ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH

EN 15804+A2

ISO 14025

Ceramic Sanitaryware

EPD HUB, EPD number HUB-5118
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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

MANUFACTURER

Manufacturer	Roca
Address	Avinguda Diagonal, 513, 08028 Barcelona, Spain
Contact details	roca@roca.com
Website	https://www.roca.es/

EPD STANDARDS, SCOPE AND 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
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Sergio López, Sustainability Department, Roca Group
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour, as authorized verifier acting for EPD HUB Limited

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.

PRODUCT

Product name	Ceramic sanitaryware
Additional labels	-
Product reference	-
Place(s) of raw material origin	Egypt, France, Germany, Morocco, Portugal, Spain and United Kingdom
Place of production	Egypt, Morocco, Portugal and Spain
Place(s) of installation and use	Europe
Period for data	Calendar year 2024
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-A3 (%)	[-49%; +36%]
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	92

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of sanitary ceramic
Declared unit mass	1 kg
Mass of packaging	0,079 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1,59
GWP-total, A1-A3 ($kgCO_2e$)	1,6
Secondary material, inputs (%)	0,03
Secondary material, outputs (%)	76,4
Total energy use, A1-A3 (kWh)	6,66
Net freshwater use, A1-A3 (m^3)	0

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Roca is dedicated to the design, manufacturing, and sale of bathroom solutions for architecture, construction, and interior design. Founded in Barcelona in 1917, it combines tradition and knowledge with a passion for innovation and respect for the environment.

Roca is the flagship brand of Roca Group, a family-owned global enterprise driven by the Purpose of contributing to the well-being of society by delivering solutions that enhance everyday spaces, while caring for People and the Planet, and fostering Prosperity. Its commitment to sustainable development is deeply rooted in the organization—both as a strategic priority and through concrete actions. It is reflected in initiatives that translate this ambition into measurable improvements, ensuring that its day-to-day operations consistently contribute to a more positive and lasting impact.

Further information can be found at www.roca.com and www.rocagroup.com

PRODUCT DESCRIPTION

Sanitaryware appliances mainly include basins, bidets, WCs, urinals, cisterns and shower trays, including accessories. These products are made of materials such as clay, kaolin, quartz and feldspar. After the preparation of the slip, the mixture is cast, dried, glazed and then finished to obtain sanitaryware. To calculate the environmental impact, a representative average sanitaryware product based on the total volume manufactured in 2024 has been considered.

The products are available in different sizes, designs, and weights. In the following table are listed the sanitary products and their average weights.

Basins:	16,0 kg
Bidets:	24,5 kg
WC:	38,0 kg
Urinals:	37,0 kg
Cisterns:	11,0 kg
Shower trays:	36,5 kg

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	100	Africa and Europe
Fossil materials	0	-
Bio-based materials	0	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,00020
Biogenic carbon content in packaging, kg C	0,00048

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of sanitary ceramic
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	ND	ND	ND	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 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.

A market-based approach is used in modelling the electricity mix utilized in the factory.

The product is made of a mixture of minerals like clay, feldspar, kaolin and quartz. The materials are transported to the manufacturers production facility. The manufacturing includes material preparation, casting, drying, enamelling, firing, inspection and control. The manufacturing process requires electricity and fuels for the different equipment as well as heating. In addition, waste heat is recycled from various parts of the furnaces to ensure that the heat inside the furnace remains efficient. The product is finally packaged and sent to the warehouse. Certain ancillary materials like water and moulds are also included. Production waste before firing is recycled internally. The product does not contain VOC as is fired at temperatures above 1000ºC. Production waste as wastewater, moulds, sludge and fired ceramics waste are included. Transport from suppliers is calculated according to the corresponding sales volumes. Packaging materials are modelled in.

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

TRANSPORT AND INSTALLATION (A4-A5)

Module not declared.

