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# Environmental Product Declaration

## Architectural Precast Concrete Cladding

### LOW CARBON-SINGLE SKIN

**IN ACCORDANCE WITH EN 15804+A2 & ISO 14025**

EPD HUB, HUB-5396
Published on 25.02.2026, last updated on 25.02.2026, valid until 24.02.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

# General Information

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## Manufacturer

| | |
|---|---|
| **Manufacturer** | Techrete |
| **Address** | Stephenstown Industrial Park, Balbriggan, Co. Dublin, Ireland, K32 W665 |
| **Contact details** | info@techrete.com |
| **Website** | www.techrete.com |

## EPD Standards, Scope & Verification

| | |
|---|---|
| **Program operator** | EPD Hub, hub@epdhub.com |
| **Reference standard** | EN 15804:2012+A2:2019/AC:2021 and ISO 14025 |
| **PCR** | EPD Hub Core PCR Version 1.2, 24 Mar 2025<br>EN 16757 Product Category Rules for concrete and concrete elements |
| **Sector** | Construction product |
| **Category of EPD** | Third party verified EPD |
| **Parent EPD number** | - |
| **Scope of the EPD** | Cradle to gate with modules B1, C1-C4, D |
| **EPD author** | Derek Russell, Atteyeh Natanzi, Jingran Gao - Techrete |
| **EPD verification** | Independent verification of this EPD and data, according to ISO 14025:<br>☐ Internal verification<br>☑ External verification |
| **EPD verifier** | Vera Durão, as an authorised verifier acting for EPD Hub Limited |

## Product

| | |
|---|---|
| **Product name** | Architectural Precast Concrete Cladding Low Carbon-Single Skin |
| **Additional labels** | Low Carbon-Single Skin |
| **Product reference** | N/A |
| **Place(s) of raw material origin** | Ireland, United Kingdom |
| **Place of production** | Dublin, Ireland |
| **Place(s) of installation and use** | United Kingdom |
| **Period for data** | 01/11/2024 - 31/10/2025 |
| **Averaging in EPD** | No grouping |
| **Variation in GWP-fossil for A1-A3 (%)** | N/A |
| **GTIN (Global Trade Item Number)** | - |
| **NOBB (Norwegian Building Product Database)** | - |
| **A1-A3 Specific data (%)** | 92.3 |

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

# General Information

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## Environmental Data Summary

| | |
|---|---|
| **Declared unit** | 1 m² |
| **Declared unit mass** | 377,6 kg |
| **GWP-fossil, A1-A3 ($kgCO_2e$)** | 4,84E+01 |
| **GWP-total, A1-A3 ($kgCO_2e$)** | 4,85E+01 |
| **Secondary material, inputs (%)** | 4,09 |
| **Secondary material, outputs (%)** | 0 |
| **Total energy use, A1-A3 (kWh)** | 228 |
| **Net freshwater use, A1-A3 ($m^3$)** | 0,41 |

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# Product & Manufacturer

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## About the Manufacturer

Founded in the 1980s, Techrete is the largest architectural precast concrete facade contractor in Ireland and one of the largest in Europe. Operating from two modern production facilities in North Lincolnshire and Dublin and with sales and design offices in London and Leicester, Techrete provides a complete precast concrete solution from design to manufacture and installation.

## Product Description

This EPD covers Techrete's **Architectural Precast Concrete Cladding, Low Carbon-Single Skin** products, produced from raw materials: white cement, Supplementary Cementitious Materials (SCMs), fine and coarse aggregate, admixtures, and pigments, where required. The reinforcement used in these products is 100% recycled steel.

The declared product is 1 m² of the reinforced precast concrete cladding panel. Due to the geometric variability of the cladding, different volumes of concrete and steel are required for each product, so a declared unit of 1 m² of reinforced architectural concrete is used. For the declared unit, the average thickness for a flat cladding panel is 150 mm. A novel low-carbon mix design is developed to minimise the environmental impact of raw materials in accordance with BS8500: 2023.

