

ENVIRONMENTAL PRODUCT DECLARATION

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

Dolphin Solutions SMART Soap Dispenser
Dolphin Solutions Ltd



EPD HUB, HUB-2353

Published on 02.05.2025, last updated on 16.05.2025, valid until 01.11.2026

GENERAL INFORMATION

MANUFACTURER

| | |
|-----------------|---|
| Manufacturer | Dolphin Solutions Ltd |
| Address | Southpoint, Compass Park, Junction Road, Bodiam, East Sussex. U.K. TN32 5BS |
| Contact details | info@dolphinsolutions.co.uk |
| Website | www.dolphinsolutions.co.uk |

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 | Electrical product |
| Category of EPD | Design phase EPD |
| Scope of the EPD | Cradle to gate with options, A4-A5, B7, and modules C1-C4, D |
| EPD author | Joe Johnson |
| EPD verification | Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification |
| EPD verifier | Elisabet Amat, 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 | Dolphin Solutions SMART Soap Dispenser |
| Additional labels | SMART foaming sensor soap dispenser |
| Place of production | East Sussex, United Kingdom |
| Period for data | 03/2024 - 09/2024 |
| Averaging in EPD | Multiple products |
| Variation in GWP-fossil for A1-A3 | -10%,+1% % |

ENVIRONMENTAL DATA SUMMARY

| | |
|---|--|
| Declared unit | 1 kg of Dolphin Infra Red Soap Dispenser |
| Declared unit mass | 1 kg |
| GWP-fossil, A1-A3 (kgCO ₂ e) | 1,16E+01 |
| GWP-total, A1-A3 (kgCO ₂ e) | 1,12E+01 |
| Secondary material, inputs (%) | 35 |
| Secondary material, outputs (%) | 78.7 |
| Total energy use, A1-A3 (kWh) | 46.7 |
| Net freshwater use, A1-A3 (m ³) | 0.13 |

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Founded on the core values of care, quality, integrity, and enthusiasm, we take pride in having helped to revolutionise commercial washrooms since 1999. With innovative and creative solutions, we have addressed the needs of clients across the globe.

For nearly 30 years, we've worked closely with architects, contractors, and developers to create beautiful, high-performance, and sustainable commercial washrooms featuring state-of-the-art technology.

Dolphin Solutions remains relentless in its aim to redefine washroom innovation that incorporates beauty, timeless design, and functionality with high regard for user experience and focuses on a sustainable cradle-to-cradle commitment.

PRODUCT DESCRIPTION

A range of Basin/wall mounted commercial washroom soap dispensers with infrared sensors, and SMART technology manufactured from 1.4401 (316) Marine grade stainless steel providing a touch free economical supply of foaming or liquid soap for hand washing within a washroom environment.

Nominal current: Less than 1mA. Nominal power: Less than 1W.

See individual soap dispenser details at:

https://www.dolphinsolutions.co.uk/?s=DS*** (***) - insert three numerical dispenser code)

Further information can be found at

<http://www.dolphinsolutions.co.uk/news/dolphin-inform-soap-dispenser/>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|-----------------------|----------------|-----------------|
| Metals | 60.23 | UK / Asia |
| Minerals | - | - |
| Fossil materials | 39.77 | Europe / Asia |
| 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 | 0.001381526 |

FUNCTIONAL UNIT AND SERVICE LIFE

| | |
|------------------------|--|
| Declared unit | 1 kg of Dolphin Infra Red Soap Dispenser |
| 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 | X | 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 manufacturing process takes place at the Dolphin Solutions production and distribution facility located at Southpoint, Compass Park, Junction Rd. Bodiam. UK. TN32 5BS

A1 – Extraction and processing of raw materials.

Dolphin uses pre fabricated high grade stainless steel and brass components supplied by manufacturing partners to ensure that the products are built to last.

Pre fabricated polymer and electronic components are also sourced from approved suppliers located mostly from within the UK.

The materials that are used to pack all incoming components are cardboard and PE.

A2 – Transport to the Southpoint production site in the UK.

The production components are transported to the manufacturing site at Southpoint from the suppliers.

All the domestically and near continent supplied items are transported by road in trucks with very small amounts of intercontinental flight transportation where necessary.

A3 – Manufacturing processes The production of packaging materials is taken into account at this stage including the processing of any waste arising from the production operation.

The manufacturing operation consists of the assembly of sensor soap dispensers utilising hand held manual and battery powered electric tools and the marking of product using a laser etching unit.