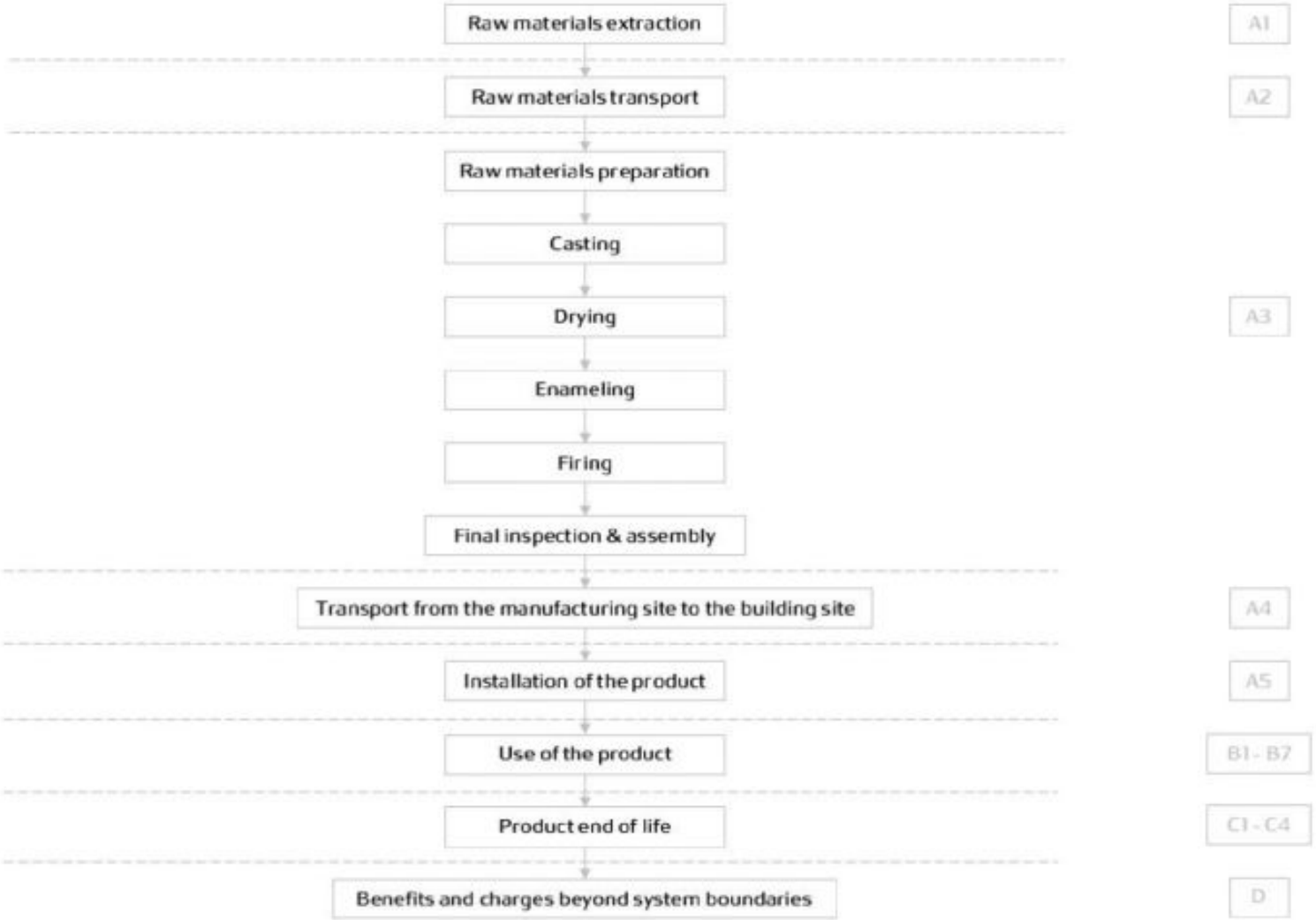
PRODUCT USE AND MAINTENANCE (B1-B7)

Module not declared.

