ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Sandwich wall element
SKAR Byggsystem

EPD HUB, HUB-1677
Published on 28.06.2024, last updated on 22.05.2026, valid until 28.06.2029

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	SKAR Byggsystem
Address	Mariefredsvägen 41, 645 41 Strängnäs, Sweden
Contact details	info@skarbyggsystem.se
Website	https://skarbyggsystem.se/

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 1.1, 5 Dec 2023 EN 16757 Product Category Rules for concrete and concrete elements
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	Johan Swahn
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

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	Sandwich wall element
Place(s) of raw material origin	Sweden
Place of production	Strängnäs, Sweden
Place(s) of installation and use	Sweden
Period for data	Calendar year 2023
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 (%)	78,9

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 ton
Declared unit mass	1000 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1,40E+02
GWP-total, A1-A3 ($kgCO_2e$)	1,42E+02
Secondary material, inputs (%)	0,51
Secondary material, outputs (%)	3,57
Total energy use, A1-A3 (kWh)	443
Net freshwater use, A1-A3 (m^3)	2,54

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

SKAR BYGGSYSTEM is a part of the CG group. BYGGSYSTEM produces and markets competitive high-quality products and services for the construction and civil engineering sector.

PRODUCT DESCRIPTION

Sandwich Wall elements are made of two concrete slabs with intermediate insulation. Application: Carrying and non-supporting elements in combination with floor joints laid on or adjacent to the facade. The technical standard followed is: SS-EN 14992. The product number is: SS-EN 14992 W-vägg. Technical information: Concrete: Compressive strength - fck= 30-45N/mm2 Reinforcing steel: Ultimate tensile strength - ftk = 500 N/mm2 Tensile yield strength - fyk= 540N/mm2

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	4	Sweden
Minerals	95,4	Sweden
Fossil materials	0,58	Sweden
Bio-based materials	N/A	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

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

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 ton
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	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

Modules not declared = ND. 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.

A market-based approach is used in modelling the electricity mix utilized in the factory.

The production starts by transporting the raw materials from our suppliers to the factory. The casting table/pallet is prepared and form oil is applied. Reinforcement steel, insulation and cast in materials are placed according to the element drawing. The mold is then filled with the concrete mixture and the wall is left to cure. After curing the wall is lifted out from the mold and placed into storage. Eventually, the elements are moved out and transported to the construction site. Production losses are taken into account by measuring the concrete waste used as landfill. The factory uses hydro based electricity. Waste is transported to a waste facility. The included outer panel of the sandwich wall is concrete.

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.

The transportation distance is defined according to the PCR. Average distance of transportation from production plant to building site is assumed as 100 km and the transportation method is assumed to be lorry. Vehicle fuel is diesel. Vehicle capacity utilization volume factor is assumed to be 100 % which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as products are loaded properly. Also, volume capacity utilisation factor is assumed to be 100 % for the loaded products. Installation includes energy use and material consumption. No waste is generated during installation. Energy consumption of a construction process for a precast element is on average 132.5 MJ/m3 (Abey and Anand, 2019). Therefore, energy consumption is 132,5/2,4=55,2 MJ/ton product.

(Concrete density 2,4 ton/m3). The source of energy is diesel fuel used by work machines.

PRODUCT USE AND MAINTENANCE (B1-B7)

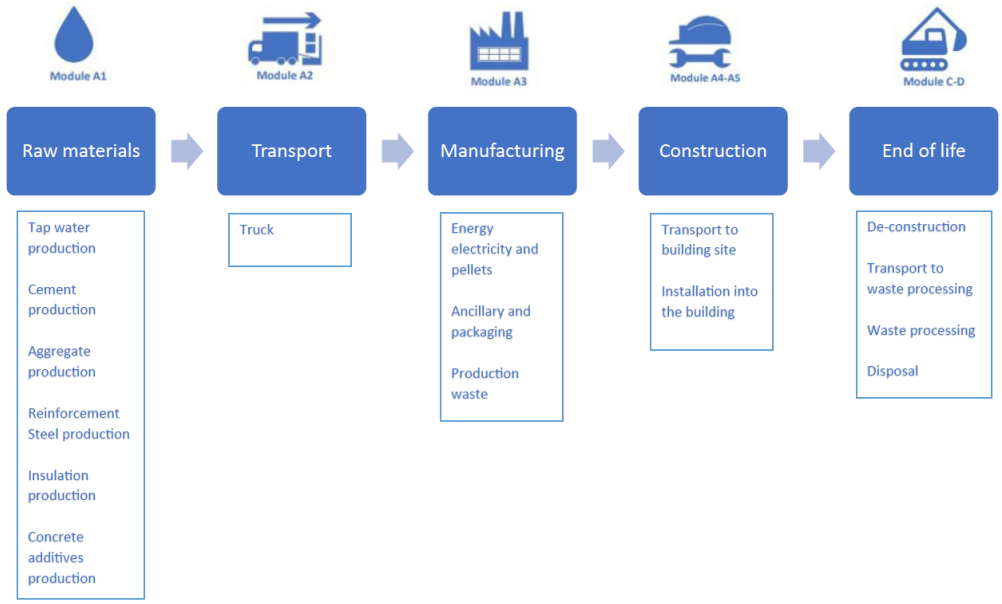
This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

