ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Reinforced Concrete Pipes (30% Slag)

MJB Industries

EPD HUB, HUB-3428

Published on 06.06.2025, last updated on 12.08.2025, valid until 05.06.2030

GENERAL INFORMATION

MANUFACTURER

Manufacturer	MJB Industries
Address	Lot 102 Ditchingham Place, Australind WA 6230, Australia
Contact details	sales@mjbindustries.com
Website	www.mjbindustries.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
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Raphael Breiner - Master Builders Solutions
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 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	Reinforced Concrete Pipes (30% slag)
Place of production	Australind WA 6230, Australia
Period for data	Calendar year 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	-11 / +25 %
A1-A3 Specific data (%)	83.4

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 ton
Declared unit mass	1000 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	166
GWP-total, A1-A3 ($kgCO_2e$)	168
Secondary material, inputs (%)	81
Secondary material, outputs (%)	78
Total energy use, A1-A3 (kWh)	350
Net freshwater use, A1-A3 (m^3)	24.3

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

MJB Industries Pty Ltd is a state-wide supplier of concrete pipe and precast products that prides itself on quality and service.

Established in 2006 as an Australian Private Company, MJB Industries Pty Ltd has built a reputation as a supplier of choice for many civil companies and contractors throughout the state of Western Australia.

From modest beginnings, MJB has grown and diversified into a large enterprise which is now one of Western Australia's larger pipe and precast manufacturing plants. With the addition of new equipment being commissioned, they have the capability to produce pipes and liners up to 2100mm diameter.

PRODUCT DESCRIPTION

Concrete Pipes manufactured at MJB Industries are produced in Rubber Ring Joint profiles, as per the standard AS/NZS 4058 for Precast concrete pipes (non-pressure). They range in diameter from 300mm up to 2100 mm and are available in classes of 2, 3 & 4.

Concrete pipes manufactured by MJB Industries with a diameter from 300mm to 900mm have an effective laying length of 2.34 metres, whereas the larger pipe range, from 1050 mm upwards, have an effective laying length of 2.44 meters.

This EPD covers pipes with diameters from 300 mm to 900 mm, a nominal wall thickness of 43 mm, and classes 2 and 4. It is based on 1 ton of product.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	1 to 3.5 %	Australia
Minerals	96 to 98.5 %	Australia
Fossil materials	Less than 0.5%	Australia
Bio-based materials	0	-

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 AND SERVICE LIFE

Declared unit	1 ton
Mass per declared unit	1000 kg
Functional unit	-
Reference service life	100 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	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	Deconstr./demol.	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 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 reinforced concrete pipe is made of aggregates, binder, chemical admixtures, water, and reinforcement. In the concrete plant, each raw material is automatically weighed and fed into a mechanical mixer, which operates following the recipe of the concrete entered into its master system. The humidity of aggregates is periodically controlled to adjust the amount of water incorporated into the mixture. The mix is then filled into the form along with the reinforcement and allowed to set.

Machines and mixers are very efficient with negligible to zero loss of concrete and reinforcement during manufacturing. Excess concrete is reworked totally into the next batch, and small amounts of reinforcement cuttings are collected and recycled.

The packaging is not modelled for this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) and Assembly (A5) are not covered in this EPD.