The assembly of the components which are 80 to 90 % 304L or 316L stainless steel with some brass, plastic and electronic items generates no waste other than the packaging that the components arrive in.

Finished products are tested for leaks and electrical compliance, cleaned and polished by hand and placed in final packaging.

Production is based on LEAN techniques, where stocks are minimized and products are put into production as soon as they are ordered.

Coloured surface finishes using powder coating, ceramic coating or PVD techniques are offered as an option and applied in a downstream operation.

The disposal of the cardboard and PE packaging of raw materials is achieved by sorting, compacting, baling and palletising the waste which is then stored on site until a full truck quantity is achieved. It is then collected and removed by an approved waste transfer/recycling contractor.

Transportation to the recycling centre is covered by a European average EURO 3 16 t diesel lorry.

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.

A4 – Transportation from the Dolphin Southpoint production site in Bodiam to customers.

Distribution to customers within the UK is achieved using approved pallet carriers and courier companies using small trucks (7.5-16t) from Southpoint to a distribution hub (36km) and then in larger trucks (16-32t) for delivery to the customer. These are primarily Euro 3 diesel vehicles travelling on average 300km.

Transportation to Continental customers is generally by 32t + Euro 3 diesel vehicles travelling an average of 1800km

Transportation to intercontinental customers is by Sea freight container ship. The average voyage distance is 18750km

A5 - Installation is simple and does not require any relevant energy consumption or use of materials, due to manual instalment by the clients own technicians.

Mounting instructions are included with the product or can be downloaded on the Dolphin website.

Apart from the waste of packaging for the final product (paper, cardboard, rubber), no additional material flows are generated during installation.

The packaging that is either recycled, transported to the landfill or incinerated has the potential benefits reported in module D.

It is determined that waste packaging materials are transported an average 20 km to the waste treatment centre by 16t EURO 3 lorry with a diesel engine.

PRODUCT USE AND MAINTENANCE (B1-B7)

The soap dispensers have been vigorously tested prior to release, where they achieved up to 2,000,000 activations.

The product requires a 12v transformer. Each activation lasts for 1 second and requires 500mA.

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

PRODUCT END OF LIFE (C1-C4, D)

End of life stage (C1-C4) .

The end-of-life stage consists of the deconstruction/demolition, transport, waste management, and disposal processes to manage the product as waste after the service life of the product.

The generated waste in modules C1-C4 is included up to the “end-of-waste state or final disposal, with the potential net benefits reported in module D.

C1 – Deconstruction, Demolition

For the demolition of infra red soap dispensers, the energy consumption is 0,0 MJ

C2 – Transport

It is determined that materials end of life disposal/demolition materials are transported an average 100 km to the recycling centre, 100 km to the incineration station, and 50 km to the landfill. Transportation is covered by a European average EURO 3 16-32 mt lorry with a diesel engine.

The proportions of each is reported in C3

C3 & C4– Waste Processing and Disposal

The end-of-life stage represents the waste scenario after the use stage.

In C3, electronic components are assumed to be WEEE shredded first. 60% of copper and brass, and 80% of steel and stainless steel is assumed to be recycled, and 50% of plastics and rubber is incinerated with >60% energy efficiency (from EN 50693, Table G.4). The remaining percentages are assumed to be landfilled in C4.