Further information can be found at:

**www.techrete.com**

## Product Raw Material Main Composition

| Raw material category | Amount, mass % | Material origin |
|---|---|---|
| Metals | 4,4 | United Kingdom |
| Minerals | 95,6 | Ireland |
| Fossil materials | - | - |
| 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 |

## Functional Unit & Service Life

| | |
|---|---|
| Declared unit | 1 m² |
| Mass per declared unit | 377,6 kg |
| Functional unit | 1 m² of C40/50 architectural precast concrete cladding with 150 mm thickness |
| Reference service life | 60 years |

## Substances, Reach, Very High Concern

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

# Product Lifecycle

## 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 | ND | ND | x | ND | ND | ND | ND | ND | ND | x | x | x | x | x | | |
| Raw materials | Transport | Manufacturing | Transport | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse | Recovery | Recycling |

*Modules not declared = ND.*

## Manufacturing & Packaging (A1 – A3)

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

A market-based approach is used in modelling the electricity mix utilized in the factory. The electricity used during production is supplied in a combination of the grid electricity (100% renewable) and solar panels installed on the factory's roof. The heating facilities are fueled by LPG stored in gas cylinders. Fork lifters and other building machineries are fueled by diesel (A3).

The manufacturing process of architectural precast concrete commences with the fabrication of a custom-designed profiled mould or formwork, tailored to meet the specific project specifications. The transportation method and distance of each raw material are modelled according to the actual location of each manufacturer/quarry ranging from 30 km to 3000 km by diesel lorries for road transportation or a combination of lorries and ships for overseas materials (A2).

Fresh concrete is carefully poured into the mould and cured. Once the required strength is achieved, the mould is disassembled, and the precast unit is lifted and transferred to the finishing area. The completed precast element is then stored in a yard until it is transported to the construction site without the necessity for additional packaging.

The production losses are estimated by the difference between the actual consumption of materials and the quantities of finished products. The inert concrete waste is treated by landfilling, and the waste reinforcement is treated by the recycling plant. The transportation distance of production waste is modelled by the actual distance between the production site and recycling plants (10km). There are some necessary ancillary materials which fall below the 1% cut-off criteria, including steel screws, reinforcement spacers, mould lubricants, etc. (A3).

The use of renewable energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

## Transport & Installation (A4 – A5)

Transportation (A4) and Installation processes (A5) have been excluded from this EPD because the transport distances and installation designs vary significantly between projects.

## Product Use & Maintenance (B1 – B7)

The carbonation of concrete during the use stage has been calculated as the methodology outlined in EN 16757.

The reference service life, as typically defined as the design life in project specifications, is assumed to be 60 years. It is assumed that the precast concrete cladding covered by this EPD does not require maintenance, repair, replacement or refurbishment during its lifetime. Air, soil, and water impacts during the use phase have not been studied.

# Product Lifecycle

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## Product End of Life (C1-C4, D)

At the end-of-life stage, all demolition waste is assumed to be fully separated and collected as construction waste. Energy consumption for demolition of a reinforced concrete structure is assumed to be 10 kWh/m², and the average mass of the building is assumed to be 1 ton/m² (Bozdağ, Ö & Seçer, M. 2007). The diesel fuel is used by building machines for demolition work (C1).

The product does not lose mass during its use phase; therefore, the end-of-life weight remains equal to the declared weight. The disposal site is assumed to be located approximately 15 km away (The UK Construction Industry Annual Waste Report 2023), with transportation carried out by a standard lorry (C2).

At the waste treatment plant, the concrete panels are crushed, and the steel is separated. About 96.5% of concrete waste and 98% of steel waste are recycled (Royal Institution of Chartered Surveyors (RICS), 2023). The process losses of the waste treatment plant are assumed to be negligible (C3). The remaining 3.5% of concrete waste and 2% steel waste are assumed to be sent to the landfill (C4).

Concrete and steel have high recycling potential, allowing them to be reused as secondary raw materials, reducing the need for virgin resources. After waste processing, 96.5% of concrete waste and 98% of steel waste are converted into secondary materials. However, while the recycled content in new concrete is assumed to be 0%, steel reinforcement contains 100% recycled material provided by the manufacturer. Therefore, the benefit of steel scrap reuse is not declared (D).