PRODUCT END OF LIFE (C1-C4, D)

Energy consumption and natural resources of the disassembling end-of-life product and the impacts of demolition process are assumed to be zero due to the negligible consumptions (C1). Concerning to the end-of-life product, it is assumed to be sent to the closest waste disposal facility by lorry. Around 70% of the product is sent for recycling, the remaining 30% goes to landfill as some fractions of the product cannot be recycled or valorized due to technological and operational limitations in available waste-management systems. These end-of-life routes represent the expected scenario when the product is correctly managed by the user; actual outcomes may vary depending on the user's waste-sorting practices and compliance with the available collection systems. The benefits and loads of recycling of packaging waste are included in Module D.

SYSTEM DIAGRAM



The raw materials supplied are mainly stored in silos. A small percentage of the raw materials used are supplied in sacks and/or big bags. The stages of the production process are as follow:

1. RAW MATERIAL PREPARATION

Mineral raw materials (clay, kaolin, feldspar and silica) are unloaded from trucks in the areas marked for this purpose.

The raw materials are taken to the mixer, where they are blended with osmotic water. The resulting mixture is sieved and pumped into the storage tanks and kept in suspension with the help of agitators. The paste resulting from this operation is known as slip.

2. CASTING

Once the quality of the desired mixture has been obtained and controlled by the laboratory, the slip is pumped into the overhead casting tanks. From there, it feeds the casting lines by gravity, where it is injected into hermetically sealed plaster moulds, moulds in which the piece is formed.

Other pieces are also produced using plastic moulds with medium pressure slip injection, although to a lesser extent. The plaster moulds used are produced in the same plant and are manufactured by filling a mixture of plaster and water into araldite master moulds. After setting, the master moulds are separated, and the plaster moulds are removed and transported to the dryers for their first dehydration prior to their use.

3. DRYING

Once the piece has achieved a mechanical consistency within the plaster mould, it is removed manually or automatically, depending on the line or its difficulty. These pieces are placed on trolleys and transported to the different dryers, where they are dried with hot air. Once dry, they are transported again by trolleys, this time to the polishing and enamelling line.

4. ENAMELLING

The enamel applied is prepared in an adjoining room where the raw materials, which are stored in silos, are weighed before being dissolved with osmotic water. The product obtained is fed into ball mills that reduce the base particles and pigments to the desired fineness.

5. FIRING

The enamelled pieces are then transported to the kiln area for their firing. The process of heating, firing, enamel vitrification and cooling takes place inside the kiln.

6. FINAL INSPECTION AND ASSEMBLY

The pieces leaving the kiln are sent to the inspection and control area, where the defective pieces are separated from the conforming ones. Those that pass the final inspection are packed up and palletized for their transport to the dispatch warehouse. The complete cycle for the manufacturing of sanitary ware lasts approximately two to three days.

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.

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 all industrial processes from raw material acquisition and pre-processing, production, product distribution and installation, and end-of-life management. Due to lack of data, some ancillary materials are excluded but they do not exceed the 1% cut-off criteria. These include some minerals in very small amounts and have no serious impact on the emissions of the product. Further, water used for cleaning and maintenance of equipment, as well as production, transportation and waste streams of the packaging materials used for delivering the raw materials to the factory are omitted since the quantified mass contribution is less than 0.1%. The production of capital equipment, construction activities, and infrastructure, personnel-related activities, energy and water use related to company management and sales activities are also 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.

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	No allocation
Ancillary materials	No allocation
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple factories
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	[-49%; +36%]

