ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

PRECAST CONCRETE BEAM

SKONTO PREFAB SIA

EPD HUB, HUB-3192

Published on 16.04.2025, last updated on 16.04.2030

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	SKONTO PREFAB SIA
Address	Granita street 31/1, Acone, Salaspils parish, Salaspils district, , LV-2119, Acone, , LV
Contact details	info@skontoprefab.lv
Website	www.skontoprefab.lv

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
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	SKONTO PREFAB SIA
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Imane Uald Lamkaddam 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	PRECAST CONCRETE BEAM
Additional labels	
Product reference	
Place of production	Acone, Salaspils parish, Latvia
Period for data	December 2023 - November 2024
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3 (%)	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 ton of precast concrete beam element
Declared unit mass	1000 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1,54E+02
GWP-total, A1-A3 ($kgCO_2e$)	1,54E+02
Secondary material, inputs (%)	0,29
Secondary material, outputs (%)	73,2
Total energy use, A1-A3 (kWh)	86,2
Net freshwater use, A1-A3 (m^3)	1,85

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

SKONTO PREFAB provides a full scope of high quality building services, including full designing, manufacturing, well-considered logistics management and a complete assembly package of prefabricated concrete, steel and cross laminated timber constructions in Scandinavia and Western Europe.

SKONTO PREFAB specializes in structural concrete solutions for residential and non-residential buildings and has successfully completed a number of public, commercial and residential projects in Stockholm, Malmö, Norrköping, Linköping, Nyköping, Ystad, Gävle, Örebro and several other locations.

PRODUCT DESCRIPTION

Precast concrete beams are high-strength, factory-manufactured structural components designed for efficiency and durability in construction projects. Precision engineered for consistent quality, the beams can be customized in various shapes and sizes to meet specific design and load-bearing requirements. Ideal for use in bridges, buildings and industrial structures, precast concrete beams offer superior performance, reduced construction time and long-term reliability.

SKONTO PREFRAB is manufactured in accordance with EN 206, EN 13369, EN 14992 standards.

The minimum concrete strength class is C30/37 for precast concrete beams, but SKONTO PREFB can use various different concrete strength classes. The diameter of the steel reinforcement usually varies between 5 and 30 mm.

The prefab concrete beams are produced in different sizes and thicknesses, according to the project requirements.

Further information can be found at www.skontoprefab.lv.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	7	Europe
Minerals	93	Europe
Fossil materials	-	
Bio-based materials	-	

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

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

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 ton of precast concrete beam element
Mass per declared unit	1000 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	x	x	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.

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The precast concrete elements are manufacturing as following, according to technical element drawings:

- preparation of the mould, which includes assembly of mould, cleaning and application of form oil;
- placement of reinforcement;
- preparation of concrete (mixing of sand, dolomite, cement and adding water and plasticizer);
- pouring concrete into the mould and vibrating to its final shape;
- the element is allowed to harden;
- demoulding element and moving out of the factory for transporting to construction site.

The product is not packaged, but is transported by loading and mounting on trucks using reusable tie down straps. Packaging does not include any biogenic carbon.

Waste from production is minimized and reused as much as possible:

- steel scrap is diverted for recycling;
- concrete is used to make other products;
- plywood is diverted for energy recovery.

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.

Transportation impacts that occurred from final product delivery to the construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

Transportation from manufacturing site to building site has been calculated using the scenario that 51% of production is exported to Sweden, Stockholm region and 49% is transported to building sites in Latvia. The average distance from production site to construction site in Sweden is assumed as 270 km by ferry and 265 km by lorry. In Latvia the average distance is assumed as 44 km. Product installation is modeled as assembly of typical concrete products. In assembly process is used electricity for building machines, mixer, pump and auxiliary materials as cement mortar and water.