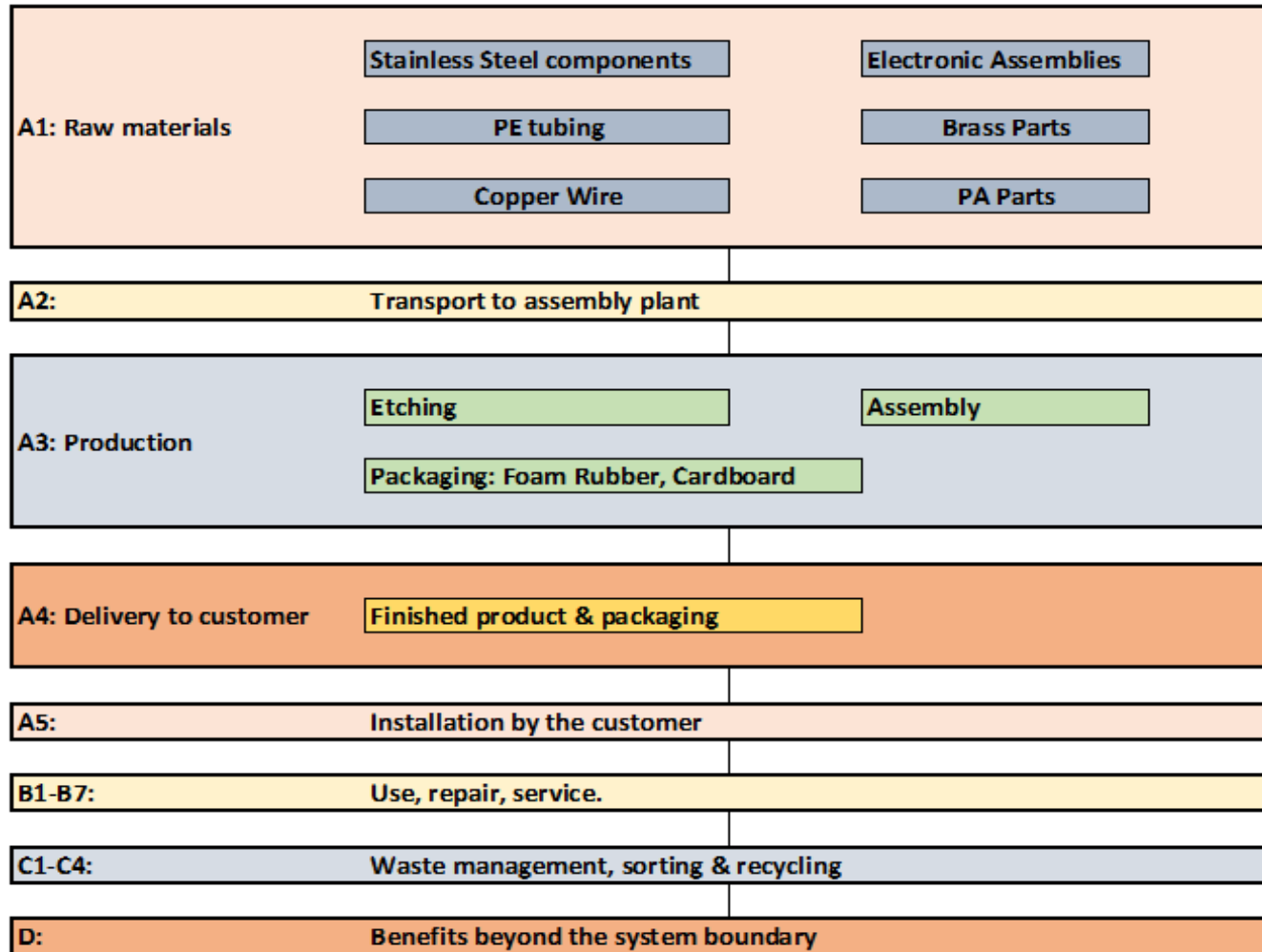
Beyond the system boundary (D)

Module D includes reuse, recovery, and/or recycling potential, expressed as net impact and benefits, due to reuse, recycling, and incineration of materials with energy recovery in modules A5 and C3.

Due to the material and energy recovery potential of parts in the end of life product and packaging, recycled raw materials lead to avoided virgin material production, while the energy recovered from incineration displaces electricity and heat production (D). The benefits and loads of incineration and recycling are included in Module D.



MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

| Data type | Allocation |
|--------------------------------|-----------------------------|
| Raw materials | No allocation |
| Packaging material | Allocated by mass or volume |
| Ancillary materials | Not applicable |
| Manufacturing energy and waste | Allocated by mass or volume |

AVERAGES AND VARIABILITY

| | |
|-----------------------------------|-------------------|
| Type of average | Multiple products |
| Averaging method | Not applicable |
| Variation in GWP-fossil for A1-A3 | -10%,+1% |

The range of Inform Sensor DS soap dispensers covered by this EPD is represented by the identification of the lightest, a mid range (the base line) and the heaviest dispenser by total mass.

The variation in GWP fossil between the Base line and lower dispenser is -10%
The variation in GWP fossil between the Base line and upper dispenser is +1%
All other standard size products in the DS soap dispenser range fall within these margins.