# Manufacturing Process

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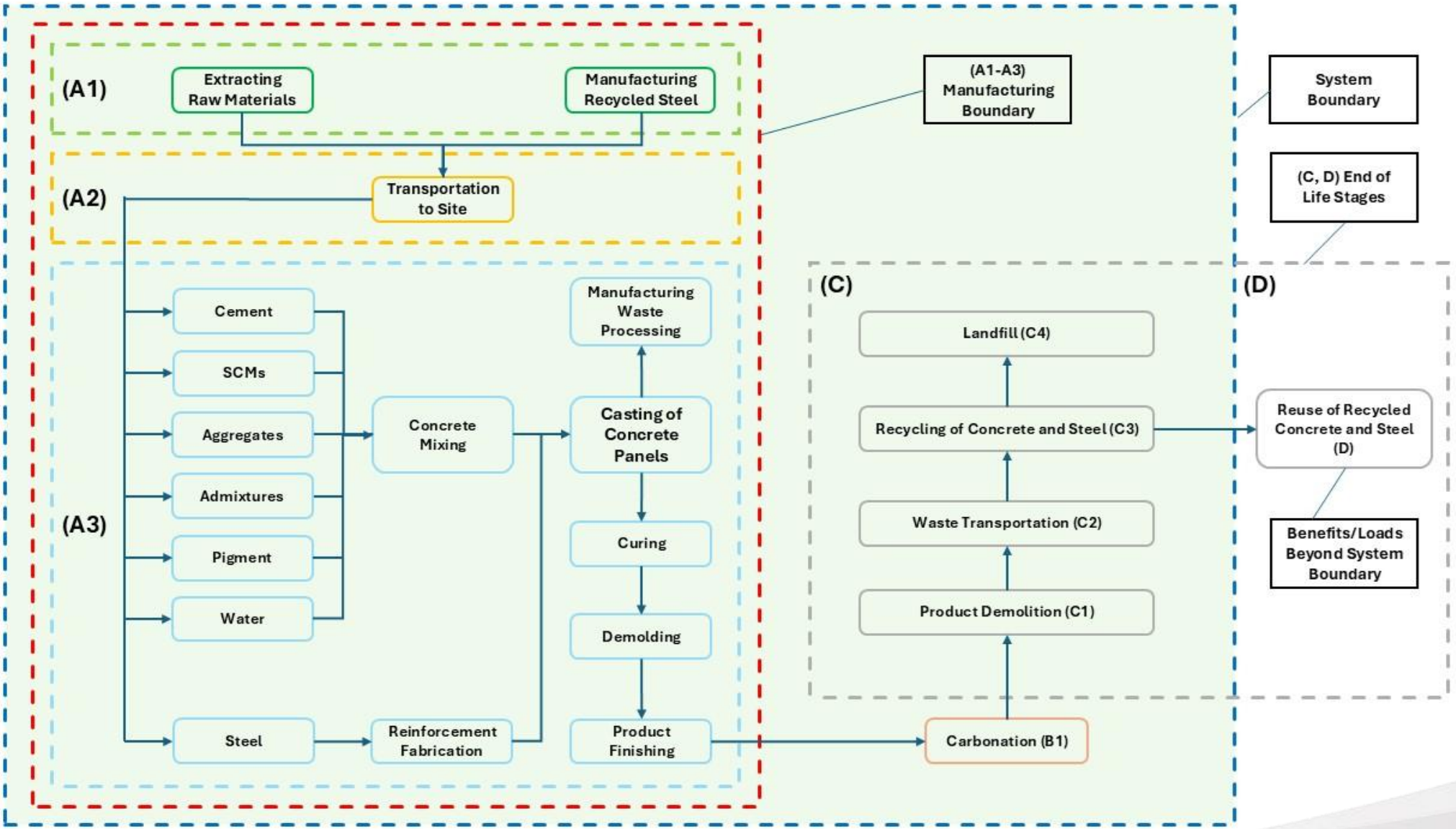

# Lifecycle Assessment

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## 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 materials and energy consumption. All inputs and outputs of the unit processes for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

This LCA study includes the provision of all materials, transportation, energy and emission flows, and end-of-life processing of the product. All industrial processes from raw materials acquisition and pre-processing, production, and end-of-life management are included. Due to lack of data, some materials are excluded but they do not exceed the 1% cut-off criteria. These include materials which are used in the product only in very small amounts and have a negligible impact on the emissions of the product.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

## Validation of Data

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on pages 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section.

Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

## Allocations, Estimates & 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 | Not applicable |
| Ancillary materials | Allocated by mass or volume |
| Manufacturing energy and waste | Allocated by mass or volume |

All estimations and assumptions are given below. Proxy data is used for certain materials due to their unavailability in the database.

**Module A1:** The average quantity of steel reinforcement is assumed to be 110 kg per 1 $m^3$ of reinforced concrete and steel fixings are not included in this EPD because the quantity of required fixings varies significantly between different structural designs.

**Module A2 and C2:** Vehicle capacity utilization volume factor is assumed to be 1, which means full load. It may vary, but as the role of transportation emissions in total results is small, the variety in load is assumed to be negligible. To be conservative, empty returns are included in this study as implemented through an average load factor in the Ecoinvent transport datapoints.

# Lifecycle Assessment

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**Module A3:** The electricity suppliers provided Techrete with a certificate of 100% renewable energy and data on the shares of different renewable electricity sources. The transformation and distribution losses for high-voltage electricity are assumed to be 7.4% (CEER 2nd Report on Power Losses, 2020).

**Module C2:** The transportation distance to the waste handling facility is estimated as 15 km, and the transportation method is assumed as a standard lorry.

**Module C3, C4, D:** 96.5% of concrete waste and 98% of steel waste are sent for recycling, while the remaining 3.5% concrete waste and 2% steel waste are assumed to be landfilled based on the Whole Life Carbon assessment for the built environment published by Royal Institution of Chartered Surveyors (RICS), 2023. The benefit of steel reuse is 0 because steel reinforcement is made from 100% recycled content.


## Product & Manufacturing Sites Grouping

| | |
|---|---|
| **Type of grouping** | No grouping |
| **Grouping method** | Not applicable |
| **Variation in GWP-fossil for A1- A3, %** | N/A |

No grouping is necessary in this EPD since all products belong to the same type of precast concrete panels and were manufactured at the same plant.

## LCA Software & 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 follows the methodology ‘allocation, Cut-off, EN 15804+A2’.

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# Environmental Impact Data

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The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

