Techrete
Building Sustainable Futures

40 YEARS

Environmental Product Declaration

Architectural Precast Concrete Cladding

SINGLE SKIN – GREY CEMENT BASED

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EPD HUB, HUB-4396

Published on 13.11.2025, last updated on 13.11.2025, valid until 12.11.2030

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.

One Click LCA mpa Masonry EPD Hub

General Information

Manufacturer

Manufacturer	Techrete
Address	Station Road, Scawby, Brigg, North Lincolnshire, United Kingdom, DN20 9DT
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 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: ☐ Internal verification ☑ External verification
EPD verifier	Vera Durão, as an authorised verifier acting for EPD Hub Limited

Product

Product name	Architectural Precast Concrete Cladding Single Skin – Grey Cement Based
Additional labels	Grey Facing Panel
Product reference	N/A
Place(s) of raw material origin	United Kingdom
Place of production	United Kingdom
Place(s) of installation and use	United Kingdom
Period for data	01/07/2024 - 30/06/2025
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 (%)	88,3

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

Environmental Data Summary

Declared unit	1 m²
Declared unit mass	372,1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	5,45E+01
GWP-total, A1-A3 ($kgCO_2e$)	5,48E+01
Secondary material, inputs (%)	4,92
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	208
Net freshwater use, A1-A3 (m^3)	0,53

Product & Manufacturer

About the Manufacturer

Founded in the 1980s, Techrete is the largest architectural precast concrete facade contractor in the UK 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 Single Skin – Grey Cement Based** products, produced from raw materials: grey 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. The average thickness for a flat cladding panel is approximately 150 mm. The different concrete mixes use a range of natural aggregates with varying colours, geometries, and shades sourced from different quarries. All mix designs are developed to similar criteria and proportions, which ensures the environmental impacts remain consistent across the production process.

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	United Kingdom
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	372,1 kg
Functional unit	1 m² of C40/50 architectural precast concrete cladding with 150mm 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. Modules not relevant = NR

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 (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 (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 materials consumed and the actual volume of finished products. The transportation distance of production waste is modelled by the actual distance between the production site and recycling plants. 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 green 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 in 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

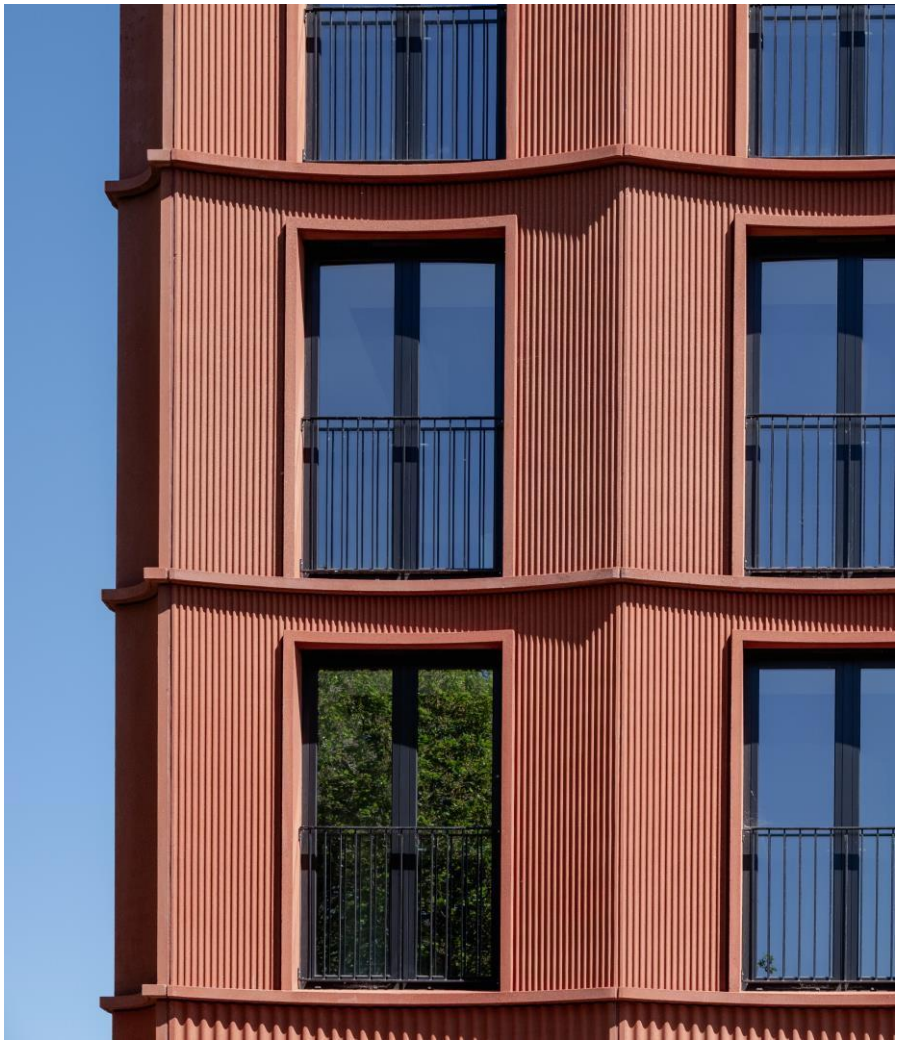
Product End of Life (C1-C4, D)