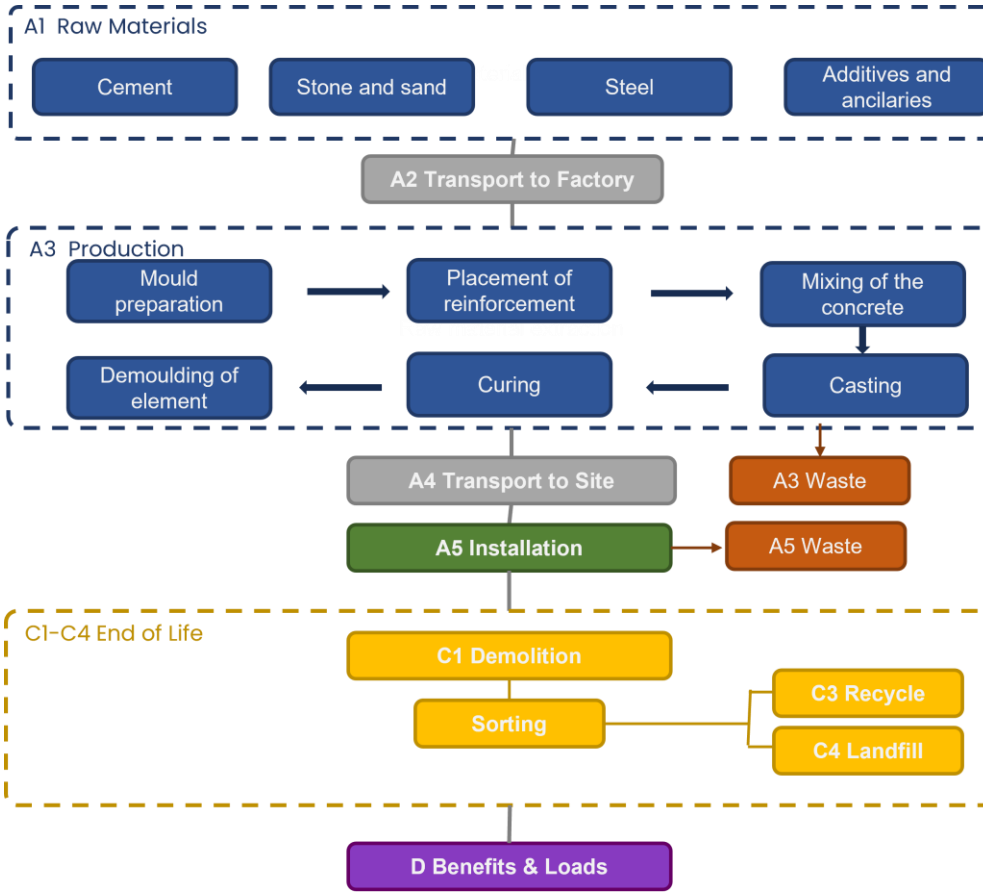
PRODUCT USE AND MAINTENANCE (B1-B7)

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 includes diesel fuel used in building machines. Concrete elements are delivered to the nearest construction waste treatment plant. There elements can separated and diverted for further use. Unusable materials are disposal to landfill. Scenario includes, that 70% of concrete is recycled (Gervasio, H. & Dimova, S., JRC Technical report: Model for Life Cycle Assessment (LCA) of buildings, 2018), and 30% is disposed to landfill. 85% of reinforcement steel is recycled (World Stainless 2024), 15% is disposed to landfill.

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	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 (%)	-

This EPD is product and factory specific and does not contain average calculations.

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. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

