ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EVOCERAMIC REINFORCED CONCRETE LINTELS WITH CERAMIC SHELL
CEMACON SA

EPD HUB, HUB-6922
Published on 17.07.2026, last updated on 17.07.2026, valid until 16.07.2031

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.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	CEMACON SA
Address	Calea Turzii 178 K -188 S Et. 1, Cluj-Napoca, county Cluj, Romania, Postal Code 400495
Contact details	office@cemacon.ro
Website	www.cemacon.ro

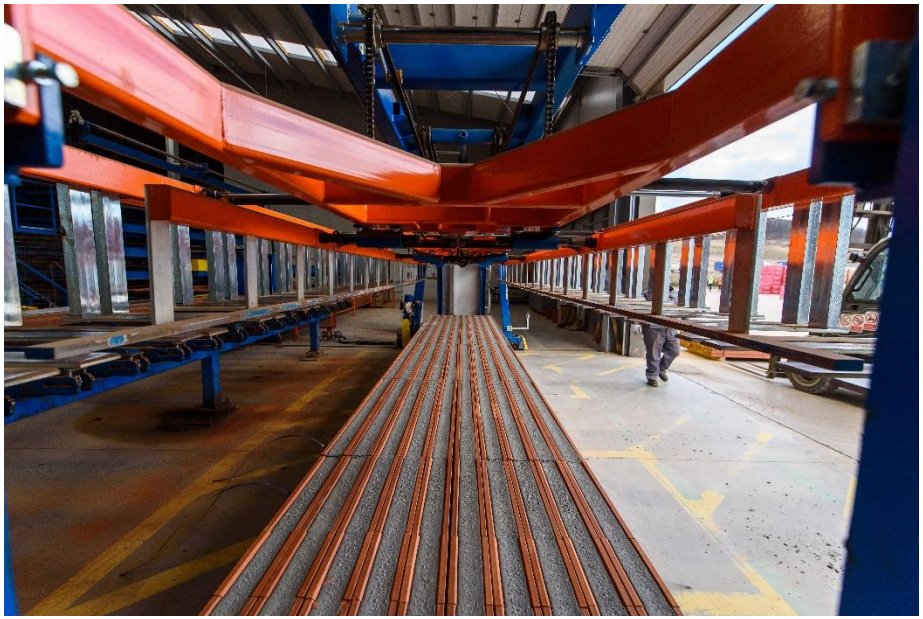
EPD STANDARDS, SCOPE AND VERIFICATION

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 options, A4-A5, and modules C1-C4, D
EPD author	Stefan Cosuta, Envirocert SRL
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Haiha Nguyen as an authorized verifier for EPD Hub

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	Evoceramic reinforced concrete lintels with ceramic shell
Additional labels	-
Product reference	-
Place(s) of raw material origin	Romania, others
Place of production	Romania
Place(s) of installation and use	Romania, Hungary, Serbia, Ukraine
Period for data	july 2024 - june 2025
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	92,5



ENVIRONMENTAL DATA SUMMARY

Declared unit	1 linear meter
Declared unit mass	14,8 kg
Mass of packaging	0,297 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	6
GWP-total, A1-A3 ($kgCO_2e$)	5,63
Secondary material, inputs (%)	0,94
Total energy use, A1-A3 (kWh)	24,9
Net freshwater use, A1-A3 (m^3)	0,05

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

CEMACON is one of the leading Romanian manufacturers in the construction materials industry, boasting over 55 years of experience. As the market leader(*) in ceramic blocks and the largest producer with Romanian capital, the company operates 7 high-tech production lines across 3 industrial platforms.

CEMACON is a key member of Paval Holding, a position that facilitates continuous strategic investments and the integration of innovative technologies aimed at sustainable development.

Core Values and Vision
The company's philosophy is built on the intersection of innovation and experience. CEMACON focuses on:
- Operational Excellence: Recognized by the "Best Managed Companies" certification in both 2023 and 2024.
- Sustainability: Developing durable masonry solutions designed to support industry growth while ensuring the well-being of the community.
- Collaboration: Fostering a diverse work environment where ideas translate into high-quality products and solid professional relationships.