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 | 9,39E+00 | 1,65E+00 | 1,84E-01 | 1,12E+01 | 3,13E+00 | 8,22E-01 | MND | MND | MND | MND | MND | 6,53E-01 | MND | MNR | 6,26E-03 | 5,18E-01 | 2,52E-02 | -1,07E+00 |
| GWP – fossil | kg CO ₂ e | 9,38E+00 | 1,65E+00 | 5,89E-01 | 1,16E+01 | 3,13E+00 | 4,15E-01 | MND | MND | MND | MND | MND | 6,52E-01 | MND | MNR | 6,26E-03 | 5,18E-01 | 2,52E-02 | -1,07E+00 |
| GWP – biogenic | kg CO ₂ e | 0,00E+00 | 0,00E+00 | -4,07E-01 | -4,07E-01 | 0,00E+00 | 4,07E-01 | MND | MND | MND | MND | MND | 0,00E+00 | MND | MNR | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| GWP – LULUC | kg CO ₂ e | 1,26E-02 | 1,06E-04 | 2,08E-03 | 1,48E-02 | 2,11E-04 | 8,46E-06 | MND | MND | MND | MND | MND | 1,52E-03 | MND | MNR | 2,31E-06 | 4,22E-05 | 3,28E-06 | -1,01E-03 |
| Ozone depletion pot. | kg CFC-11e | 5,15E-07 | 3,76E-07 | 1,05E-07 | 9,96E-07 | 7,14E-07 | 1,23E-09 | MND | MND | MND | MND | MND | 3,26E-08 | MND | MNR | 1,44E-09 | 1,85E-09 | 1,04E-09 | -6,53E-08 |
| Acidification potential | mol H ⁺ e | 1,19E-01 | 8,58E-03 | 3,19E-03 | 1,31E-01 | 1,63E-02 | 9,28E-05 | MND | MND | MND | MND | MND | 3,53E-03 | MND | MNR | 2,65E-05 | 2,29E-04 | 2,72E-05 | -1,69E-02 |
| EP-freshwater ²⁾ | kg Pe | 7,75E-04 | 2,58E-06 | 3,06E-05 | 8,09E-04 | 5,01E-06 | 2,83E-07 | MND | MND | MND | MND | MND | 6,91E-05 | MND | MNR | 5,12E-08 | 1,39E-06 | 4,83E-08 | -9,13E-05 |
| EP-marine | kg Ne | 1,21E-02 | 3,15E-03 | 9,43E-04 | 1,62E-02 | 5,95E-03 | 3,15E-05 | MND | MND | MND | MND | MND | 4,82E-04 | MND | MNR | 7,87E-06 | 7,40E-05 | 2,28E-05 | -1,39E-03 |
| EP-terrestrial | mol Ne | 1,42E-01 | 3,45E-02 | 6,82E-03 | 1,83E-01 | 6,52E-02 | 3,35E-04 | MND | MND | MND | MND | MND | 5,47E-03 | MND | MNR | 8,68E-05 | 7,29E-04 | 9,89E-05 | -1,70E-02 |
| POCP (“smog”) ³⁾ | kg NMVOCe | 4,82E-02 | 8,92E-03 | 2,27E-03 | 5,94E-02 | 1,69E-02 | 8,93E-05 | MND | MND | MND | MND | MND | 1,49E-03 | MND | MNR | 2,78E-05 | 1,84E-04 | 3,39E-05 | -4,81E-03 |
| ADP-minerals & metals ⁴⁾ | kg Sbe | 2,36E-03 | 4,89E-07 | 7,83E-06 | 2,37E-03 | 9,92E-07 | 1,33E-07 | MND | MND | MND | MND | MND | 1,56E-06 | MND | MNR | 1,47E-08 | 6,08E-07 | 9,80E-09 | -2,75E-04 |
| ADP-fossil resources | MJ | 1,28E+02 | 2,27E+01 | 1,36E+01 | 1,64E+02 | 4,31E+01 | 1,18E-01 | MND | MND | MND | MND | MND | 1,39E+01 | MND | MNR | 9,40E-02 | 3,61E-01 | 7,69E-02 | -1,30E+01 |
| Water use ⁵⁾ | m ³ e depr. | 4,36E+00 | 3,42E-02 | 3,94E-01 | 4,79E+00 | 6,68E-02 | 1,27E-02 | MND | MND | MND | MND | MND | 3,70E-01 | MND | MNR | 4,20E-04 | 2,49E-02 | 3,96E-04 | -3,19E-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 | 7,02E-07 | 2,25E-08 | 4,62E-08 | 7,71E-07 | 4,66E-08 | 2,86E-09 | MND | MND | MND | MND | MND | 1,08E-08 | MND | MNR | 7,21E-10 | 1,98E-09 | 5,24E-10 | -8,68E-08 |