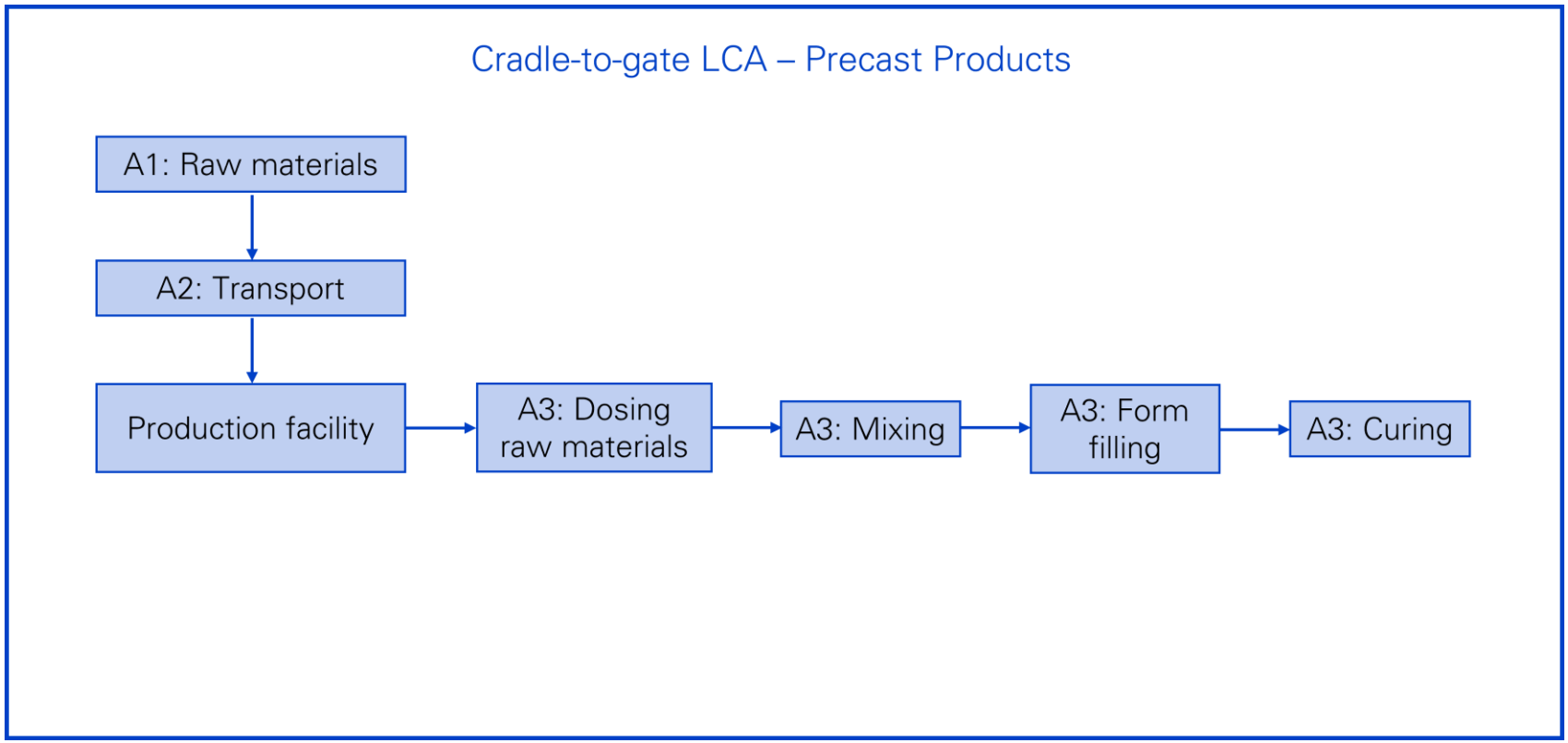
PRODUCT USE AND MAINTENANCE (B1-B7)

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, the components made of concrete will be deconstructed and collected as separate construction waste. In reinforced concrete elements, the concrete and the reinforcing steel are separated before further processing. Building machines, operating on diesel fuel are used for demolition of buildings. Energy consumption of a demolition process is on the average 0.07 MJ/kg of concrete based on EUR 29123 EN Model for Life Cycle Assessment (LCA) of buildings (C1). After the demolition, the debris is transported to the end-of-life processing (C2) where all the impacts related to the transport processes are considered. According to the regional data, 78% of the waste concrete is treated to be reused as recycled aggregates (C3) and the rest (22%) is treated as inert material for landfill (C4). The benefits and loads of recycled aggregates (from C3) are modelled and included beyond the system boundary (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	No allocation
Packaging material	No allocation
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

The following assumptions were made:

- Transport distance for concrete waste at the end-of-life (C2) is considered 100 km as the worst-case scenario.
- Consumed energy for demolition (C1) is 0.07 MJ / kg [Source: EUR 29123 EN Model for Life Cycle Assessment (LCA) of buildings].
- End-of-life waste processing ratio for concrete (i.e., 78% as recycled concrete and 22% as landfill) (C3 and C4) [Source: Construction Waste Statistics Australia 2024].
- End-of-life waste recycling ratio of steel for Australia is 87% [Source: Construction Waste Statistics Australia 2024].

AVERAGES AND VARIABILITY

Type of average	Multiple products
Averaging method	Averaged by shares of total mass
Variation in GWP-fossil for A1-A3	-11 / +25 %

This EPD covers pipes with diameters from 300 mm to 900 mm, a nominal wall thickness of 43 mm, and classes 2 and 4. It is based on 1 ton of product. The Global Warming Potential (GWP) ranges from 152 (min) to 213 kg CO_2e (max), primarily due to increased reinforcement content in larger diameters and higher classes.