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). Based 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 dismantled element is delivered to the nearest construction waste plant. 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 50 km and the transportation method is lorry which is the most common (C2). At the waste treatment plant, waste that can be reused, recycled or recovered for energy is separated and diverted for further use. So it can be assumed that 100% of the element is transported to a waste treatment plant, where the walls are crushed and steel is separated. About 95% of steel (World Steel Association. 2020) and 80% of concrete (Betoniteollisuus ry, 2020) are recycled. The process losses of the waste treatment plant are assumed to be negligible (C3). The remaining 20% of concrete and 5% of steel are assumed to be sent to the landfill (C4). Due to the recycling potential of reinforcement steel and concrete, they can be used as secondary raw material, which avoids the use of virgin raw materials. 80 % of concrete and 95% of steel going to waste processing are converted into secondary raw materials after recycling. The recycled material content in the concrete itself is assumed to be 0 % but in steel it is assumed to be 100% according to the supplier (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 that is 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.

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 made according to 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

PRODUCT & MANUFACTURING SITES GROUPING

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

This EPD is product and factory specific.

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

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	1,35E+02	4,15E+00	2,61E+00	1,42E+02	1,08E+01	7,25E+00	ND	ND	ND	ND	ND	ND	ND	1,00E+00	5,54E+00	1,48E+01	4,86E+00	-2,29E+01
GWP – fossil	kg CO_2e	1,34E+02	4,15E+00	2,61E+00	1,40E+02	1,08E+01	7,23E+00	ND	ND	ND	ND	ND	ND	ND	1,00E+00	5,53E+00	1,48E+01	4,85E+00	-2,29E+01
GWP – biogenic	kg CO_2e	1,69E+00	9,39E-04	-1,96E-03	1,69E+00	2,44E-03	1,69E-02	ND	ND	ND	ND	ND	ND	ND	1,02E-04	1,25E-03	-8,24E-04	-1,15E-03	4,28E-02
GWP – LULUC	kg CO_2e	2,75E-02	1,86E-03	5,21E-03	3,46E-02	4,82E-03	1,75E-03	ND	ND	ND	ND	ND	ND	ND	1,03E-04	2,47E-03	7,90E-04	8,98E-03	-1,51E-02
Ozone depletion pot.	kg CFC-$_{11}$e	5,90E-07	6,12E-08	1,04E-07	7,55E-07	1,59E-07	1,83E-07	ND	ND	ND	ND	ND	ND	ND	1,53E-08	8,19E-08	1,11E-07	9,20E-08	-2,19E-07
Acidification potential	mol H^+e	3,43E-01	1,41E-02	3,41E-02	3,91E-01	3,67E-02	5,56E-02	ND	ND	ND	ND	ND	ND	ND	9,04E-03	1,89E-02	6,57E-02	3,00E-02	-1,06E-01
EP-freshwater[2)]	kg Pe	6,93E-03	3,23E-04	3,96E-04	7,65E-03	8,38E-04	4,56E-04	ND	ND	ND	ND	ND	ND	ND	2,89E-05	4,30E-04	2,24E-04	3,22E-04	-2,77E-03
EP-marine	kg Ne	1,12E-01	4,65E-03	1,38E-02	1,30E-01	1,21E-02	2,45E-02	ND	ND	ND	ND	ND	ND	ND	4,19E-03	6,20E-03	3,06E-02	1,32E-02	-1,98E-02