Manufacturing and Innovation
By utilizing advanced manufacturing processes, CEMACON produces essential ceramic components—including high-performance lintels that meet the highest standards of structural integrity and thermal efficiency. The company's commitment to a sustainable future is reflected in its efforts to minimize environmental impact through resource-efficient production and a vision oriented toward long-term responsibility.
(*)According to Neomar Analysis of Romanian Wall-Building Materials Market 2014 - 2025

PRODUCT DESCRIPTION

CEMACON EVOCERAMIC lintel is a high-performance, prefabricated structural element consisting of a reinforced concrete core (C 30/37) encased in a ceramic shell.
It is designed for bridging openings (doors and windows) in both exterior and interior masonry walls, whether load-bearing or non-load-bearing. CEMACON offers a versatile range of lintels with a standardized cross-section, available in lengths that accommodate various masonry spans.
- cross-section dimensions: 115 mm (width) x 69 mm (height).
- available lengths: from 1.00 m to 3.00 m in size increments: 25 cm (e.g., 1.00m, 1.25m, 1.50m ... 3.00m).
- clear span coverage: suitable for openings ranging from 0.5 m to 2.5 m (ensuring the necessary minimum bearing length on the masonry).
- ceramic housing thickness: the geometric thickness of the ceramic housing varies between 14 mm and 27 mm
- the ceramic shell features an uncoated, natural fired ceramic surface with no additional paints, glazes, or chemical sealants applied.
Technical Specifications
- concrete grade: C 30/37 (ensuring superior structural strength).
- reinforcement steel: grade BST 500.
- load capacity: up to 2400 kg/ml (depending on the total length and installation method).
- thermal performance: the ceramic shell's hollow configuration reduces thermal bridges, with a thermal conductivity of 0.59 W/mK.

Relevant European Standards
CEMACON lintels are manufactured and tested in accordance with the applicable European regulations for prefabricated masonry components:
- EN 845-2: Specification for ancillary components for masonry - Part 2: Lintels.
- EN 1745: Masonry and masonry products - Methods for determining thermal properties.
- EN 846-9: Methods of test for ancillary components for masonry - Part 9: Determination of flexural resistance and shear resistance of lintels

- EN 13501-1: Fire classification of construction products and building elements. The ceramic shell provides a Class A1 (Non-combustible) reaction to fire.

Key Advantages for Sustainable Construction

- Material Synergy: The combination of ceramic and concrete ensures a mechanical behavior identical to the rest of the masonry, preventing cracks in the finishing layers.
- Resource Efficiency: The lightweight design reduces the carbon footprint associated with transport and handling.
- Durability: High resistance to environmental factors ensures a long service life,
- Recyclability: The ceramic and concrete components can be crushed and recycled at the end of the building's life cycle.

Further information can be found at:
www.cemacon.ro

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	2,8	UA, MD
Minerals	97,2	Romania
Fossil materials	0,01	Romania
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	0,1

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 linear meter
Mass per declared unit	14,8 kg
Functional unit	-
Reference service life	50 years

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	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

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.

A1 – Raw Material Supply

This stage includes the extraction, processing, and delivery of the primary materials used in the production of prefabricated lintels. These products are composite structural elements consisting of a ceramic shell and a reinforced concrete core. For these products, the main raw materials include:

- Clay: the primary raw material used to manufacture the ceramic casing, which provides the structural form and thermal properties of the lintel.
- Mineral-based materials: high-performance concrete (C 30/37 grade) composed of cement, aggregates, and water. These, along with the clay casing, constitute the vast majority of the product's mass, at 14.8 kg/linear meter.
- Metallic materials: steel reinforcement (BST 500 grade) integrated into the concrete core to provide structural strength and load-bearing capacity.
- Packaging materials: finished products are secured for transport using softwood pallets and PP strips.

A2 – Transport to Factory

This stage covers the inbound logistics for raw materials from suppliers to the manufacturing plant in Romania.