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).

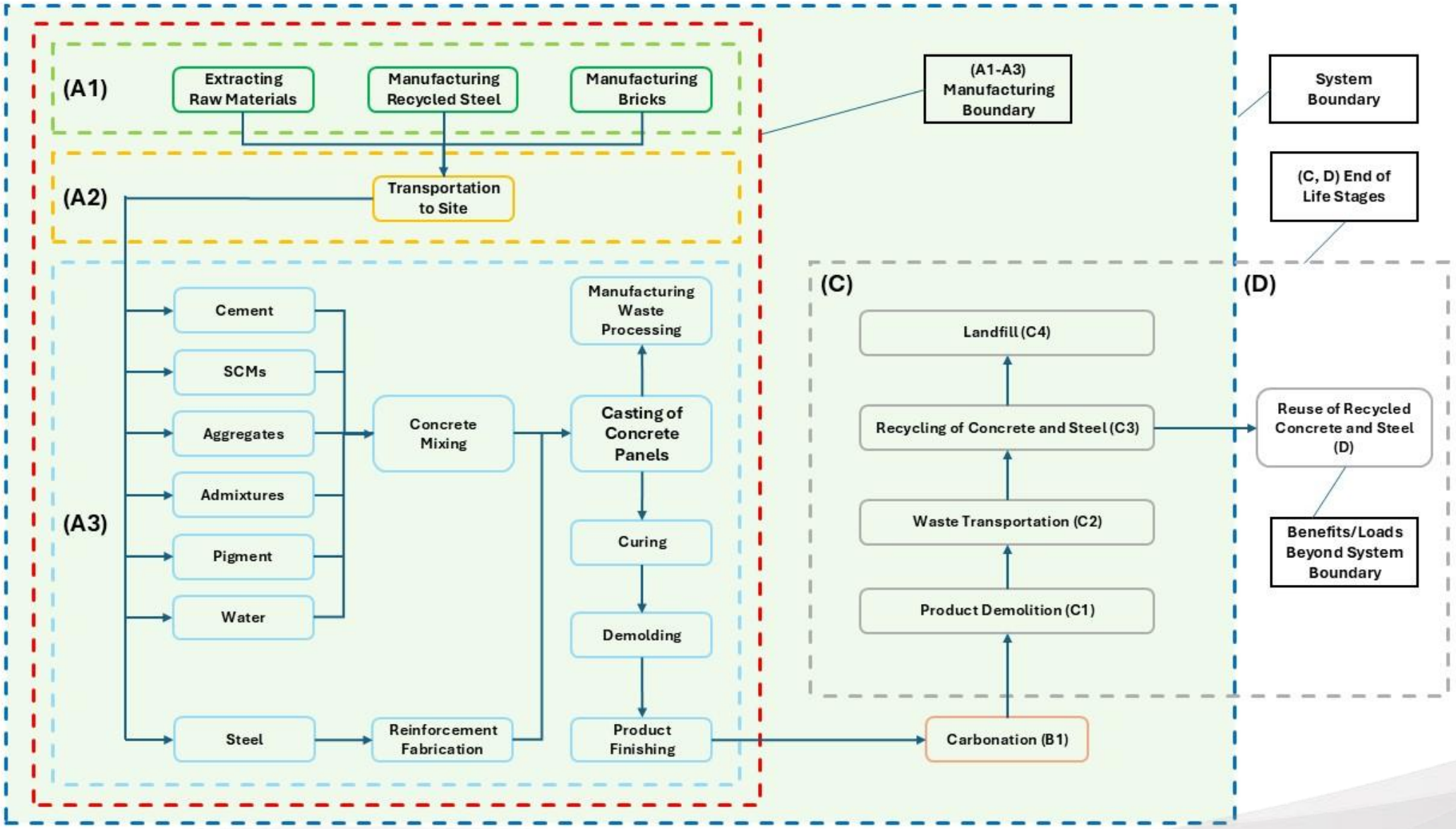
The product does not lose mass during its use phase; therefore, the end-of-life weight remains equal to the declared weight. The disposal site is assumed to be located approximately 15 km away (The UK Construction Industry Annual Waste Report 2023), with transportation carried out by a standard lorry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