EP-terrestrial	mol Ne	1,24E+00	5,06E-02	1,63E-01	1,45E+00	1,31E-01	2,68E-01	ND	ND	ND	ND	ND	ND	ND	4,59E-02	6,74E-02	3,34E-01	1,34E-01	-2,31E-01
POCP ("smog")[3)]	kg NMVOCe	3,46E-01	2,08E-02	4,07E-02	4,07E-01	5,41E-02	7,97E-02	ND	ND	ND	ND	ND	ND	ND	1,37E-02	2,78E-02	9,93E-02	4,42E-02	-8,61E-02
ADP-minerals & metals[4)]	kg Sbe	2,08E-02	1,16E-05	4,49E-06	2,08E-02	3,00E-05	1,41E-04	ND	ND	ND	ND	ND	ND	ND	3,59E-07	1,55E-05	2,99E-06	9,74E-06	-3,56E-05
ADP-fossil resources	MJ	1,29E+03	6,02E+01	3,60E+01	1,39E+03	1,56E+02	8,57E+01	ND	ND	ND	ND	ND	ND	ND	1,31E+01	8,03E+01	9,47E+01	7,84E+01	-4,53E+02
Water use[5)]	m^3e depr.	3,95E+01	2,97E-01	6,87E-01	4,04E+01	7,72E-01	4,43E+01	ND	ND	ND	ND	ND	ND	ND	3,27E-02	3,97E-01	3,96E-01	2,90E-01	-2,33E+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	2,27E-06	4,15E-07	6,91E-07	3,38E-06	1,08E-06	1,48E-06	ND	ND	ND	ND	ND	ND	ND	2,57E-07	5,53E-07	7,65E-06	2,18E-06	-1,36E-06
Ionizing radiation[6)]	kBq U235e	1,53E+01	5,24E-02	1,14E-01	1,55E+01	1,36E-01	1,14E-01	ND	ND	ND	ND	ND	ND	ND	5,80E-03	7,01E-02	4,40E-02	5,48E-02	-1,53E+00
Ecotoxicity (freshwater)	CTUe	3,89E+02	8,51E+00	1,97E+01	4,18E+02	2,21E+01	4,26E+00	ND	ND	ND	ND	ND	ND	ND	7,21E-01	1,14E+01	4,43E+01	1,61E+01	-2,59E+01
Human toxicity, cancer	CTUh	2,31E-08	6,84E-10	2,06E-09	2,59E-08	1,78E-09	1,02E-09	ND	ND	ND	ND	ND	ND	ND	1,03E-10	9,14E-10	1,22E-09	9,18E-10	-2,92E-09
Human tox. non-cancer	CTUh	2,85E-07	3,90E-08	8,76E-08	4,11E-07	1,01E-07	3,94E-08	ND	ND	ND	ND	ND	ND	ND	1,63E-09	5,20E-08	3,09E-08	3,16E-08	-7,40E-08
SQP[7)]	-	2,08E+02	6,06E+01	4,92E+02	7,61E+02	1,57E+02	1,98E+01	ND	ND	ND	ND	ND	ND	ND	9,18E-01	8,07E+01	7,11E+00	8,68E+01	-9,71E+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	2,09E+02	8,25E-01	1,52E+02	3,62E+02	2,14E+00	1,24E+00	ND	ND	ND	ND	ND	ND	ND	8,30E-02	1,10E+00	6,37E-01	8,82E-01	-1,59E+01
Renew. PER as material	MJ	2,11E-01	0,00E+00	0,00E+00	2,11E-01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,68E-01	-4,21E-02	0,00E+00
Total use of renew. PER	MJ	2,09E+02	8,25E-01	1,52E+02	3,63E+02	2,14E+00	1,24E+00	ND	ND	ND	ND	ND	ND	ND	8,30E-02	1,10E+00	4,68E-01	8,39E-01	-1,59E+01
Non-re. PER as energy	MJ	8,74E+02	6,02E+01	3,36E+01	9,67E+02	1,56E+02	8,66E+01	ND	ND	ND	ND	ND	ND	ND	1,31E+01	8,03E+01	2,25E+00	2,81E+01	-4,68E+02
Non-re. PER as material	MJ	2,03E+02	0,00E+00	0,00E+00	2,03E+02	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,39E+02	-6,36E+01	1,57E+02
Total use of non-re. PER	MJ	1,08E+03	6,02E+01	3,36E+01	1,17E+03	1,56E+02	8,66E+01	ND	ND	ND	ND	ND	ND	ND	1,31E+01	8,03E+01	-1,37E+02	-3,55E+01	-3,12E+02
Secondary materials	kg	5,06E+00	2,56E-02	2,36E-02	5,11E+00	6,65E-02	3,65E-02	ND	ND	ND	ND	ND	ND	ND	5,44E-03	3,42E-02	4,11E-02	2,87E-02	4,18E+00
Renew. secondary fuels	MJ	1,13E+02	3,25E-04	1,46E-04	1,13E+02	8,45E-04	2,08E-02	ND	ND	ND	ND	ND	ND	ND	1,42E-05	4,34E-04	1,18E-04	3,60E-04	-6,17E-04