| Ionizing radiation ⁶⁾ | kBq 11235e | 8,69E-01 | 1,04E-01 | 9,28E-02 | 1,07E+00 | 1,98E-01 | 6,31E-04 | MND | MND | MND | MND | MND | 3,78E-01 | MND | MNR | 4,47E-04 | 3,77E-03 | 3,64E-04 | -1,23E-01 |
| Ecotoxicity (freshwater) | CTUe | 1,01E+03 | 1,26E+01 | 1,97E+01 | 1,04E+03 | 2,41E+01 | 2,00E+00 | MND | MND | MND | MND | MND | 7,69E+00 | MND | MNR | 8,45E-02 | 2,51E+00 | 5,61E-01 | -1,26E+02 |
| Human toxicity, cancer | CTUh | 6,40E-08 | 1,63E-10 | 3,86E-10 | 6,46E-08 | 3,17E-10 | 3,12E-11 | MND | MND | MND | MND | MND | 2,24E-10 | MND | MNR | 2,08E-12 | 6,29E-11 | 1,32E-09 | 1,70E-09 |
| Human tox. non-cancer | CTUh | 1,18E-06 | 1,98E-08 | 8,02E-09 | 1,21E-06 | 3,77E-08 | 4,98E-10 | MND | MND | MND | MND | MND | 7,64E-09 | MND | MNR | 8,37E-11 | 2,12E-09 | 9,09E-08 | -1,62E-07 |
| SQP ⁷⁾ | - | 6,49E+01 | 3,80E+00 | 1,22E+01 | 8,10E+01 | 7,83E+00 | 6,90E-02 | MND | MND | MND | MND | MND | 2,04E+00 | MND | MNR | 1,08E-01 | 4,77E-01 | 2,01E-01 | -1,04E+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 | 1,61E+01 | 7,36E-02 | 2,72E+00 | 1,89E+01 | 1,46E-01 | 7,91E-03 | MND | MND | MND | MND | MND | 2,45E+00 | MND | MNR | 1,06E-03 | 4,22E-02 | 1,23E-03 | -2,93E+00 |
| Renew. PER as material | MJ | 0,00E+00 | 0,00E+00 | 3,57E+00 | 3,57E+00 | 0,00E+00 | -3,57E+00 | MND | MND | MND | MND | MND | 0,00E+00 | MND | MNR | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Total use of renew. PER | MJ | 1,61E+01 | 7,36E-02 | 6,29E+00 | 2,25E+01 | 1,46E-01 | -3,56E+00 | MND | MND | MND | MND | MND | 2,45E+00 | MND | MNR | 1,06E-03 | 4,22E-02 | 1,23E-03 | -2,93E+00 |
| Non-re. PER as energy | MJ | 1,16E+02 | 2,27E+01 | 1,01E+01 | 1,49E+02 | 4,31E+01 | 1,18E-01 | MND | MND | MND | MND | MND | 1,39E+01 | MND | MNR | 9,40E-02 | 3,61E-01 | 7,69E-02 | -1,30E+01 |
| Non-re. PER as material | MJ | 0,00E+00 | 0,00E+00 | 3,45E+00 | 3,45E+00 | 0,00E+00 | -3,45E+00 | MND | MND | MND | MND | MND | 0,00E+00 | MND | MNR | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Total use of non-re. PER | MJ | 1,16E+02 | 2,27E+01 | 1,36E+01 | 1,53E+02 | 4,31E+01 | -3,33E+00 | MND | MND | MND | MND | MND | 1,39E+01 | MND | MNR | 9,40E-02 | 3,61E-01 | 7,69E-02 | -1,30E+01 |
| Secondary materials | kg | 3,50E-01 | 1,22E-03 | 2,80E-01 | 6,32E-01 | 2,44E-03 | 2,08E-04 | MND | MND | MND | MND | MND | 1,07E-03 | MND | MNR | 2,61E-05 | 2,67E-04 | 2,28E-05 | 2,37E-01 |