The transport involves the delivery of clay, aggregates, cement, and reinforcement steel. Transport emissions calculations are based on actual recorded logistics data, including real distances, specific heavy-duty vehicle types, and estimated load factors representative of the supply chain.

A3 – Manufacturing, Finishing, and Packaging

In this stage, raw materials are transformed into finished prefabricated lintels through a synchronized manufacturing process that combines ceramic production with concrete casting. The process is divided into the following key phases:

1. Ceramic Shell Production:
- Extrusion: the raw clay is mixed, homogenized, and forced through a die to create the specific hollow profile of the lintel casing.
- Drying: the green ceramic elements are placed in controlled drying chambers to remove moisture, ensuring structural stability and preventing defects during the firing stage.
- Firing (burning): the dried elements are fired in an industrial kiln at high temperatures. This process triggers the vitrification of the clay, resulting in a durable, fire-resistant ceramic shell with optimized thermal properties.
2. Lintel Assembly and Finishing:
- Reinforcement and casing preparation: steel reinforcement cages are prepared and positioned within the fired ceramic shells, which act as a permanent formwork for the structural core.
- Concrete casting: a high-strength concrete mix is prepared and poured into the core of the ceramic elements, surrounding the steel reinforcement.
- Curing and finishing: the composite elements undergo a curing process to reach the required structural strength. Once stabilized, the lintels are prepared for final packaging.
Quality Control: systematic verification of dimensions, structural integrity, and compliance with EN 845-2 and EN 1745 standards.

Waste and Emissions Management:
- Production losses are systematically monitored. Manufacturing waste is collected and dispatched to authorized external waste management companies for recycling or recovery.
The inventory accounts for material losses during production and electricity transmission losses.

Energy Mix and Modeling Approach:
- Electricity: the manufacturing facility utilizes a combination of the national residual grid mix and on-site solar energy from photovoltaic panels.
- Thermal energy: natural gas is consumed for the industrial processes, such as the manufacturing kiln.
- Internal logistics: the modeling includes the consumption of diesel for material handling equipment and internal logistics within the site.

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 – Transport to Site
Transport Distance: A representative average distance of 132 km has been modeled for regional deliveries.
Vehicle Type: Transport is performed by heavy-duty freight lorries (>32 metric tons) compliant with EURO 5 standards.

A5 – Installation at the Building Site
The scope of Module A5 focuses on the management of packaging waste and the environmental impacts associated with the product's integration into the building.
Installation Process: the installation of the lintels is primarily a manual process. The inventory accounts for the mortar used for bedding and installation at the construction site. No other significant energy or auxiliary resources are considered, as the mounting is performed manually without the need for specialized heavy machinery.
Packaging Waste: the packaging materials, consisting of softwood pallets and PP strapping, are removed during this stage.
Waste Treatment: in accordance with the modeled scenarios, the treatment of these wastes is divided between recycling, incineration with energy recovery, and disposal in sanitary landfills.
Energy Recovery: the model accounts for the electricity and heat exported to the grid resulting from the thermal treatment (incineration) of the packaging waste fractions.

Logistics for waste: a standard transport distance of 50 km from the construction site to the respective waste management or recycling facilities has been assumed.

PRODUCT END OF LIFE (C1-C4, D)

C1 – Deconstruction / Disassembly
At the end of its 50-year service life, the Cemacon lintel is removed from the building structure during demolition or major renovation works. As the lintel is an integral structural component, deconstruction is performed as part of the general mechanical demolition of the building. The energy demand specifically allocated to the removal of the lintels is small, and the process generates no direct hazardous emissions to air or water.

C2 – Transport to waste processing facilities
Following deconstruction, the resulting mineral waste—comprising both the lintel (ceramic shell and concrete core) and the installation mortar—is transported to authorized collection points or treatment facilities. The LCA model assumes a representative transport distance of 50 km using standard heavy-duty freight lorries (Euro 5). Fuel consumption and emissions are calculated based on the total mass of the mineral waste stream.