At the waste treatment plant, the concrete panels are crushed, and the steel is separated. About 96.5% of concrete and 98% of steel 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 and 98% of steel 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).



System Diagram



Lifecycle 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.

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 page 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: Due to the variability of steel reinforcement and steel fixing components from different designs, 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

Module A3: The electricity suppliers provided Techrete with a certificate of 100% renewable energy. The shares of different sources of renewable electricity are based on the published national reports of annual energy production. The natural gas supplier also provided Techrete with a tariff of 100% RGGO certified biogas.

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 follow the methodology ‘allocation, Cut-off, EN 15804+A2’.

Environmental Impact Data

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_2e	4,22E+01	6,95E+00	5,68E+00	5,48E+01	ND	ND	-1,12E+00	ND	ND	ND	ND	ND	ND	1,14E+00	5,78E-01	3,12E+00	7,98E-02	-1,15E+00
GWP – fossil	kg CO_2e	4,21E+01	6,94E+00	5,48E+00	5,45E+01	ND	ND	-1,12E+00	ND	ND	ND	ND	ND	ND	1,14E+00	5,77E-01	3,12E+00	7,98E-02	-1,15E+00
GWP – biogenic	kg CO_2e	6,27E-02	1,47E-03	1,76E-01	2,41E-01	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,17E-04	1,26E-04	-3,18E-04	-2,54E-05	0,00E+00
GWP – LULUC	kg CO_2e	1,18E-02	2,72E-03	2,81E-02	4,26E-02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,17E-04	2,25E-04	3,19E-04	4,56E-05	-5,50E-04
Ozone depletion pot.	kg CFC-$_{11}$e	1,58E-06	1,44E-07	1,76E-07	1,90E-06	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,75E-08	1,20E-08	4,77E-08	2,31E-09	-1,40E-08
Acidification potential	mol H^+e	1,19E-01	2,06E-02	4,16E-02	1,81E-01	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,03E-02	1,36E-03	2,81E-02	5,65E-04	-9,39E-03
EP-freshwater[2)]	kg Pe	3,26E-03	4,79E-04	1,63E-03	5,38E-03	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	3,30E-05	4,03E-05	9,00E-05	6,56E-06	-1,63E-04
EP-marine	kg Ne	1,39E-02	5,35E-03	1,69E-02	3,62E-02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	4,78E-03	3,57E-04	1,30E-02	2,16E-04	-2,83E-03
EP-terrestrial	mol Ne	4,87E-01	5,82E-02	1,56E-01	7,02E-01	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	5,24E-02	3,87E-03	1,43E-01	2,35E-03	-3,85E-02
POCP ("smog")[3)]	kg NMVOCe	1,16E-01	3,13E-02	4,68E-02	1,94E-01	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,56E-02	2,37E-03	4,26E-02	8,43E-04	-9,54E-03
ADP-minerals & metals[4)]	kg Sbe	6,60E-05	1,96E-05	7,97E-05	1,65E-04	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	4,09E-07	1,65E-06	1,12E-06	1,27E-07	-1,70E-05
ADP-fossil resources	MJ	2,83E+02	1,04E+02	8,08E+01	4,67E+02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,49E+01	8,67E+00	4,08E+01	1,96E+00	-1,57E+01
Water use[5)]	m^3e depr.	7,71E+00	5,27E-01	1,69E+00	9,93E+00	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	3,73E-02	4,44E-02	1,02E-01	5,65E-03	-5,35E+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, 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	1,32E-06	6,66E-07	7,93E-07	2,78E-06	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	2,93E-07	5,63E-08	3,35E-06	1,29E-08	-2,20E-07
Ionizing radiation[6)]	kBq U235e	6,31E+00	1,24E-01	2,62E-01	6,69E+00	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	6,62E-03	1,04E-02	1,81E-02	1,23E-03	-2,04E-01
Ecotoxicity (freshwater)	CTUe	2,41E+02	1,21E+01	2,94E+01	2,83E+02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	8,22E-01	1,02E+00	2,24E+00	1,64E-01	-4,66E+00
Human toxicity, cancer	CTUh	9,92E-08	1,16E-09	4,92E-09	1,05E-07	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,17E-10	9,61E-11	3,20E-10	1,47E-11	-6,20E-10
Human tox. non-cancer	CTUh	2,63E-06	6,63E-08	1,01E-07	2,79E-06	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,86E-09	5,60E-09	5,07E-09	3,38E-10	-1,44E-08
SQP[7)]	-	7,86E+02	1,03E+02	4,37E+02	1,33E+03	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,05E+00	8,73E+00	2,86E+00	3,85E+00	-3,65E+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+02	1,67E+00	4,11E+01	2,03E+02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	9,46E-02	1,41E-01	2,58E-01	1,89E-02	-5,51E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	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	1,60E+02	1,67E+00	4,11E+01	2,03E+02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	9,46E-02	1,41E-01	2,58E-01	1,89E-02	-5,51E+00
Non-re. PER as energy	MJ	2,84E+02	1,04E+02	8,07E+01	4,69E+02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,49E+01	8,67E+00	4,08E+01	1,96E+00	-1,57E+01
Non-re. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	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	2,84E+02	1,04E+02	8,07E+01	4,69E+02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,49E+01	8,67E+00	4,08E+01	1,96E+00	-1,57E+01
Secondary materials	kg	1,83E+01	4,50E-02	1,57E-01	1,85E+01	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	6,21E-03	3,75E-03	1,69E-02	4,92E-04	-4,36E-02
Renew. secondary fuels	MJ	2,67E+01	5,58E-04	8,78E-04	2,67E+01	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,62E-05	4,73E-05	4,43E-05	1,02E-05	-3,15E-04
Non-ren. secondary fuels	MJ	4,92E+01	0,00E+00	3,48E-03	4,92E+01	ND	ND	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	4,60E-01	1,52E-02	5,31E-02	5,29E-01	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	9,88E-04	1,28E-03	2,69E-03	2,04E-03	-1,24E-01