## Core Environmental Impact Indicators – EN 15804+A2, EF 3.1

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP – total[1)] | kg $CO_2$e | 3,01E+01 | 6,20E+00 | 1,22E+01 | 4,85E+01 | ND | 0,00E+00 | -5,50E-01 | ND | ND | ND | ND | ND | ND | 1,14E+00 | 5,86E-01 | 3,15E+00 | 8,07E-02 | -1,16E+00 |
| GWP – fossil | kg $CO_2$e | 3,00E+01 | 6,20E+00 | 1,21E+01 | 4,84E+01 | ND | 0,00E+00 | -5,50E-01 | ND | ND | ND | ND | ND | ND | 1,14E+00 | 5,86E-01 | 3,15E+00 | 8,07E-02 | -1,16E+00 |
| GWP – biogenic | kg $CO_2$e | 7,73E-02 | 1,48E-03 | -1,66E-03 | 7,72E-02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,17E-04 | 1,28E-04 | -3,22E-04 | -2,57E-05 | 0,00E+00 |
| GWP – LULUC | kg $CO_2$e | 1,37E-02 | 2,52E-03 | 2,91E-02 | 4,53E-02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,17E-04 | 2,28E-04 | 3,23E-04 | 4,61E-05 | -5,58E-04 |
| Ozone depletion pot. | kg $CFC\text{-}_{11}$e | 8,65E-07 | 1,27E-07 | 3,32E-07 | 1,32E-06 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,75E-08 | 1,22E-08 | 4,82E-08 | 2,34E-09 | -1,42E-08 |
| Acidification potential | mol $H^+$e | 1,40E-01 | 2,72E-02 | 4,38E-02 | 2,11E-01 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,03E-02 | 1,38E-03 | 2,84E-02 | 5,72E-04 | -9,53E-03 |
| EP-freshwater[2)] | kg Pe | 4,63E-04 | 4,17E-04 | 1,64E-03 | 2,52E-03 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 3,30E-05 | 4,09E-05 | 9,10E-05 | 6,64E-06 | -1,66E-04 |
| EP-marine | kg Ne | 1,96E-02 | 6,76E-03 | 1,61E-02 | 4,25E-02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 4,78E-03 | 3,63E-04 | 1,32E-02 | 2,18E-04 | -2,87E-03 |
| EP-terrestrial | mol Ne | 4,18E-01 | 7,41E-02 | 1,53E-01 | 6,45E-01 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 5,24E-02 | 3,92E-03 | 1,44E-01 | 2,38E-03 | -3,91E-02 |
| POCP ("smog")[3)] | kg NMVOCe | 1,14E-01 | 3,32E-02 | 5,46E-02 | 2,02E-01 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,56E-02 | 2,40E-03 | 4,31E-02 | 8,53E-04 | -9,69E-03 |
| ADP-minerals & metals[4)] | kg Sbe | 1,04E-04 | 1,69E-05 | 9,25E-05 | 2,14E-04 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 4,09E-07 | 1,68E-06 | 1,13E-06 | 1,28E-07 | -1,73E-05 |
| ADP-fossil resources | MJ | 3,20E+02 | 9,17E+01 | 1,72E+02 | 5,83E+02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,49E+01 | 8,80E+00 | 4,12E+01 | 1,98E+00 | -1,60E+01 |
| Water use[5)] | $m^3$e depr. | 4,83E+00 | 4,62E-01 | 2,00E+00 | 7,29E+00 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 3,73E-02 | 4,50E-02 | 1,03E-01 | 5,72E-03 | -5,43E+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.*

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## Additional (Optional) Environmental Impact Indicators – EN 15804 + A2, EF 3.1

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Particulate matter | Incidence | 1,73E-06 | 5,71E-07 | 7,50E-07 | 3,05E-06 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 2,93E-07 | 5,71E-08 | 3,40E-06 | 1,30E-08 | -2,24E-07 |
| Ionizing radiation[6)] | kBq U235e | 2,46E+00 | 1,06E-01 | 2,35E-01 | 2,80E+00 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 6,62E-03 | 1,06E-02 | 1,83E-02 | 1,25E-03 | -2,07E-01 |
| Ecotoxicity (freshwater) | CTUe | 2,56E+02 | 1,60E+01 | 3,98E+01 | 3,12E+02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 8,22E-01 | 1,04E+00 | 2,27E+00 | 1,66E-01 | -4,73E+00 |
| Human toxicity, cancer | CTUh | 7,89E-08 | 1,06E-09 | 4,72E-09 | 8,47E-08 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,17E-10 | 9,76E-11 | 3,24E-10 | 1,49E-11 | -6,30E-10 |
| Human tox. non-cancer | CTUh | 2,77E-06 | 5,68E-08 | 1,14E-07 | 2,94E-06 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,86E-09 | 5,69E-09 | 5,13E-09 | 3,42E-10 | -1,46E-08 |
| SQP[7)] | - | 7,69E+02 | 8,66E+01 | 6,26E+02 | 1,48E+03 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,05E+00 | 8,86E+00 | 2,89E+00 | 3,90E+00 | -3,71E+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 | 1,64E+02 | 1,44E+00 | 6,40E+01 | 2,29E+02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 9,46E-02 | 1,43E-01 | 2,61E-01 | 1,91E-02 | -5,60E+00 |
| Renew. PER as material | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Total use of renew. PER | MJ | 1,64E+02 | 1,44E+00 | 6,40E+01 | 2,29E+02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 9,46E-02 | 1,43E-01 | 2,61E-01 | 1,91E-02 | -5,60E+00 |
| Non-re. PER as energy | MJ | 3,20E+02 | 9,17E+01 | 1,72E+02 | 5,84E+02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,49E+01 | 8,80E+00 | 4,12E+01 | 1,98E+00 | -1,60E+01 |
| Non-re. PER as material | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Total use of non-re. PER | MJ | 3,20E+02 | 9,17E+01 | 1,72E+02 | 5,84E+02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,49E+01 | 8,80E+00 | 4,12E+01 | 1,98E+00 | -1,60E+01 |
| Secondary materials | kg | 1,54E+01 | 4,02E-02 | 7,21E-02 | 1,55E+01 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 6,21E-03 | 3,80E-03 | 1,71E-02 | 4,98E-04 | -4,43E-02 |
| Renew. secondary fuels | MJ | 7,97E+00 | 4,74E-04 | 9,34E-04 | 7,97E+00 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,62E-05 | 4,80E-05 | 4,48E-05 | 1,03E-05 | -3,20E-04 |
| Non-ren. secondary fuels | MJ | 0,00E+00 | 0,00E+00 | 4,52E-03 | 4,52E-03 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of net fresh water | $m^3$ | 3,36E-01 | 1,30E-02 | 5,84E-02 | 4,08E-01 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 9,88E-04 | 1,30E-03 | 2,72E-03 | 2,06E-03 | -1,26E-01 |

