ENVIRONMENTAL PRODUCT DECLARATION

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

Precast polystyrene insulated concrete element –
Prefabricerade polystyrenisolerade betongelement (sandwichvägg och sockelelement)
Vinninga Cementvarufabrik AB

EPD HUB, HUB-2439
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Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Vinninga Cementvarufabrik AB
Address	Konvaljevägen 4, 531 71 Vinninga, Sweden
Contact details	info@vinningacement.se
Website	https://vinningacement.se

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	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-B1, and modules C1-C4, D
EPD author	Therese Kvarnström
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 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	Precast polystyrene insulated concrete element - Prefabricerade polystyrenisolerade betongelement (sandwichvägg och sockelelement)
Additional labels	-
Product reference	-
Place of production	Vinninga, Sweden
Period for data	Calendar year 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 tonne of concrete element
Declared unit mass	1000 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1,98E+02
GWP-total, A1-A3 ($kgCO_2e$)	1,98E+02
Secondary material, inputs (%)	4.81
Secondary material, outputs (%)	93.4
Total energy use, A1-A3 (kWh)	514
Net freshwater use, A1-A3 (m^3)	1.66

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Vinninga Cement AB was founded in 1937 by Eric Öhman and Sven Wahlqvist. Until 2006 it was in the Öhman family's possession, but in 2006 the company was sold by Alf Öhman to Anders Holgersson and then again in 2017 to S:t Eriks Group.

Production has changed a lot and Vinninga Cementvarufabrik today develops and produces a wide range of products for the agricultural, contracting and construction sectors.

Since 2006, the workforce has increased from 4 to around 50 employees and in addition to Vinninga there is also a factory in Motala. Our deliveries are handled by a network of transport companies that can offer several solutions to meet our customers needs.

Important cornerstones for achieving good quality and minimizing our environmental impact are our certificates and our competent staff.

PRODUCT DESCRIPTION

Precast insulated walls are used as load-bearing walls in buildings. The basis of the insulated wall is an inner and outer panel in concrete with an intermediate layer of insulation where the inner panel is the load-bearing part of the construction. The concrete wall can be ordered in different lengths, heights and thicknesses.

Precast insulated walls can be serially produced and moulded in single editions and delivered with electrical installations included. Cutouts for doors and windows can be included as well.

A concrete structure indoors is not exposed to any natural degradation mechanisms and therefore has a long service life. It also has low repair, replacement and maintenance requirements during the use stage. With prefabricated concrete elements, a modern building's requirements for sound insulation, fire protection and moisture safety are met. Concrete is recyclable and can be used to produce new concrete as aggregate or as filling material for roads etc.

Further information can be found at https://vinningacement.se

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	4	EU
Minerals	95	SE
Fossil materials	1	EU
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 tonne of concrete element
Mass per declared unit	1000 kg
Functional unit	-
Reference service life	50

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	x	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.

Concrete element production starts by transporting the binders, aggregates and additives to silos, from where they are dosed onto a conveyor. Cement is then added to the ingredients, after which the material is mixed dry. Water and additives are added to the mixture, followed by wet mixing. The wet mass is filled into moulds prepared with reinforcement steel and insulation and vibrated to its final shape. The elements are then cured in their moulds. After they have been demoulded, they are quality checked and then taken to storage.

Packaging materials are used very seldom so the quantity is therefore negligible. Most of the products are transported without any pallets or other packaging materials, they are moved using the cast-in lifting anchors.

Both electricity and heat are used in the factory. The electricity comes from wind turbines and the heat comes from a furnace using wood pellets.

The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

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.

Average distance of transportation from production plant to building site is calculated on the biggest customers and the transportation method is lorry. Vehicle capacity utilization is assumed to be 100 % which means full load. In reality, it may vary but it is assumed to be negligible.
Empty returns are not taken into account as the return trip is used by the transportation company to serve the needs of other clients.

Installation includes the energy use. No packaging waste is generated due to the lack of packaging. Production loss at installation is assumed negligible as the precast elements are delivered ready made from the factory. Energy consumption for installation is calculated on 6 elements (30 ton) per hour.