| Renew. secondary fuels | MJ | 5,62E-03 | 1,48E-05 | 2,15E-02 | 2,72E-02 | 2,88E-05 | 2,65E-06 | MND | MND | MND | MND | MND | 5,50E-06 | MND | MNR | 2,63E-07 | 2,25E-05 | 8,61E-07 | -3,40E-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 | 0,00E+00 | MND | MNR | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of net fresh water | m³ | 1,20E-01 | 9,09E-04 | 9,87E-03 | 1,31E-01 | 1,78E-03 | 5,56E-04 | MND | MND | MND | MND | MND | 1,17E-02 | MND | MNR | 1,22E-05 | 6,44E-04 | 8,41E-05 | -1,07E-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 | 3,28E+00 | 7,32E-03 | 3,11E-02 | 3,32E+00 | 1,41E-02 | 7,10E-04 | MND | MND | MND | MND | MND | 4,87E-02 | MND | MNR | 1,25E-04 | 2,78E-03 | 5,71E-02 | -5,49E-01 |
| Non-hazardous waste | kg | 4,18E+01 | 1,01E-01 | 9,27E-01 | 4,28E+01 | 1,97E-01 | 1,39E-01 | MND | MND | MND | MND | MND | 3,15E+00 | MND | MNR | 2,05E-03 | 2,68E-01 | 2,90E-01 | -5,48E+00 |
| Radioactive waste | kg | 3,02E-04 | 1,64E-04 | 5,46E-05 | 5,20E-04 | 3,12E-04 | 1,93E-07 | MND | MND | MND | MND | MND | 1,02E-04 | MND | MNR | 6,29E-07 | 1,11E-06 | 0,00E+00 | -4,75E-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 | 0,00E+00 | MND | MNR | 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 | 0,00E+00 | MND | MND | MND | MND | MND | 0,00E+00 | MND | MNR | 0,00E+00 | 7,87E-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 | 0,00E+00 | MND | MNR | 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 | 5,15E+00 | MND | MND | MND | MND | MND | 0,00E+00 | MND | MNR | 0,00E+00 | 5,65E+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 ₂ e | 9,13E+00 | 1,64E+00 | 5,96E-01 | 1,14E+01 | 3,11E+00 | 4,21E-01 | MND | MND | MND | MND | MND | 6,46E-01 | MND | MNR | 6,19E-03 | 5,23E-01 | 2,07E-02 | -1,06E+00 |
| Ozone depletion Pot. | kg CFC ₁₁ e | 4,62E-07 | 2,97E-07 | 8,48E-08 | 8,44E-07 | 5,64E-07 | 1,09E-09 | MND | MND | MND | MND | MND | 2,82E-08 | MND | MNR | 1,14E-09 | 1,59E-09 | 8,22E-10 | -5,45E-08 |
| Acidification | kg SO ₂ e | 1,03E-01 | 6,42E-03 | 2,52E-03 | 1,11E-01 | 1,22E-02 | 7,02E-05 | MND | MND | MND | MND | MND | 2,99E-03 | MND | MNR | 2,06E-05 | 1,77E-04 | 2,07E-05 | -1,46E-02 |
| Eutrophication | kg PO ₄ ³ e | 3,63E-02 | 1,25E-03 | 1,36E-03 | 3,89E-02 | 2,36E-03 | 1,04E-04 | MND | MND | MND | MND | MND | 2,41E-03 | MND | MNR | 4,69E-06 | 1,44E-04 | 1,11E-03 | -4,55E-03 |
| POCP ("smog") | kg C ₂ H ₄ e | 6,96E-03 | 1,32E-04 | 1,46E-04 | 7,24E-03 | 2,52E-04 | 6,23E-06 | MND | MND | MND | MND | MND | 1,22E-04 | MND | MNR | 8,03E-07 | 8,19E-06 | 3,95E-06 | -6,03E-04 |
| ADP-elements | kg Sbe | 2,36E-03 | 4,77E-07 | 7,56E-06 | 2,36E-03 | 9,67E-07 | 1,23E-07 | MND | MND | MND | MND | MND | 1,56E-06 | MND | MNR | 1,42E-08 | 5,99E-07 | 9,52E-09 | -2,75E-04 |
| ADP-fossil | MJ | 1,28E+02 | 2,27E+01 | 1,35E+01 | 1,64E+02 | 4,31E+01 | 1,18E-01 | MND | MND | MND | MND | MND | 1,39E+01 | MND | MNR | 9,39E-02 | 3,61E-01 | 7,69E-02 | -1,30E+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.

Elisabet Amat, as an authorized verifier acting for EPD Hub Limited.

02.05.2025