C3 – Waste processing
This stage involves the sorting and preparation of the combined mineral waste fractions for recovery. Based on the updated entry data, the product and the auxiliary mortar follow a unified end-of-life scenario: 70% of the total mineral mass (lintel and mortar) is directed to a sorting and crushing plant. Here, the material is processed into secondary aggregates, a process that involves mechanical separation to ensure the inert mineral fraction is free from contaminants.

C4 – Final disposal
The fraction of the mineral waste that is not recovered is sent for final disposal: 30% of the total mineral waste (lintel and mortar) is sent to authorized sanitary landfills for inert materials. Because these materials are chemically stable and non-leaching, they do not generate greenhouse gases or hazardous leachate during disposal.

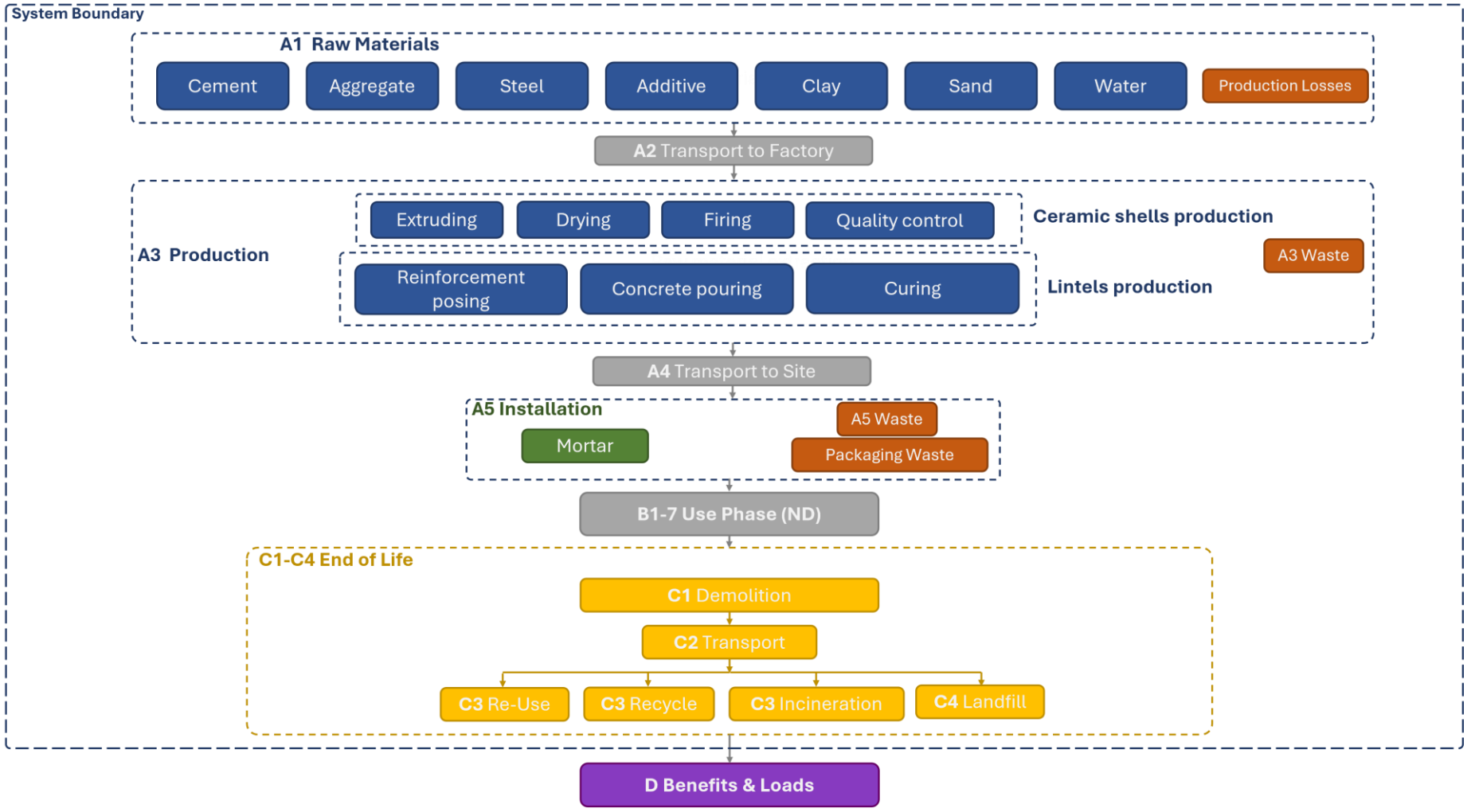
Module D – Benefits and Loads Beyond the System Boundary
The recovery of materials and energy at the end-of-life provides significant environmental benefits by displacing the need for primary resource extraction and fossil fuel consumption. These impacts are reported as net credits in Module D.
Mineral waste recycling (ceramic and concrete): Credits are accounted for the recovery of the total mineral stream, which includes both the lintel mass and the installation mortar. The recycling of 11.19 kg of ceramic and concrete waste per declared unit replaces the production of primary crushed gravel and concrete aggregates. The model accounts for the loads associated with the recycling process, such as rock crushing operations required to transform the waste into functional secondary aggregates.
Wood packaging recovery: benefits are derived from the treatment of 0.24 kg of wood packaging (softwood pallets):
- energy recovery: the incineration of wood waste generates exported energy, replacing electricity from the medium voltage grid and thermal energy from industrial heat markets.
- material substitution: the process credits the avoided production of mulch for agricultural and landscaping applications through the down-cycling of post-consumer wood.
- the model also considers biogenic carbon transfers and minor loads from diesel consumption used in grinding machinery.

