E-01 | 1,45E-03 | 3,18E-03 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,67E-04 | 8,08E-04 | 1,11E-04 | -8,57E-01 |
| Non-hazardous waste | kg | 4,49E+00 | 2,68E-02 | 3,65E-01 | 4,89E+00 | 2,67E-02 | 5,43E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 6,81E-03 | 5,91E-02 | 1,86E-01 | -3,53E+00 |
| Radioactive waste | kg | 4,26E-04 | 1,82E-07 | 6,31E-06 | 4,32E-04 | 1,13E-06 | 8,70E-06 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,73E-08 | 1,03E-07 | 7,83E-09 | -5,01E-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 | 1,79E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 5,87E-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 | 1,96E-01 | MND | MND | MND | MND | MND | MND | MND | 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 | 8,80E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy – Heat | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,08E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 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 $CO_2e$ | 1,47E+00 | 5,95E-02 | 5,40E-02 | 1,58E+00 | 6,14E-02 | 6,81E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,49E-02 | 9,24E-03 | 8,85E-04 | -2,68E+00 |
| Ozone depletion Pot. | kg $CFC_{-11}e$ | 1,70E-08 | 7,05E-10 | 1,57E-09 | 1,93E-08 | 2,35E-09 | 4,59E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,79E-10 | 8,52E-11 | 1,33E-11 | -1,84E-08 |
| Acidification | kg $SO_2e$ | 1,13E-02 | 1,91E-04 | 1,59E-04 | 1,16E-02 | 1,76E-04 | 2,46E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,90E-05 | 7,68E-05 | 3,83E-06 | -1,84E-02 |
| Eutrophication | kg $PO_4^3e$ | 3,84E-03 | 4,13E-05 | 3,58E-04 | 4,24E-03 | 4,25E-05 | 9,31E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 9,51E-06 | 1,13E-05 | 2,55E-06 | -1,22E-03 |
| POCP (“smog”) | kg $C_2H_4e$ | 9,55E-04 | 1,55E-05 | 2,05E-05 | 9,91E-04 | 1,35E-05 | 2,11E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,48E-06 | 4,60E-06 | 2,92E-07 | -1,71E-03 |
| ADP-elements | kg Sbe | 5,61E-06 | 1,60E-07 | 4,12E-07 | 6,18E-06 | 1,74E-07 | 1,38E-07 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,11E-08 | 4,97E-07 | 2,28E-09 | -3,71E-06 |
| ADP-fossil | MJ | 2,37E+01 | 8,53E-01 | 1,23E+00 | 2,58E+01 | 8,91E-01 | 5,61E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,15E-01 | 1,05E-01 | 1,47E-02 | -2,23E+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 $CO_2e$ | 1,49E+00 | 5,99E-02 | 5,42E-02 | 1,61E+00 | 6,17E-02 | 6,82E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,50E-02 | 9,27E-03 | 8,89E-04 | -2,72E+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.

Sarah Curpen, an authorized verifier acting for EPD Hub Limited.
14.03.2025