PRODUCT USE AND MAINTENANCE (B1-B7)

Carbon dioxide uptake through carbonisation (CO2) in the use stage is taken into account in these calculations. Carbonisation is a natural chemical process where part of the carbon dioxide released during the calcination process during cement production is reabsorbed to the concrete when exposed to air. This usually occurs during the concrete product´s use and final stage.
The calculation is made on concrete with a thickness of 15 cm (excluding insulation) and Reference Service Life (RSL) 50 years.
Air, soil, and water impacts during the use phase have not been studied.

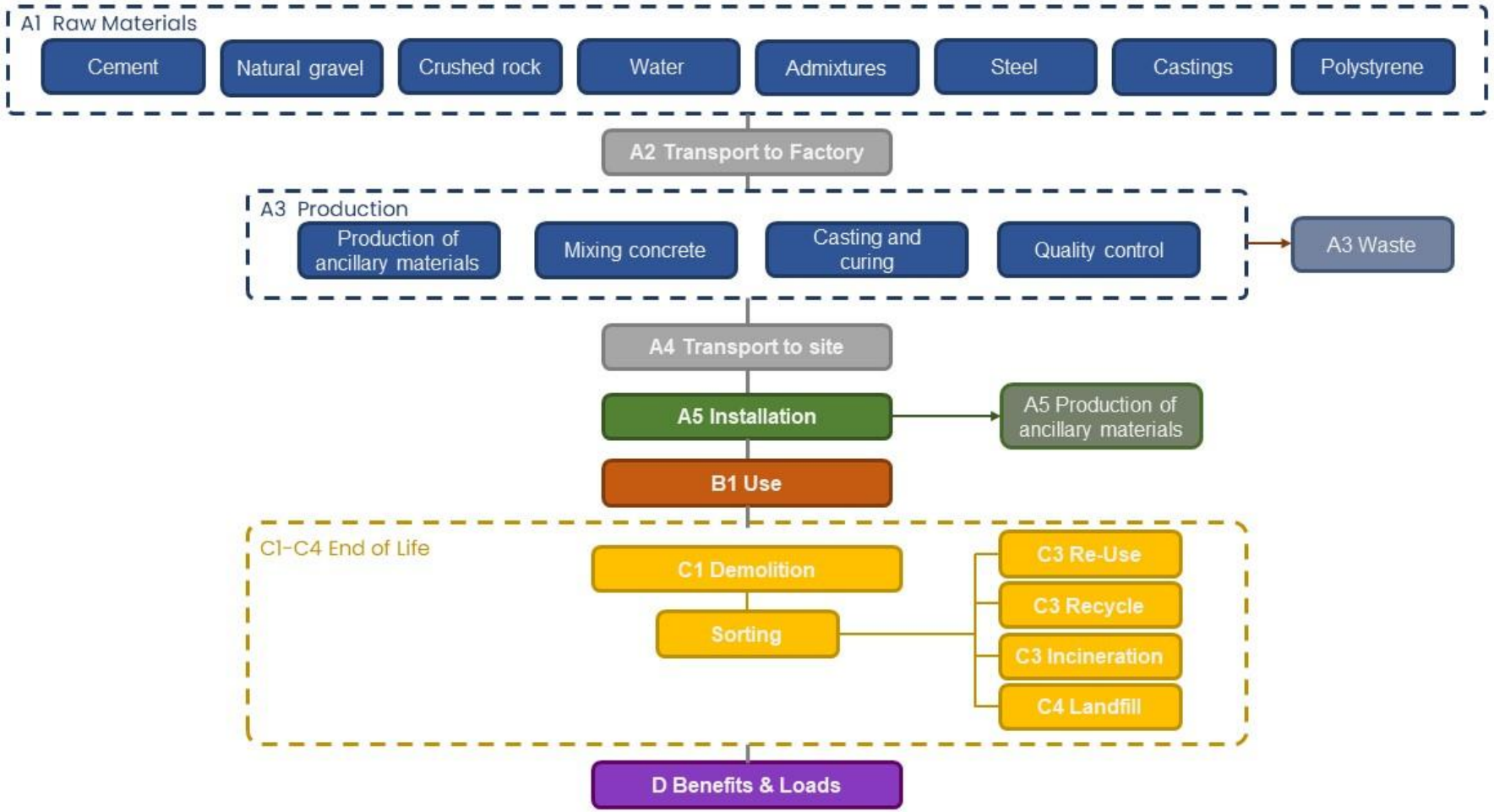
PRODUCT END OF LIFE (C1-C4, D)

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 (C1). Energy consumption is assumed to be the same as in the installation phase.