Plastic Packaging Recovery: the recovery of 0.058 kg of plastic packaging (PP strapping) provides both material and energy benefits.
- recycling: credits are calculated for the production of recycled high-density polyethylene granulate, which replaces the need for virgin plastic production.
- energy recovery: similar to the wood fraction, the incineration of non-

recycled plastic contributes to the export of electricity and heat to regional grids.

Data Quality and Representativeness
The scenarios for Modules C and D reflect standard waste management practices for construction and demolition waste (CDW) in accordance with EN 17160.

LIFE CYCLE FLOW DIAGRAM



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.

In accordance with EN 15804+A2, the following processes are excluded from the system boundary: production of capital equipment, construction activities and infrastructure, maintenance and operation of capital equipment, personnel-related activities, and energy/water use related to company management and sales activities. No mandatory processes or hazardous materials have been excluded from the inventory

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	Physical Properties
Ancillary materials	Physical Properties
Manufacturing energy and waste	Economic Values

Several technical assumptions were made to ensure a conservative and representative LCA model:
- Installation mortar: the amount of mortar used for installation is estimated based on standard construction practices for traditional bedding (12 mm width, 25 cm on both ends of the lintel), added as an auxiliary material to the lintel's mass.
- End-of-Life cohesion: it is assumed that the mortar remains adhered to the lintel during deconstruction, therefore both materials follow the same waste management scenario (70% recycling, 30% landfill).
- Transport loads: for the A4 and C2 modules, a volume capacity utilization factor of 1 was assumed, meaning the transport is limited by weight rather than the volume of the truck, which is characteristic of high-density mineral products.

Electricity Modeling: for the manufacturing stage (A3), a residual grid mix for Romania was used to ensure a conservative approach, supplemented by actual on-site photovoltaic generation data.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	-

Not applicable. The data is 100% representative of the specific product and manufacturing site during the reference period (July 2024 - June 2025).

