ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Cement Products

Abdullah Abdin Al Bukhari Factory for Industry

EPD HUB, HUB-3549

Published on 04.07.2025, last updated on 04.07.2025, valid until 03.07.2030

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Abdullah Abdin Al Bukhari Factory for Industry
Address	Tabuk, kingdom of Saudi Arabia
Contact details	info@aabdin.com
Website	www.aabdin-sa.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023 EN 16757 Product Category Rules for concrete and concrete elements
Sector	Construction product
Category of EPD	Sister EPD
Parent EPD number	HUB-2953
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Design Parameter
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Sergio Ballen Zamora, an authorized verifier acting for EPD Hub Limited.

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

PRODUCT

Product name	Cement Products
Additional labels	New Jersey Barrier, Curbstone, Wheel Stopper, Lintel, wet press and cement tiles
Product reference	Precast - Cement Products
Place of production	Tabuk, kingdom of Saudi Arabia
Period for data	Calendar year 2024
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 Metric Ton
Declared unit mass	1000 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	138
GWP-total, A1-A3 ($kgCO_2e$)	138
Secondary material, inputs (%)	0
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	255
Net freshwater use, A1-A3 (m^3)	0.89

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Abdullah Abdin Al Bukhari Factory for Industry was founded in 1981 in Tabuk region of Saudi Arabia, initially with modest capabilities. Subsequently, the company meticulously executed a well devised strategy aimed at expanding and diversifying its product offerings within the realm of construction materials. This expansion was driven by the growing urbanization trends witnessed throughout the Kingdom and, specifically, within the city of Tabuk.

PRODUCT DESCRIPTION

Made primarily from a mix of cement, aggregates, and water, our premium cement products—New Jersey Barriers, Curb Stones, Wheel Stoppers, Lintels, Wet Press Units, and Cement Tiles—are engineered for superior strength, durability, and reliability in a wide range of construction and infrastructure applications.

These products are designed to withstand heavy loads and harsh environmental conditions, providing essential structural support, traffic control, and safety solutions across roadways, parking areas, building frameworks, and industrial sites. They comply with ASTM standards, the Saudi Building Code, and SASO regulations.

All products are produced using the same mix design and raw materials at a single plant of having the same production process. The typical composition by mass is approximately 12% cement, 84% aggregates, and 4% water.

While the final forms vary to suit specific functional applications, the environmental profile remains consistent across all products, justifying their treatment as a single product group under this EPD.

For detailed product specifications and performance data, please send your request to info@aabdin.com and further information can be found at www.aabdin-sa.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	100	KSA
Fossil materials	-	-
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	NA
Biogenic carbon content in packaging, kg C	NA

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 Metric Ton
Mass per declared unit	1000 kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances.

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

Modules not declared = MND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

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

The production of cement products includes three main stages: raw material (A1), transport (A2), and manufacturing (A3). In the raw material stage (A1), natural materials such as cement, sand, aggregates, and water are sourced from quarries and local suppliers. This forms a direct system boundary with nature, as it involves quarrying and water use. No secondary materials or fuels are used in this stage. Material losses are minimal and may include small amounts of dust or spilled material during handling.

In the transport stage (A2), the raw materials are delivered to the manufacturing site, mainly by truck. Diesel fuel is used for transport, leading to exhaust emissions. This stage has an indirect boundary with nature through the use of fossil fuels and the release of exhaust emissions. There is no use of packaging or secondary materials during transportation, and no waste is produced in this phase.

In the manufacturing stage (A3), the materials are mixed in specific proportions to create a uniform concrete mixture. This mixture is poured into moulds to form the desired shape and sizes. They are compacted and vibrated to remove air and increase strength, then cured to fully harden. Water is also used as an ancillary material for cleaning production equipment. Lubricants as an ancillary material are applied for the maintenance of mixing and vibration equipment, though they do not come into contact with the product. No final treatment, such as coating or painting, is applied to the product. The system boundary here includes the use of water and electricity but does not include any direct interaction with nature beyond resource use. Additionally, small amounts of solid waste are sent to landfill, representing an output to nature. No pallets or packaging materials are used in the process. No secondary fuels or secondary materials are applied. Waste generation is very low and typically consists of minor production residues or defective products, which are generally sent to landfill by diesel truck. Overall, material losses are minimal due to efficient production controls and practices.

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.

This EPD does not cover the transport (A4) and installation (A5) phase.