The dismantled concrete elements are delivered to the nearest construction waste treatment plant. It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed having the same weight as the declared product. Transportation distance to the closest disposal area is estimated as 50 km and the most common transportation method is lorry (C2). At the waste treatment plant, waste that can be reused, recycled or recovered for energy is separated and diverted for further use. It can be assumed that 100% of the concrete elements are transported to a waste treatment plant, where the elements are crushed and separated. 93,6 % of concrete and steel is recycled. The process losses of the waste treatment plant are assumed to be negligible (C3). The remaining 6,4% of concrete and steel are assumed to be sent to the landfill (C4). Source: Eurostat, 2016.

Due to the recycling potential of concrete, it can be crushed and used as secondary raw material, which avoids the use of virgin raw materials. The 93,6 % of concrete going to waste processing is converted into secondary raw materials after recycling. The recycled material content in the concrete itself is assumed to be 0 % (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	Partly allocated by mass/volume and partly by revenue
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. This EPD refers to products with the same recipe 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, 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	1,91E+02	4,12E+00	2,45E+00	1,98E+02	1,36E+01	6,62E-01	-7,74E+00	MND	MND	MND	MND	MND	MND	6,62E-01	4,35E+00	4,80E+00	3,96E-01	-3,40E+01
GWP – fossil	kg CO_2e	1,91E+02	4,12E+00	2,42E+00	1,98E+02	1,36E+01	6,62E-01	-7,74E+00	MND	MND	MND	MND	MND	MND	6,62E-01	4,35E+00	4,80E+00	3,96E-01	-3,40E+01
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	1,18E-01	1,55E-03	2,60E-02	1,45E-01	5,30E-03	6,59E-05	0,00E+00	MND	MND	MND	MND	MND	MND	6,59E-05	1,63E-03	2,08E-03	3,17E-04	-1,01E-02
Ozone depletion pot.	kg CFC_{-11}e	5,25E-06	1,03E-06	3,39E-07	6,62E-06	3,21E-06	1,41E-07	0,00E+00	MND	MND	MND	MND	MND	MND	1,41E-07	1,08E-06	8,90E-07	1,37E-07	-7,64E-07