Non-ren. secondary fuels	MJ	1,54E+02	0,00E+00	0,00E+00	1,54E+02	0,00E+00	1,36E-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	2,52E+00	8,90E-03	8,38E-03	2,54E+00	2,31E-02	6,33E-01	ND	ND	ND	ND	ND	ND	ND	8,66E-04	1,19E-02	8,47E-03	3,25E-02	-5,53E-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	4,90E+00	1,02E-01	1,02E-01	5,10E+00	2,65E-01	1,24E-01	ND	ND	ND	ND	ND	ND	ND	1,46E-02	1,36E-01	1,79E-01	1,10E-01	-1,00E+00
Non-hazardous waste	kg	4,78E+01	1,89E+00	5,12E+02	5,61E+02	4,90E+00	2,74E+00	ND	ND	ND	ND	ND	ND	ND	1,99E-01	2,52E+00	4,09E+00	8,63E+00	-1,15E+01
Radioactive waste	kg	1,13E-02	1,28E-05	2,88E-05	1,13E-02	3,33E-05	5,92E-05	ND	ND	ND	ND	ND	ND	ND	1,42E-06	1,72E-05	1,08E-05	1,34E-05	-3,30E-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	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	3,81E+01	0,00E+00	8,99E-01	3,90E+01	0,00E+00	4,69E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,84E+01	0,00E+00	0,00E+00
Materials for energy rec	kg	2,66E-04	0,00E+00	7,10E-01	7,10E-01	0,00E+00	2,21E-04	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	5,08E-03	0,00E+00	0,00E+00	5,08E-03	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,92E+01	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	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,23E+01	0,00E+00	0,00E+00
Exported energy –	MJ	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	1,69E+01	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	1,57E+02	4,12E+00	3,12E+00	1,64E+02	1,07E+01	7,20E+00	ND	ND	ND	ND	ND	ND	ND	9,96E-01	5,50E+00	1,48E+01	4,82E+00	-2,26E+01
Ozone depletion Pot.	kg CFC_{-11}e	3,79E-06	4,88E-08	1,11E-07	3,95E-06	1,27E-07	1,48E-07	ND	ND	ND	ND	ND	ND	ND	1,21E-08	6,53E-08	8,80E-08	7,32E-08	-2,82E-07
Acidification	kg SO_2e	3,67E-01	1,08E-02	2,30E-02	4,01E-01	2,80E-02	4,05E-02	ND	ND	ND	ND	ND	ND	ND	6,36E-03	1,44E-02	4,62E-02	2,18E-02	-8,66E-02
Eutrophication	kg PO_4^3e	1,04E-01	2,63E-03	7,83E-03	1,15E-01	6,83E-03	9,61E-03	ND	ND	ND	ND	ND	ND	ND	1,48E-03	3,51E-03	1,09E-02	6,20E-03	-1,10E-02
POCP (“smog”)	kg C_2H_4e	1,72E-02	9,62E-04	2,12E-03	2,03E-02	2,50E-03	2,85E-03	ND	ND	ND	ND	ND	ND	ND	4,76E-04	1,28E-03	3,46E-03	1,86E-03	-6,78E-03
ADP-elements	kg Sbe	1,03E-02	1,13E-05	4,29E-06	1,04E-02	2,93E-05	1,41E-04	ND	ND	ND	ND	ND	ND	ND	3,49E-07	1,51E-05	2,86E-06	9,51E-06	-3,48E-05
ADP-fossil	MJ	1,22E+03	5,93E+01	3,41E+01	1,31E+03	1,54E+02	8,52E+01	ND	ND	ND	ND	ND	ND	ND	1,30E+01	7,92E+01	9,40E+01	7,76E+01	-4,17E+02

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	1,34E+02	4,15E+00	2,61E+00	1,40E+02	1,08E+01	7,23E+00	ND	ND	ND	ND	ND	ND	ND	1,00E+00	5,54E+00	1,48E+01	4,86E+00	-2,29E+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.

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.

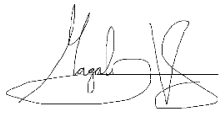
EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15802+A2 in the Environmental Product Declaration and its project report.

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

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
Updated 22.05.2026