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

Here is the complete and formal list for the Bibliography and references used in modeling section, formatted for the EPD technical report:

- ISO 14025:2006 – Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
- EN 15804:2012+A2:2019/AC:2021 – Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products.
- EN 17160:2019 – Product category rules for ceramic tiles (utilized for the end-of-life modeling of the ceramic component).
- EN 845-2 – Specification for ancillary components for masonry — Part 2: Lintels.
- Installation instructions for prefabricated lintels, supplied by producer Cemacon SA
- Ecoinvent Database v3.10.1 or newer versions

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	1,76E+00	1,40E-01	3,73E+00	5,63E+00	2,21E-01	7,97E-01	ND	ND	ND	ND	ND	ND	ND	2,90E-02	1,55E-01	1,89E-01	4,79E-02	-3,07E-01
GWP – fossil	kg CO_2e	1,76E+00	1,40E-01	4,09E+00	6,00E+00	2,21E-01	4,30E-01	ND	ND	ND	ND	ND	ND	ND	2,90E-02	1,55E-01	1,88E-01	4,77E-02	-2,10E-01
GWP – biogenic	kg CO_2e	-7,78E-04	4,09E-05	-3,66E-01	-3,66E-01	5,09E-05	3,67E-01	ND	ND	ND	ND	ND	ND	ND	5,52E-06	9,92E-05	4,83E-04	2,16E-04	-9,70E-02
GWP – LULUC	kg CO_2e	4,11E-04	5,83E-05	6,55E-04	1,12E-03	9,86E-05	1,32E-04	ND	ND	ND	ND	ND	ND	ND	2,97E-06	5,15E-05	2,97E-04	1,20E-05	-1,98E-04
Ozone depletion pot.	kg CFC-$_{11}$e	2,21E-08	2,38E-09	5,03E-07	5,27E-07	3,22E-09	2,43E-08	ND	ND	ND	ND	ND	ND	ND	4,30E-10	3,38E-09	3,06E-09	1,60E-09	-4,08E-09
Acidification potential	mol H^+e	4,25E-03	4,76E-04	6,24E-03	1,10E-02	7,70E-04	1,44E-03	ND	ND	ND	ND	ND	ND	ND	2,59E-04	4,98E-04	1,43E-03	5,37E-04	-1,15E-03
EP-freshwater[2)]	kg Pe	3,51E-05	1,36E-05	1,83E-04	2,32E-04	2,40E-05	1,31E-05	ND	ND	ND	ND	ND	ND	ND	9,32E-07	1,06E-05	1,02E-04	8,20E-05	-7,93E-05
EP-marine	kg Ne	6,87E-04	1,60E-04	1,64E-03	2,49E-03	2,54E-04	3,85E-04	ND	ND	ND	ND	ND	ND	ND	1,21E-04	1,68E-04	4,82E-04	1,34E-04	-2,38E-04
EP-terrestrial	mol Ne	1,30E-02	1,74E-03	1,73E-02	3,21E-02	2,75E-03	4,02E-03	ND	ND	ND	ND	ND	ND	ND	1,32E-03	1,82E-03	5,22E-03	1,44E-03	-2,73E-03
POCP ("smog")[3)]	kg NMVOCe	3,40E-03	7,23E-04	6,33E-03	1,05E-02	1,13E-03	1,15E-03	ND	ND	ND	ND	ND	ND	ND	3,95E-04	7,55E-04	1,69E-03	5,23E-04	-9,68E-04
ADP-minerals & metals[4)]	kg Sbe	8,45E-06	4,02E-07	3,76E-06	1,26E-05	6,33E-07	1,31E-05	ND	ND	ND	ND	ND	ND	ND	1,04E-08	5,35E-07	4,81E-07	8,27E-08	-9,46E-07
ADP-fossil resources	MJ	1,22E+01	2,01E+00	7,00E+01	8,42E+01	3,16E+00	3,82E+00	ND	ND	ND	ND	ND	ND	ND	3,77E-01	2,20E+00	2,98E+00	1,13E+00	-3,90E+00
Water use[5)]	m^3e depr.	1,41E+00	1,17E-02	6,48E-01	2,07E+00	1,84E-02	9,46E-02	ND	ND	ND	ND	ND	ND	ND	9,72E-04	1,15E-02	6,31E-02	5,33E-02	-2,00E-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, 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	4,03E-08	1,38E-08	3,33E-08	8,75E-08	2,17E-08	1,78E-08	ND	ND	ND	ND	ND	ND	ND	7,40E-09	1,24E-08	1,13E-07	8,16E-09	-1,37E-08
Ionizing radiation[6)]	kBq U235e	4,09E-02	1,83E-03	4,01E-01	4,43E-01	2,65E-03	1,82E-02	ND	ND	ND	ND	ND	ND	ND	1,61E-04	2,62E-03	5,92E-03	1,42E-03	-3,12E-02
Ecotoxicity (freshwater)	CTUe	1,02E+01	3,72E-01	8,77E+00	1,93E+01	6,55E-01	5,57E+00	ND	ND	ND	ND	ND	ND	ND	2,16E-01	1,85E+00	9,31E+01	6,04E+01	-4,46E+00
Human toxicity, cancer	CTUh	2,39E-09	2,20E-11	7,59E-10	3,17E-09	3,48E-11	1,34E-10	ND	ND	ND	ND	ND	ND	ND	2,95E-12	2,65E-11	4,41E-11	1,92E-11	-4,32E-11
Human tox. non-cancer	CTUh	2,08E-08	1,25E-09	7,28E-09	2,93E-08	1,96E-09	2,91E-09	ND	ND	ND	ND	ND	ND	ND	4,64E-11	1,38E-09	1,78E-09	1,20E-09	-1,47E-09
SQP[7)]	-	5,04E+00	2,01E+00	3,33E+01	4,03E+01	3,15E+00	4,97E+00	ND	ND	ND	ND	ND	ND	ND	2,50E-02	1,30E+00	3,53E+00	2,78E+00	-1,61E+00