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	1,36E+02	9,69E+00	8,07E+00	1,54E+02	3,32E+01	7,86E+00	MND	MND	MND	MND	MND	MND	MND	3,61E+00	1,12E+01	4,32E+00	1,86E+00	-6,72E+00
GWP – fossil	kg CO_2e	1,36E+02	9,69E+00	8,05E+00	1,54E+02	3,32E+01	7,84E+00	MND	MND	MND	MND	MND	MND	MND	3,60E+00	1,12E+01	4,32E+00	1,86E+00	-6,72E+00
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,15E-06
GWP – LULUC	kg CO_2e	1,02E-01	3,85E-03	2,21E-02	1,28E-01	1,43E-02	1,89E-02	MND	MND	MND	MND	MND	MND	MND	3,69E-04	4,11E-03	2,00E-03	1,06E-03	-6,08E-03
Ozone depletion pot.	kg CFC_{-11}e	5,54E-06	1,79E-07	2,17E-07	5,94E-06	5,74E-07	5,88E-08	MND	MND	MND	MND	MND	MND	MND	5,52E-08	2,11E-07	6,35E-08	5,40E-08	-5,24E-08
Acidification potential	mol H^+e	5,65E-01	3,18E-02	3,68E-02	6,34E-01	5,42E-01	2,53E-02	MND	MND	MND	MND	MND	MND	MND	3,25E-02	3,53E-02	4,29E-02	1,32E-02	-4,10E-02
EP-freshwater[2)]	kg Pe	1,73E-02	6,84E-04	1,88E-03	1,98E-02	1,60E-03	9,05E-04	MND	MND	MND	MND	MND	MND	MND	1,04E-04	7,62E-04	9,73E-04	1,53E-04	-2,05E-03
EP-marine	kg Ne	1,56E-01	1,07E-02	9,66E-03	1,76E-01	1,41E-01	7,06E-03	MND	MND	MND	MND	MND	MND	MND	1,51E-02	1,18E-02	1,59E-02	5,03E-03	-9,72E-03
EP-terrestrial	mol Ne	1,73E+00	1,16E-01	1,03E-01	1,95E+00	1,57E+00	7,80E-02	MND	MND	MND	MND	MND	MND	MND	1,65E-01	1,29E-01	1,76E-01	5,50E-02	-1,18E-01
POCP ("smog")[3)]	kg NMVOCe	4,99E-01	5,03E-02	4,31E-02	5,92E-01	4,57E-01	2,36E-02	MND	MND	MND	MND	MND	MND	MND	4,93E-02	5,42E-02	5,23E-02	1,97E-02	-3,26E-02
ADP-minerals & metals[4)]	kg Sbe	8,52E-04	2,68E-05	6,54E-05	9,44E-04	6,09E-05	3,41E-05	MND	MND	MND	MND	MND	MND	MND	1,29E-06	3,65E-05	9,88E-05	2,96E-06	-3,59E-05
ADP-fossil resources	MJ	1,17E+03	1,40E+02	1,57E+02	1,47E+03	4,44E+02	7,08E+01	MND	MND	MND	MND	MND	MND	MND	4,72E+01	1,57E+02	5,69E+01	4,57E+01	-8,06E+01
Water use[5)]	m^3e depr.	8,19E+03	7,11E-01	3,64E+00	8,19E+03	1,76E+00	1,74E+00	MND	MND	MND	MND	MND	MND	MND	1,18E-01	7,63E-01	4,29E-01	1,32E-01	-1,01E+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, PEF

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	4,94E-06	9,66E-07	5,34E-07	6,44E-06	2,15E-06	2,68E-07	MND	MND	MND	MND	MND	MND	MND	9,25E-07	8,79E-07	5,97E-06	3,01E-07	-6,24E-07
Ionizing radiation[6)]	kBq U235e	1,26E+01	1,55E-01	1,55E+00	1,43E+01	3,75E-01	1,47E+00	MND	MND	MND	MND	MND	MND	MND	2,09E-02	1,88E-01	1,74E-01	2,87E-02	-5,67E-01
Ecotoxicity (freshwater)	CTUe	1,35E+03	1,76E+01	1,88E+01	1,38E+03	4,29E+01	1,29E+01	MND	MND	MND	MND	MND	MND	MND	2,60E+00	2,13E+01	1,29E+01	3,83E+00	-1,92E+01
Human toxicity, cancer	CTUh	1,58E-07	1,60E-09	1,45E-08	1,74E-07	6,15E-09	1,55E-09	MND	MND	MND	MND	MND	MND	MND	3,71E-10	1,90E-09	1,53E-09	3,43E-10	-1,80E-09
Human tox. non-cancer	CTUh	1,28E-06	9,11E-08	9,12E-08	1,46E-06	2,05E-07	5,09E-08	MND	MND	MND	MND	MND	MND	MND	5,87E-09	9,84E-08	8,85E-08	7,89E-09	-5,24E-08
SQP[7)]	-	6,42E+02	1,41E+02	4,47E+02	1,23E+03	2,60E+02	4,47E+01	MND	MND	MND	MND	MND	MND	MND	3,30E+00	9,33E+01	3,87E+01	9,00E+01	-7,55E+01