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 v3.10.1 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	1,62E+02	4,44E+00	1,24E+00	1,68E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,01E+00	0,00E+00	2,22E+00	1,02E+00	-8,84E+00
GWP – fossil	kg CO_2e	1,60E+02	4,44E+00	1,24E+00	1,66E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,01E+00	0,00E+00	3,55E+00	1,40E+00	-8,83E+00
GWP – biogenic	kg CO_2e	1,71E+00	0,00E+00	1,59E-04	1,71E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,15E-04	0,00E+00	-1,33E+00	-3,76E-01	-3,16E-03
GWP – LULUC	kg CO_2e	5,17E-02	1,98E-03	1,37E-04	5,38E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,18E-04	0,00E+00	3,64E-04	7,98E-04	-5,82E-03
Ozone depletion pot.	kg CFC_{-11}e	2,45E-06	6,55E-08	1,52E-08	2,53E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E-07	0,00E+00	5,44E-08	4,01E-08	-5,72E-08
Acidification potential	mol H^+e	6,15E-01	1,51E-02	9,07E-03	6,39E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,33E-02	0,00E+00	3,21E-02	9,96E-03	-4,79E-02
EP-freshwater[2)]	kg Pe	5,13E-03	3,45E-04	7,98E-04	6,27E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,02E-04	0,00E+00	1,03E-04	1,14E-04	-2,60E-03
EP-marine	kg Ne	1,49E-01	4,97E-03	3,71E-03	1,57E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,93E-02	0,00E+00	1,49E-02	3,81E-03	-1,11E-02
EP-terrestrial	mol Ne	1,67E+00	5,41E-02	3,89E-02	1,76E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,21E-01	0,00E+00	1,63E-01	4,17E-02	-1,43E-01
POCP ("smog")[3)]	kg NMVOCe	4,39E-01	2,23E-02	1,15E-02	4,73E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,58E-02	0,00E+00	4,86E-02	1,49E-02	-3,95E-02
ADP-minerals & metals[4)]	kg Sbe	1,54E-04	1,24E-05	6,03E-07	1,67E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,51E-06	0,00E+00	1,27E-06	2,20E-06	-3,65E-05
ADP-fossil resources	MJ	1,02E+03	6,44E+01	1,51E+01	1,10E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,17E+01	0,00E+00	4,65E+01	3,40E+01	-9,97E+01
Water use[5)]	m^3e depr.	2,11E+02	3,18E-01	6,53E-02	2,12E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,29E-01	0,00E+00	1,16E-01	9,81E-02	-1,11E+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

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	6,53E-06	4,44E-07	1,99E-07	7,18E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,80E-06	0,00E+00	6,70E-06	2,28E-07	-7,64E-07
Ionizing radiation[6)]	kBq U235e	6,81E-01	5,61E-02	5,30E-03	7,43E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,06E-02	0,00E+00	2,06E-02	2,13E-02	-6,29E-01
Ecotoxicity (freshwater)	CTUe	7,14E+02	9,11E+00	1,74E+00	7,25E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,05E+00	0,00E+00	2,56E+00	2,86E+00	-3,42E+00
Human toxicity, cancer	CTUh	3,31E-08	7,32E-10	1,53E-10	3,40E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,21E-10	0,00E+00	3,65E-10	2,56E-10	1,06E-11
Human tox. non-cancer	CTUh	7,78E-07	4,17E-08	5,14E-09	8,25E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,14E-08	0,00E+00	5,79E-09	5,89E-09	1,42E-07
SQP[7)]	-	4,89E+02	6,48E+01	1,02E+00	5,55E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,43E+00	0,00E+00	3,26E+00	6,63E+01	-8,94E+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	8,45E+01	8,82E-01	4,48E-01	8,58E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,81E-01	0,00E+00	2,94E-01	3,28E-01	-7,59E+00
Renew. PER as material	MJ	1,88E+01	0,00E+00	0,00E+00	1,88E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,46E+01	-4,13E+00	0,00E+00
Total use of renew. PER	MJ	1,03E+02	8,82E-01	4,48E-01	1,05E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,81E-01	0,00E+00	-1,43E+01	-3,80E+00	-7,59E+00
Non-re. PER as energy	MJ	1,05E+03	6,44E+01	1,51E+01	1,13E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,17E+01	0,00E+00	4,65E+01	3,40E+01	-9,97E+01
Non-re. PER as material	MJ	3,61E+01	0,00E+00	0,00E+00	3,61E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-2,82E+01	-7,94E+00	0,00E+00
Total use of non-re. PER	MJ	1,09E+03	6,44E+01	1,51E+01	1,17E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,17E+01	0,00E+00	1,83E+01	2,61E+01	-9,97E+01
Secondary materials	kg	8,15E+00	2,74E-02	4,48E-03	8,19E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,81E-02	0,00E+00	1,93E-02	8,62E-03	1,31E+00
Renew. secondary fuels	MJ	1,31E+01	3,48E-04	1,27E-05	1,31E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,95E-05	0,00E+00	5,05E-05	1,76E-04	-6,05E-04
Non-ren. secondary fuels	MJ	3,07E+01	0,00E+00	0,00E+00	3,07E+01	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	2,43E+01	9,52E-03	1,59E-03	2,43E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,06E-03	0,00E+00	3,07E-03	3,50E-02	-3,43E-01

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	3,05E-01	1,09E-01	4,67E-02	4,60E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,02E-01	0,00E+00	5,18E-02	3,76E-02	-5,79E-01
Non-hazardous waste	kg	1,91E+01	2,02E+00	5,06E+00	2,61E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,39E+00	0,00E+00	7,06E-01	8,60E-01	2,25E+01
Radioactive waste	kg	1,16E-03	1,37E-05	1,27E-06	1,17E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,97E-06	0,00E+00	5,05E-06	5,20E-06	-1,52E-04

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	7,65E-03	0,00E+00	0,00E+00	7,65E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,80E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	1,34E-06	0,00E+00	0,00E+00	1,34E-06	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	5,76E-03	0,00E+00	0,00E+00	5,76E-03	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 - THE INTERNATIONAL EPD SYSTEM

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	1,60E+02	4,44E+00	1,24E+00	1,66E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,01E+00	0,00E+00	3,56E+00	1,40E+00	-8,83E+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

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.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
06.06.2025

VERIFIED ISO 14025