Primary data represents the manufacturing sites of Al Mansour (EG), Anadia (PT), Burgos (ES), Gava (ES), Leiria (PT) and Settat (MO). The data was used to calculate average impacts for the product. The primary data was averaged by calculating a weighted average of the site's consumption of raw materials, energy, and production of waste. The share of production volume per site was used in the weighting. GWP Variation is caused by different share of product types produced and share of renewable electricity consumed per manufacturing site.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD System Verification v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 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	6,42E-02	1,17E-01	1,42E+00	1,60E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,06E-02	1,01E-01	6,63E-03	-1,39E-02
GWP – fossil	kg CO_2e	6,34E-02	1,17E-01	1,41E+00	1,59E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,06E-02	4,90E-03	3,54E-03	-1,29E-02
GWP – biogenic	kg CO_2e	7,31E-04	2,63E-05	2,04E-03	2,80E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,09E-06	9,63E-02	3,09E-03	-1,02E-03
GWP – LULUC	kg CO_2e	8,12E-05	5,22E-05	3,74E-03	3,87E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,73E-06	1,38E-06	1,55E-06	-1,94E-05
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1,34E-09	1,72E-09	3,00E-08	3,30E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,10E-10	5,74E-11	1,04E-10	-2,08E-10
Acidification potential	mol H^+e	3,53E-04	3,98E-04	3,32E-03	4,07E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,30E-05	3,48E-05	1,53E-04	-7,26E-05
EP-freshwater[2)]	kg Pe	2,39E-05	9,09E-06	1,37E-04	1,70E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,00E-07	5,50E-07	5,18E-06	-4,71E-06
EP-marine	kg Ne	6,53E-05	1,31E-04	7,46E-04	9,42E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,11E-05	1,61E-05	2,34E-05	-1,51E-05
EP-terrestrial	mol Ne	6,83E-04	1,42E-03	6,74E-03	8,84E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,21E-04	1,62E-04	1,02E-04	-1,73E-04
POCP ("smog")[3)]	kg NMVOCe	2,27E-04	5,87E-04	3,47E-03	4,28E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,17E-05	4,80E-05	4,62E-05	-5,83E-05
ADP-minerals & metals[4)]	kg Sbe	3,54E-07	3,26E-07	1,86E-06	2,54E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,45E-08	1,61E-08	7,17E-09	-6,17E-08
ADP-fossil resources	MJ	9,73E-01	1,69E+00	2,09E+01	2,35E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,48E-01	5,22E-02	7,83E-02	-2,16E-01
Water use[5)]	m^3e depr.	6,42E-02	8,37E-03	1,19E-01	1,91E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,28E-04	6,95E-04	5,28E-04	-1,22E-02

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.

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	1,08E-01	2,32E-02	4,61E-01	5,93E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,56E-03	-1,10E+00	-1,09E-01	-3,00E-02
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,11E-02
Total use of renew. PER	MJ	1,08E-01	2,32E-02	4,61E-01	5,93E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,56E-03	-1,10E+00	-1,09E-01	-1,89E-02
Non-re. PER as energy	MJ	9,73E-01	1,69E+00	2,07E+01	2,34E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,48E-01	5,22E-02	7,83E-02	-2,16E-01
Non-re. PER as material	MJ	0,00E+00	0,00E+00	1,46E-01	1,46E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,12E-01	-3,36E-02	4,60E-02
Total use of non-re. PER	MJ	9,73E-01	1,69E+00	2,09E+01	2,35E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,48E-01	-6,03E-02	4,47E-02	-1,70E-01
Secondary materials	kg	3,18E-04	7,21E-04	3,02E-03	4,06E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,79E-05	5,24E-05	2,62E-05	1,03E-03
Renew. secondary fuels	MJ	5,49E-06	9,16E-06	1,23E-04	1,37E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,57E-07	2,03E-07	4,62E-07	1,26E-05
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	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	1,50E-03	2,50E-04	2,87E-03	4,62E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,99E-05	1,27E-05	-8,80E-04	-3,09E-04

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	3,79E-03	2,87E-03	4,03E-02	4,69E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,13E-04	4,42E-04	1,48E-04	-9,99E-04
Non-hazardous waste	kg	1,28E-01	5,31E-02	5,86E+00	6,04E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,49E-03	1,28E-02	1,13E+00	-4,31E-02
Radioactive waste	kg	2,58E-06	3,61E-07	3,53E-06	6,47E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,70E-08	4,09E-08	2,71E-08	-4,58E-07