*8) PER = Primary energy resources*

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## Additional Indicator – GWP - GHG

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1,29E-01 | 1,33E-01 | 3,72E-01 | 6,34E-01 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,66E-02 | 1,27E-02 | 4,59E-02 | 2,19E-03 | -1,14E-01 |
| Non-hazardous waste | kg | 4,17E+00 | 2,61E+00 | 1,13E+02 | 1,20E+02 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 2,27E-01 | 2,55E-01 | 6,25E-01 | 5,00E-02 | -1,57E+00 |
| Radioactive waste | kg | 1,74E-03 | 2,61E-05 | 7,08E-05 | 1,84E-03 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 1,62E-06 | 2,62E-06 | 4,48E-06 | 3,04E-07 | -4,59E-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 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Materials for recycling | kg | 2,94E+00 | 0,00E+00 | 3,96E-03 | 2,94E+00 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Materials for energy rec | kg | 2,45E-03 | 0,00E+00 | 9,90E-01 | 9,93E-01 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy – Electricity | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 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 | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

## Additional Indicator – GWP - GHG

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-GHG[9)] | kg $CO_2e$ | 3,00E+01 | 6,20E+00 | 1,22E+01 | 4,84E+01 | ND | 0,00E+00 | -5,50E-01 | ND | ND | ND | ND | ND | ND | 1,14E+00 | 5,86E-01 | 3,15E+00 | 8,08E-02 | -1,16E+00 |

*9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.*

# Scenario Documentation

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## Manufacturing Energy Scenario Documentation

| Scenario parameter | Value |
|---|---|
| Electricity data source and quality | Mix of several sources of renewable electricity, Ecoinvent 3.10.1 |
| Electricity $CO_2e$ / kWh | 0,036 |
| District heating data source and quality | N/A |
| District heating $CO_2e$ / kWh | N/A |

## End of Life Scenario Documentation

| Scenario information | Value |
|---|---|
| Collection process - kg collected separately | 0 |
| Collection process - kg collected with mixed waste | 377,6 |
| Recovery process - kg for re-use | 0 |
| Recovery process - kg for recycling | 364.6 |
| Recovery process - kg for energy recovery | 0 |
| Disposal (total) - kg for final deposition | 13,0 |
| Scenario assumptions e.g., transportation | 15 km to nearest recycling or landfilling sites |

One Click LCA mpa Masonry EPD Hub

# Third Party Verification Statement

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EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15802+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Vera Durão, as an authorised verifier acting for EPD Hub Limited
25.02.2026

EPD Hub
VERIFIED ISO 14025