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

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	1,78E+02	2,17E+00	8,85E+01	2,69E+02	5,35E+00	2,14E+01	MND	MND	MND	MND	MND	MND	MND	2,99E-01	2,61E+00	3,69E+00	4,41E-01	-7,35E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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 renew. PER	MJ	1,78E+02	2,17E+00	8,85E+01	2,69E+02	5,35E+00	2,14E+01	MND	MND	MND	MND	MND	MND	MND	2,99E-01	2,61E+00	3,69E+00	4,41E-01	-7,35E+00
Non-re. PER as energy	MJ	-5,41E+02	1,40E+02	1,27E+02	-2,73E+02	4,44E+02	7,09E+01	MND	MND	MND	MND	MND	MND	MND	4,72E+01	1,57E+02	5,69E+01	4,57E+01	-8,06E+01
Non-re. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	-5,41E+02	1,40E+02	1,27E+02	-2,73E+02	4,44E+02	7,09E+01	MND	MND	MND	MND	MND	MND	MND	4,72E+01	1,57E+02	5,69E+01	4,57E+01	-8,06E+01
Secondary materials	kg	2,91E+00	6,04E-02	3,92E-02	3,01E+00	1,93E-01	1,70E-02	MND	MND	MND	MND	MND	MND	MND	1,96E-02	7,16E-02	3,85E-02	1,15E-02	-8,99E-02
Renew. secondary fuels	MJ	4,48E+01	7,64E-04	3,66E-04	4,48E+01	1,52E-03	1,99E-04	MND	MND	MND	MND	MND	MND	MND	5,12E-05	9,05E-04	1,09E-03	2,38E-04	-6,20E-04
Non-ren. secondary fuels	MJ	2,70E+02	0,00E+00	0,00E+00	2,70E+02	0,00E+00	0,00E+00	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	1,73E+00	2,07E-02	1,03E-01	1,85E+00	4,87E-02	6,43E-02	MND	MND	MND	MND	MND	MND	MND	3,12E-03	2,10E-02	1,24E-02	4,75E-02	-2,39E-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	1,01E+01	2,14E-01	2,63E-01	1,06E+01	5,96E-01	2,09E-01	MND	MND	MND	MND	MND	MND	MND	5,25E-02	2,33E-01	1,64E-01	5,05E-02	-6,29E-01
Non-hazardous waste	kg	2,32E+02	4,17E+00	1,02E+01	2,46E+02	1,03E+01	4,72E+00	MND	MND	MND	MND	MND	MND	MND	7,15E-01	4,81E+00	4,95E+00	1,15E+00	-1,12E+01
Radioactive waste	kg	5,43E-03	3,82E-05	3,52E-04	5,82E-03	9,23E-05	3,18E-04	MND	MND	MND	MND	MND	MND	MND	5,12E-06	4,65E-05	4,44E-05	7,01E-06	-1,37E-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	0,00E+00	0,00E+00	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	6,95E-04	0,00E+00	1,51E-01	1,52E-01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,32E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	1,36E-03	0,00E+00	2,00E-03	3,36E-03	0,00E+00	0,00E+00	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	5,05E-03	0,00E+00	2,01E-02	2,52E-02	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	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	3,00E-03	3,00E-03	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	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	1,71E-02	1,71E-02	0,00E+00	0,00E+00	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	1,36E+02	9,69E+00	8,07E+00	1,54E+02	3,32E+01	7,86E+00	MND	MND	MND	MND	MND	MND	MND	3,61E+00	1,12E+01	4,32E+00	1,86E+00	-6,72E+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.

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
16.04.2025