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	5,51E-01	2,89E-02	5,34E+00	5,92E+00	4,39E-02	-3,26E+00	ND	ND	ND	ND	ND	ND	ND	2,37E-03	3,58E-02	9,24E-02	2,17E-02	4,35E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	3,62E+00	3,62E+00	0,00E+00	-3,62E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,66E-01
Total use of renew. PER	MJ	5,51E-01	2,89E-02	8,96E+00	9,54E+00	4,39E-02	-6,88E+00	ND	ND	ND	ND	ND	ND	ND	2,37E-03	3,58E-02	9,24E-02	2,17E-02	1,40E+00
Non-re. PER as energy	MJ	1,22E+01	2,01E+00	6,79E+01	8,21E+01	3,16E+00	1,47E+00	ND	ND	ND	ND	ND	ND	ND	3,77E-01	2,20E+00	2,98E+00	1,13E+00	-3,90E+00
Non-re. PER as material	MJ	1,30E-02	0,00E+00	2,14E+00	2,15E+00	0,00E+00	-2,14E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-9,13E-03	-3,91E-03	1,05E+00
Total use of non-re. PER	MJ	1,22E+01	2,01E+00	7,00E+01	8,43E+01	3,16E+00	-6,69E-01	ND	ND	ND	ND	ND	ND	ND	3,77E-01	2,20E+00	2,97E+00	1,12E+00	-2,85E+00
Secondary materials	kg	1,39E-01	8,44E-04	1,60E-02	1,56E-01	1,32E-03	3,37E-03	ND	ND	ND	ND	ND	ND	ND	1,56E-04	9,83E-04	1,12E-03	3,61E-04	2,26E-02
Renew. secondary fuels	MJ	3,52E-01	1,11E-05	1,24E-01	4,76E-01	1,72E-05	9,52E-03	ND	ND	ND	ND	ND	ND	ND	4,09E-07	1,29E-05	1,33E-05	6,81E-06	-1,22E-05
Non-ren. secondary fuels	MJ	1,02E+00	0,00E+00	0,00E+00	1,02E+00	0,00E+00	2,03E-02	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	3,23E-02	2,81E-04	1,29E-02	4,55E-02	4,53E-04	8,25E-03	ND	ND	ND	ND	ND	ND	ND	2,42E-05	2,66E-04	-1,66E-02	-1,35E-02	-4,62E-03