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	ND	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,64E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	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	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,90E-02	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,20E-02	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,70E-02	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	6,32E-02	1,16E-01	1,41E+00	1,59E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,05E-02	5,44E-03	1,08E-02	-1,28E-02
Ozone depletion Pot.	kg CFC_{-11}e	1,14E-09	1,38E-09	2,36E-08	2,62E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,67E-10	4,61E-11	8,26E-11	-1,71E-10
Acidification	kg SO_2e	2,93E-04	3,04E-04	2,75E-03	3,35E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,51E-05	2,49E-05	1,36E-04	-5,83E-05
Eutrophication	kg PO_4^3e	5,99E-05	7,41E-05	6,89E-04	8,23E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,38E-06	6,46E-06	1,85E-05	-1,24E-05
POCP (“smog”)	kg C_2H_4e	1,77E-05	2,71E-05	2,07E-04	2,52E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,39E-06	2,20E-06	7,73E-06	-4,94E-06
ADP-elements	kg Sbe	2,96E-07	3,18E-07	1,34E-06	1,96E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,37E-08	1,58E-08	6,95E-09	-6,08E-08
ADP-fossil	MJ	7,97E-01	1,67E+00	2,06E+01	2,31E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,45E-01	4,94E-02	7,65E-02	-1,85E-01

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Heat production, natural gas, at industrial furnace >100kW, World, Ecoinvent, 0.0753kgCO2e/MJ
2. Heat production, natural gas, at industrial furnace >100kW, World, Ecoinvent, 0.0753 kgCO2e/MJ
3. Heat production, natural gas, at industrial furnace >100kW, World, Ecoinvent, 0.0753 kgCO2e/MJ
4. Heat production, natural gas, at industrial furnace >100kW, World, Ecoinvent, 0.0753 kgCO2e/MJ
5. Heat production, natural gas, at industrial furnace >100kW, World, Ecoinvent, 0.0753 kgCO2e/MJ
6. Heat production, propane, at industrial furnace >100kW, World, Ecoinvent, 0.0945 kgCO2e/MJ
7. Market for electricity, medium voltage, Egypt, Ecoinvent, 0.65 kgCO2e/kWh
8. Market for electricity, medium voltage, Morocco, Ecoinvent, 0.94 kgCO2e/kWh
9. Electricity production, wind, >3MW turbine, onshore, Spain, Ecoinvent, 0.0251 kgCO2e/kWh
10. Electricity production, wind, >3MW turbine, onshore, Spain, Ecoinvent, 0.0251 kgCO2e/kWh
11. Electricity production, wind, >3MW turbine, onshore, Portugal, Ecoinvent, 0.0377 kgCO2e/kWh
12. Electricity production, wind, >3MW turbine, onshore, Portugal, Ecoinvent, 0.0377 kgCO2e/kWh

EOL scenario documentation - C1-C4 (Data source)

1. Treatment of waste concrete, not reinforced, recycling, Ecoinvent, Materials for recycling, 0.7 kg
2. Treatment of inert waste, sanitary landfill, Ecoinvent, 0.3 kg
3. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.063 kg
4. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 0.006 kg
5. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 0.0068 kg
6. Exported Energy: Electricity, Ecoinvent, 0.012 MJ
7. Exported Energy: Electricity, Ecoinvent, 0.0086 MJ
8. Exported Energy: Thermal, Ecoinvent, 0.017 MJ
9. Exported Energy: Thermal, Ecoinvent, 0.012 MJ
10. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0014 kg
11. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 0.0013 kg
12. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 7.9E-4 kg
13. Treatment of waste gypsum plasterboard, recycling, Ecoinvent, Materials for recycling, 6.3E-4 kg
14. Treatment of waste gypsum plasterboard, collection for final disposal, Ecoinvent, 0.012 kg

Scenario information	Value
Scenario assumptions e.g. transportation	For recycling, cardboard packaging, PE packaging and the product itself is transported over an average distance of 50 km, plaster moulds 250 km. For incineration, the respective transport distances are 50 km cardboard and PE packaging. For landfill disposal, cardboard packaging, PE packaging, plaster moulds and the product are transported 50km each.

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 15804+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

Yazan Badour, as authorized verifier acting for EPD HUB Limited
30.01.2026