PRODUCT USE AND MAINTENANCE (B1-B7)

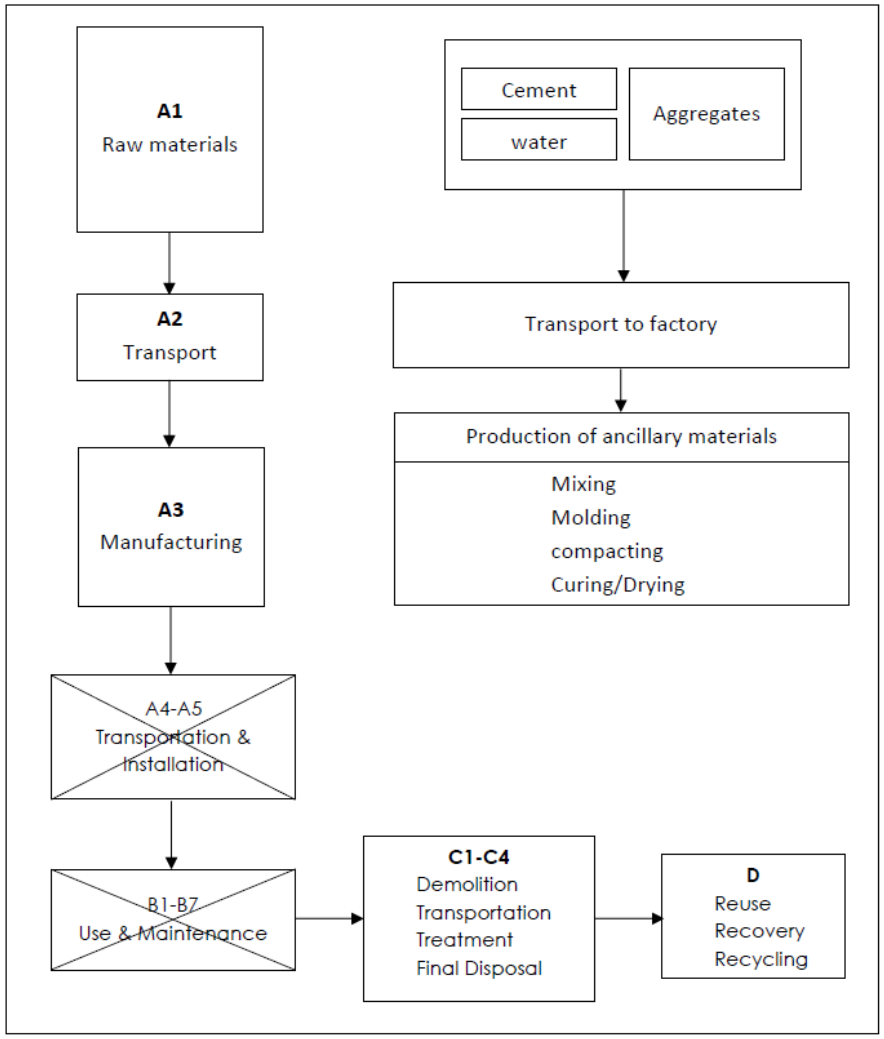
This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected as separate construction waste. The demolition process consumes energy in the form of diesel fuel used by building machines. Energy consumption of a demolition process is on the average 10 kWh/m2 [Bozdağ, Ö., & Seçer, M. (2007). Energy consumption of reinforced-concrete buildings during their life cycle. In N. Maiellaro (Ed.), Sustainable Construction, Materials and Practices: Challenge of the Industry for the New Millennium (Chapter 6, pp. 480–481). Lisbon, Portugal: CIB W107 International Conference]. Basing on a Level(s) project, an average mass of a reinforced concrete building is about 1000 kg/m2. Therefore, energy consumption demolition is assumed to be 10 kWh/1000 kg = 0.01 kWh/kg. The source of energy is diesel fuel used by work machines (C1). The demolished concrete pieces are delivered to the nearest construction waste disposal site. It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed that it has the same weight with the declared product. Transportation distance to the closest disposal area is estimated as 70 km and the transportation method is lorry(C2).

Due to the absence of official data and established infrastructure for recycling or recovery of construction and demolition (C&D) waste in the Tabuk region of Saudi Arabia, no waste processing is considered (C3), and it is conservatively assumed that the product is sent directly to landfill. As a result, 100% of the material is disposed of by landfilling (C4), and no reuse, recycling, or energy recovery is considered. All associated environmental burdens are attributed to landfilling, with no benefits reported in Module D.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

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

ALLOCATION, ESTIMATES AND ASSUMPTIONS

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

Data type	Allocation
Raw materials	Allocated by mass or volume
Packaging material	Not applicable
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	-

There is no average result considered in this study since this EPD refers to one specific product produced in one production plant.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2