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	3,99E-02	1,24E-02	9,41E-02	1,46E-01	2,02E-02	1,21E-02	ND	ND	ND	ND	ND	ND	ND	4,23E-04	3,15E-03	7,40E-03	1,79E-03	-1,54E-02
Non-hazardous waste	kg	7,22E-01	2,48E-01	3,18E+00	4,15E+00	3,99E-01	1,00E+00	ND	ND	ND	ND	ND	ND	ND	6,16E-03	6,76E-02	1,22E+01	1,59E+01	-8,56E-01
Radioactive waste	kg	1,56E-04	4,39E-07	1,51E-04	3,08E-04	6,33E-07	1,37E-05	ND	ND	ND	ND	ND	ND	ND	3,94E-08	6,47E-07	1,45E-06	3,42E-07	-7,86E-06

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	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	4,56E-04	0,00E+00	0,00E+00	4,56E-04	0,00E+00	1,89E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,14E+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	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	0,00E+00	7,27E-01	ND	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	0,00E+00	3,06E-01	ND	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	0,00E+00	4,21E-01	ND	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	1,76E+00	1,40E-01	4,10E+00	6,00E+00	2,21E-01	4,30E-01	ND	ND	ND	ND	ND	ND	ND	2,90E-02	1,55E-01	1,88E-01	4,77E-02	-2,10E-01

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

DATA SOURCES

Manufacturing energy scenario documentation

1. Natural gas, One Click LCA, 0.25 kgCO2e/kWh
2. Electricity production, photovoltaic, Romania, Ecoinvent, 0.0888 kgCO2e/kWh
3. Electricity, medium voltage, residual mix, Romania, Ecoinvent, 0.33 kgCO2e/kWh
4. Market for diesel, burned in building machine, Ecoinvent, 0.10 kgCO2e/MJ

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry, >32 metric ton, diesel, EURO 5, 132.0 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	85
Bulk density of transported products	23,2
Volume capacity utilization factor	<1

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	-
Water use (m^3)	-
Ancillary materials: type and mass (kg)	masonry mortar: 1.51 kg per linear meter of lintel
Waste materials: type and mass (kg)	-
Waste materials: output routes	wood pallets: 0.24 kg / 32% recycled, 30% incinerated, 38% landfill plastic packaging: 0.058 kg / 40% recycled, 37% incinerated, 23% landfill lintel installation losses: 2% =0.3 kg / 70% recycled, 30% landfill Scenarios source: EUROSTAT
Direct emissions (kg)	-

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	collected separately (kg): 16.31
Collection process: Mixed waste (kg)	-
Recovery: re-use (kg)	0
Recovery: recycling (kg)	11,4
Recovery: energy recovery (kg)	0
Disposal (kg)	4.9
Scenario assumptions e.g. transportation (mode, km) & other	Landfill: 50 km, Recycling: 50 km

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.

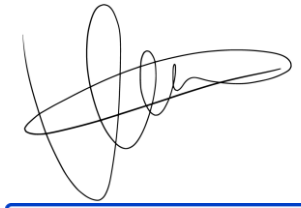
The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

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

Haiha Nguyen as an authorized verifier for EPD Hub Limited 09.07.2026



ANNEX 1 – GWP VARIATION ACROSS RANGE

NAME	LENGHT (M)	MASS (KG/ML)	GWP TOTAL (KGCO2E)
BU EVOCERAMIC - L=1000 MM	1.00	14.80	5.63
BU EVOCERAMIC - L=1250 MM	1.25	18.50	7.04
BU EVOCERAMIC - L=1500 MM	1.50	22.20	8.45
BU EVOCERAMIC - L=1750 MM	1.75	25.90	9.85
BU EVOCERAMIC - L=2000 MM	2.00	29.60	11.26
BU EVOCERAMIC - L=2250 MM	2.25	33.30	12.67
BU EVOCERAMIC - L=2500 MM	2.50	37.00	14.08
BU EVOCERAMIC - L=2750 MM	2.75	40.70	15.48
BU EVOCERAMIC - L=3000 MM	3.00	44.40	16.89