8) PER = Primary energy resources.

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	9,36E-02	1,50E-01	2,83E-01	5,26E-01	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,66E-02	1,25E-02	4,54E-02	2,16E-03	-1,13E-01
Non-hazardous waste	kg	3,10E+00	2,98E+00	1,63E+02	1,69E+02	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	2,27E-01	2,51E-01	6,18E-01	4,94E-02	-1,54E+00
Radioactive waste	kg	8,35E-04	3,06E-05	7,87E-05	9,44E-04	ND	ND	0,00E+00	ND	ND	ND	ND	ND	ND	1,62E-06	2,58E-06	4,43E-06	3,00E-07	-4,52E-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	ND	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	2,99E+00	0,00E+00	3,05E-03	2,99E+00	ND	ND	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	0,00E+00	0,00E+00	1,01E+00	1,01E+00	ND	ND	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	ND	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	ND	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	ND	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	4,21E+01	6,94E+00	5,51E+00	5,46E+01	ND	ND	-1,12E+00	ND	ND	ND	ND	ND	ND	1,14E+00	5,77E-01	3,12E+00	7,98E-02	-1,15E+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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40 YEARS

Manufacturing Energy Scenario Documentation

Scenario parameter	Value
Electricity data source and quality	Mix of several sources of renewable electricity, Ecoinvent 3.10.1
Electricity CO2e / kWh	0,034
District heating data source and quality	N/A
District heating CO2e / kWh	N/A

End of Life Scenario Documentation

Scenario information	Value
Collection process - kg collected separately	0
Collection process - kg collected with mixed waste	372, 1
Recovery process - kg for re-use	0
Recovery process - kg for recycling	359,3
Recovery process - kg for energy recovery	0
Disposal (total) - kg for final deposition	12,8
Scenario assumptions e.g. transportation	15 km to nearest recycling or landfilling sites

Third Party Verification Statement

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

13.11.2025