Acidification potential	mol H^+e	4,32E-01	1,31E-02	1,15E-02	4,57E-01	4,44E-02	6,88E-03	0,00E+00	MND	MND	MND	MND	MND	MND	6,88E-03	1,39E-02	4,95E-02	3,18E-03	-1,44E-01
EP-freshwater[2)]	kg Pe	2,25E-03	2,95E-05	5,10E-05	2,33E-03	1,16E-04	2,19E-06	0,00E+00	MND	MND	MND	MND	MND	MND	2,19E-06	3,11E-05	7,27E-05	3,54E-06	-1,02E-03
EP-marine	kg Ne	5,59E-02	2,89E-03	3,83E-03	6,27E-02	9,76E-03	3,04E-03	0,00E+00	MND	MND	MND	MND	MND	MND	3,04E-03	3,06E-03	1,94E-02	1,12E-03	-2,52E-02
EP-terrestrial	mol Ne	1,08E+00	3,20E-02	4,11E-02	1,15E+00	1,08E-01	3,34E-02	0,00E+00	MND	MND	MND	MND	MND	MND	3,34E-02	3,39E-02	2,11E-01	1,21E-02	-2,96E-01
POCP ("smog")[3)]	kg NMVOCe	3,99E-01	1,26E-02	1,70E-02	4,29E-01	4,20E-02	9,18E-03	0,00E+00	MND	MND	MND	MND	MND	MND	9,18E-03	1,34E-02	5,83E-02	3,54E-03	-1,25E-01
ADP-minerals & metals[4)]	kg Sbe	1,92E-03	1,02E-05	1,70E-05	1,95E-03	3,32E-05	3,36E-07	0,00E+00	MND	MND	MND	MND	MND	MND	3,36E-07	1,06E-05	1,21E-04	7,81E-07	-1,73E-04
ADP-fossil resources	MJ	1,58E+03	6,57E+01	7,46E+01	1,72E+03	2,14E+02	8,91E+00	0,00E+00	MND	MND	MND	MND	MND	MND	8,91E+00	6,95E+01	6,25E+01	9,27E+00	-6,20E+02
Water use[5)]	m^3e depr.	8,09E+03	3,04E-01	2,23E+00	8,09E+03	9,53E-01	2,39E-02	0,00E+00	MND	MND	MND	MND	MND	MND	2,39E-02	3,21E-01	4,73E-01	3,00E-02	-3,10E+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	6,26E-06	4,75E-07	3,14E-07	7,05E-06	1,55E-06	1,84E-07	0,00E+00	MND	MND	MND	MND	MND	MND	1,84E-07	5,05E-07	7,80E-06	6,41E-08	-1,83E-06
Ionizing radiation[6)]	kBq U235e	7,47E+03	3,39E-01	3,65E+00	7,47E+03	1,02E+00	4,09E-02	0,00E+00	MND	MND	MND	MND	MND	MND	4,09E-02	3,58E-01	3,82E-01	4,21E-02	-8,46E-01
Ecotoxicity (freshwater)	CTUe	7,05E+02	5,47E+01	6,40E+01	8,24E+02	1,90E+02	5,35E+00	0,00E+00	MND	MND	MND	MND	MND	MND	5,35E+00	5,78E+01	1,21E+02	6,10E+00	-3,61E+02
Human toxicity, cancer	CTUh	1,27E-06	1,43E-09	1,98E-09	1,28E-06	4,65E-09	2,05E-10	0,00E+00	MND	MND	MND	MND	MND	MND	2,05E-10	1,50E-09	4,02E-09	1,53E-10	3,79E-08
Human tox. non-cancer	CTUh	3,66E-06	5,56E-08	3,56E-08	3,75E-06	1,83E-07	3,87E-09	0,00E+00	MND	MND	MND	MND	MND	MND	3,87E-09	5,88E-08	1,02E-07	3,97E-09	-3,01E-07
SQP[7)]	-	1,40E+03	7,61E+01	5,22E+01	1,53E+03	2,46E+02	1,16E+00	0,00E+00	MND	MND	MND	MND	MND	MND	1,16E+00	8,09E+01	3,50E+01	1,99E+01	-1,13E+02