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	1,31E+02	4,32E+00	1,80E+00	1,38E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,19E-01	1,16E+01	0,00E+00	5,27E+00	0,00E+00
GWP – fossil	kg CO_2e	1,31E+02	4,32E+00	1,80E+00	1,38E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,19E-01	1,16E+01	0,00E+00	5,27E+00	0,00E+00
GWP – biogenic	kg CO_2e	0,00E+00	3,41E-04	6,04E-04	9,45E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO_2e	1,41E-02	1,58E-03	7,00E-05	1,58E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,15E-05	4,57E-03	0,00E+00	4,97E-03	0,00E+00
Ozone depletion pot.	kg CFC_{-11}e	1,20E-06	1,01E-06	2,79E-07	2,49E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,97E-07	2,69E-06	0,00E+00	2,13E-06	0,00E+00
Acidification potential	mol H^+e	3,74E-01	1,82E-02	1,03E-02	4,03E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,55E-03	4,72E-02	0,00E+00	4,95E-02	0,00E+00
EP-freshwater[2)]	kg Pe	4,67E-04	3,30E-05	2,00E-05	5,20E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,05E-06	8,17E-05	0,00E+00	5,52E-05	0,00E+00
EP-marine	kg Ne	1,01E-01	5,44E-03	2,01E-03	1,08E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,23E-03	1,41E-02	0,00E+00	1,71E-02	0,00E+00
EP-terrestrial	mol Ne	1,14E+00	6,00E-02	2,11E-02	1,23E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,64E-02	1,56E-01	0,00E+00	1,89E-01	0,00E+00
POCP ("smog")[3)]	kg NMVOCe	3,46E-01	1,92E-02	6,23E-03	3,72E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,28E-02	4,76E-02	0,00E+00	5,48E-02	0,00E+00
ADP-minerals & metals[4)]	kg Sbe	1,01E-04	1,01E-05	9,29E-07	1,12E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,66E-07	4,12E-05	0,00E+00	1,21E-05	0,00E+00
ADP-fossil resources	MJ	7,98E+02	6,53E+01	2,58E+01	8,89E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,24E+01	1,73E+02	0,00E+00	1,44E+02	0,00E+00
Water use[5)]	m^3e depr.	1,38E+01	2,96E-01	9,87E-02	1,42E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,32E-02	7,99E-01	0,00E+00	4,58E-01	0,00E+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

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	2,41E-06	5,02E-07	6,69E-08	2,98E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,56E-07	1,00E-06	0,00E+00	9,97E-07	0,00E+00
Ionizing radiation[6]	kBq U235e	1,29E+00	3,21E-01	5,10E-02	1,67E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,68E-02	9,04E-01	0,00E+00	6,53E-01	0,00E+00
Ecotoxicity (freshwater)	CTUe	4,20E+02	5,70E+01	1,08E+01	4,88E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,43E+00	1,43E+02	0,00E+00	9,42E+01	0,00E+00
Human toxicity, cancer	CTUh	2,59E-08	1,44E-09	3,76E-10	2,77E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,85E-10	4,44E-09	0,00E+00	2,35E-09	0,00E+00
Human tox. non-cancer	CTUh	7,23E-07	5,79E-08	5,25E-09	7,86E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,38E-09	1,45E-07	0,00E+00	6,16E-08	0,00E+00
SQP[7]	-	2,46E+02	7,56E+01	5,12E-01	3,22E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,61E+00	1,21E+02	0,00E+00	3,09E+02	0,00E+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	2,60E+01	7,80E-01	8,81E-02	2,69E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,07E-02	2,48E+00	0,00E+00	1,25E+00	0,00E+00
Renew. PER as material	MJ	7,94E+00	0,00E+00	0,00E+00	7,94E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-7,94E+00	0,00E+00
Total use of renew. PER	MJ	3,40E+01	7,80E-01	8,81E-02	3,48E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,07E-02	2,48E+00	0,00E+00	-6,68E+00	0,00E+00
Non-re. PER as energy	MJ	7,99E+02	6,53E+01	2,54E+01	8,90E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,24E+01	1,73E+02	0,00E+00	1,44E+02	0,00E+00
Non-re. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	7,99E+02	6,53E+01	2,54E+01	8,90E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,24E+01	1,73E+02	0,00E+00	1,44E+02	0,00E+00
Secondary materials	kg	9,97E-02	1,82E-02	1,48E-04	1,18E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,84E-03	5,79E-02	0,00E+00	3,03E-02	0,00E+00
Renew. secondary fuels	MJ	5,77E-04	1,75E-04	8,93E-06	7,61E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,58E-05	6,38E-04	0,00E+00	7,93E-04	0,00E+00
Non-ren. secondary fuels	MJ	4,13E-02	0,00E+00	0,00E+00	4,13E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	8,76E-01	8,54E-03	2,30E-03	8,87E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,51E-04	2,17E-02	0,00E+00	1,58E-01	0,00E+00

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	4,47E-01	8,00E-02	5,77E-03	5,32E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,66E-02	1,94E-01	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	1,36E+01	1,34E+00	5,82E-01	1,55E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,16E-01	3,44E+00	0,00E+00	1,00E+03	0,00E+00
Radioactive waste	kg	4,43E-04	4,42E-04	8,05E-05	9,66E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,71E-05	1,19E-03	0,00E+00	0,00E+00	0,00E+00

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	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	1,24E-04	0,00E+00	0,00E+00	1,24E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	7,94E-13	0,00E+00	0,00E+00	7,94E-13	MND	MND	MND	MND	MND	MND	MND	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – 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	1,31E+02	4,32E+00	1,80E+00	1,38E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,19E-01	1,16E+01	0,00E+00	5,27E+00	0,00E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Sergio Ballen Zamora, an authorized verifier acting for EPD Hub Limited.
04.07.2025

VERIFIED ISO 14025