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	1,66E+02	8,54E-01	5,81E+01	2,25E+02	2,40E+00	5,09E-02	0,00E+00	MND	MND	MND	MND	MND	MND	5,09E-02	9,00E-01	2,66E+00	8,39E-02	-9,86E+00
Renew. PER as material	MJ	9,40E-02	0,00E+00	-4,68E-04	9,35E-02	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-8,75E-02	-5,99E-03	0,00E+00
Total use of renew. PER	MJ	1,66E+02	8,54E-01	5,81E+01	2,25E+02	2,40E+00	5,09E-02	0,00E+00	MND	MND	MND	MND	MND	MND	5,09E-02	9,00E-01	2,57E+00	7,79E-02	-9,86E+00
Non-re. PER as energy	MJ	1,33E+03	6,57E+01	6,38E+01	1,46E+03	2,14E+02	8,91E+00	0,00E+00	MND	MND	MND	MND	MND	MND	8,91E+00	6,95E+01	6,25E+01	9,27E+00	-3,84E+02
Non-re. PER as material	MJ	2,25E+02	0,00E+00	-1,07E+01	2,15E+02	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-2,01E+02	-1,37E+01	0,00E+00
Total use of non-re. PER	MJ	1,56E+03	6,57E+01	5,30E+01	1,68E+03	2,14E+02	8,91E+00	0,00E+00	MND	MND	MND	MND	MND	MND	8,91E+00	6,95E+01	-1,38E+02	-4,47E+00	-3,84E+02
Secondary materials	kg	4,81E+01	1,86E-02	2,03E-02	4,82E+01	5,92E-02	3,49E-03	0,00E+00	MND	MND	MND	MND	MND	MND	3,49E-03	1,96E-02	5,18E-02	1,96E-03	9,34E+00
Renew. secondary fuels	MJ	4,67E+01	1,65E-04	4,23E-04	4,67E+01	5,98E-04	1,14E-05	0,00E+00	MND	MND	MND	MND	MND	MND	1,14E-05	1,73E-04	8,82E-04	5,19E-05	-1,41E-03
Non-ren. secondary fuels	MJ	1,16E+02	0,00E+00	0,00E+00	1,16E+02	0,00E+00	0,00E+00	0,00E+00	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	1,59E+00	8,72E-03	5,50E-02	1,66E+00	2,76E-02	5,41E-04	0,00E+00	MND	MND	MND	MND	MND	MND	5,41E-04	9,22E-03	1,21E-02	1,02E-02	-7,20E-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	1,72E+01	7,06E-02	1,08E-01	1,74E+01	2,81E-01	1,19E-02	0,00E+00	MND	MND	MND	MND	MND	MND	1,19E-02	7,45E-02	2,09E-01	0,00E+00	-2,85E+00
Non-hazardous waste	kg	7,18E+01	1,23E+00	2,15E+00	7,52E+01	4,62E+00	8,38E-02	0,00E+00	MND	MND	MND	MND	MND	MND	8,38E-02	1,30E+00	3,88E+00	6,40E+01	-2,65E+01
Radioactive waste	kg	8,34E-03	4,53E-04	9,00E-04	9,69E-03	1,44E-03	6,27E-05	0,00E+00	MND	MND	MND	MND	MND	MND	6,27E-05	4,79E-04	4,20E-04	0,00E+00	-3,58E-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	4,76E+00	4,76E+00	0,00E+00	0,00E+00	0,00E+00	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	5,31E-01	0,00E+00	2,12E+00	2,65E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	9,36E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	2,09E-03	0,00E+00	3,25E-01	3,27E-01	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	2,47E+00	0,00E+00	7,83E+00	1,03E+01	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	1,83E+02	4,08E+00	2,45E+00	1,89E+02	1,35E+01	6,55E-01	-7,74E+00	MND	MND	MND	MND	MND	MND	6,55E-01	4,31E+00	4,93E+00	3,78E-01	-3,19E+01
Ozone depletion Pot.	kg CFC_{-11}e	6,63E-06	8,12E-07	2,72E-07	7,71E-06	2,54E-06	1,12E-07	0,00E+00	MND	MND	MND	MND	MND	MND	1,12E-07	8,59E-07	7,07E-07	1,08E-07	-8,42E-07
Acidification	kg SO_2e	4,66E-01	1,06E-02	8,73E-03	4,85E-01	3,60E-02	4,90E-03	0,00E+00	MND	MND	MND	MND	MND	MND	4,90E-03	1,12E-02	3,64E-02	2,40E-03	-1,18E-01
Eutrophication	kg PO_4^3e	1,18E-01	2,25E-03	3,36E-03	1,24E-01	7,88E-03	1,14E-03	0,00E+00	MND	MND	MND	MND	MND	MND	1,14E-03	2,38E-03	1,09E-02	2,97E-03	-3,22E-02
POCP (“smog”)	kg C_2H_4e	1,02E-01	4,96E-04	4,13E-04	1,03E-01	1,66E-03	1,07E-04	0,00E+00	MND	MND	MND	MND	MND	MND	1,07E-04	5,24E-04	1,05E-03	1,09E-04	-9,57E-03
ADP-elements	kg Sbe	-8,20E-04	9,92E-06	1,69E-05	-7,93E-04	3,23E-05	3,30E-07	0,00E+00	MND	MND	MND	MND	MND	MND	3,30E-07	1,04E-05	1,21E-04	7,70E-07	-1,72E-04
ADP-fossil	MJ	1,48E+03	6,57E+01	7,44E+01	1,62E+03	2,14E+02	8,91E+00	0,00E+00	MND	MND	MND	MND	MND	MND	8,91E+00	6,95E+01	6,25E+01	9,27E+00	-6,20E+02

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 acting for EPD Hub Limited
20.12.2024