



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Painted construction steel
DS Stålkonstruktion A/S



EPD HUB, HUB-3882

Published on 28.08.2025, last updated on 28.08.2025, valid until 28.08.2030

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	DS Stålkonstruktion A/S
Address	Samsøvej 2, 9500 Hobro, Denmark
Contact details	ds@ds-staal.dk
Website	www.ds-staal.dk

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 17662 Execution of steel structures and aluminium structures
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Valdemar Stavsholm Tonsberg, DS Stålkonstruktion A/S
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> 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	Painted construction steel
Additional labels	Malet konstruktionsstål
Product reference	-
Place(s) of raw material origin	Europe, Asia
Place of production	Hobro, Denmark
Place(s) of installation and use	Denmark, Norway, Sweden, Germany
Period for data	Calendar year 2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	
A1-A3 Specific data (%)	88,9

ENVIRONMENTAL DATA SUMMARY

Declared unit	1000 kg
Declared unit mass	1000 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	1,26E+03
GWP-total, A1-A3 (kgCO ₂ e)	1,14E+03
Secondary material, inputs (%)	71,8
Secondary material, outputs (%)	85
Total energy use, A1-A3 (kWh)	4990
Net freshwater use, A1-A3 (m ³)	23,3

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

DS Stålkonstruktion is one of the largest steel construction manufacturers in Northern

Europe. DS Stålkonstruktion supplies quality solutions to construction projects in Denmark, Sweden and Norway, and Germany

PRODUCT DESCRIPTION

DS Stålkonstruktion's structural steel is used in every type of building, including: warehouses and logistic centres, industrial buildings, agricultural buildings, commercial buildings, stadiums and car showrooms. This EPD is based on the total steel purchase data and considers an average of all types of construction steel produced by DS Stålkonstruktion at the site in Hobro, Denmark.

The steel used for the painted construction steel consists of a weighted average of 74% recycled steel, the main part being post-consumer scrap. Construction steel from DS Stålkonstruktion on average consists of 52% beams, 20% flat bars, 16% square, rectangular or circular hollow sections and 12% plates.

More than 92% of the steel mills have issued product-specific Environmental Product Declarations (EPDs), each including detailed information on recycled content and the data sources used for life cycle assessment. Among these, over 97% (by mass) explicitly report the recycling rate of the steel. Additionally, the provenance of 100% of the supplied steel is traceable. This high level of data transparency and traceability ensures a robust and reliable EPD dataset, suitable for use in advanced sustainability assessments and compliance documentation.

This EPD is valid only for products manufactured by DS Stålkonstruktion A/S. The products are custom-made steel structures, and the data represent the average of the company's total production during the reference year. This

EPD must not be used to represent products from other manufacturers. Misuse or misrepresentation may lead to inaccurate environmental assessments, and DS Stålkonstruktion A/S accepts no responsibility for such use.

including its use in marketing, tender documents, or environmental assessments without prior written permission from DS Stålkonstruktion A/S, shall be considered an infringement of the company's rights. DS Stålkonstruktion A/S reserves the right to initiate legal proceedings against any party that misuses or misrepresents this EPD, including claims for compensation for any losses or damages that may result from such actions.

Further information can be found at <https://www.ds-staal.dk/>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	98,5	Europe, Asia
Minerals	0	-
Fossil materials	1,5	Europe
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	32,18

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1000 kg
Mass per declared unit	1000 kg
Functional unit	-
Reference service life	120 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	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 = 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.

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

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the end-of-waste state or final disposal. The raw material is transported from the steelworks by truck, freight train, and ship. The LCA results are declared in aggregated form for the product stage, which means that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

When the steel materials enter DS Stålkonstruktion production facilities, the first process is blast cleaning of the steel to remove embers, rust and dirt. This is in order to be able to weld the single parts. The blasting machine uses small steel pellets to blast the steel clean.

Once cleaned, it is cut out in accordance with the construction design requirements. This is done in four different ways: Sawing, plasma/laser cutting, drilling and punching.

The cutting phase is divided into two main saw lines, plasma/laser cutting, and other small lines with punching/drilling equipment.

After the cutting phase, the structures are welded either manually or with robots.

Once welded, the structures gets painted. The painting process is internal. It contains a painting cabin, and a heating area, where the surface treatment is hardened.

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.

A4 – Transportation for deliveries of structural steel to the construction site by truck.

A5 – Installation of the steel structure using crane trucks and lifts. All packaging materials are sorted as waste at the building site, as per Danish waste regulation. Steel straps and plastics are assumed to be recycled. Wood is assumed to be incinerated at the nearest combined heat and power plant.

PRODUCT USE AND MAINTENANCE (B1-B7)

There are no activities in the use stage and therefore no associated environmental impacts.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

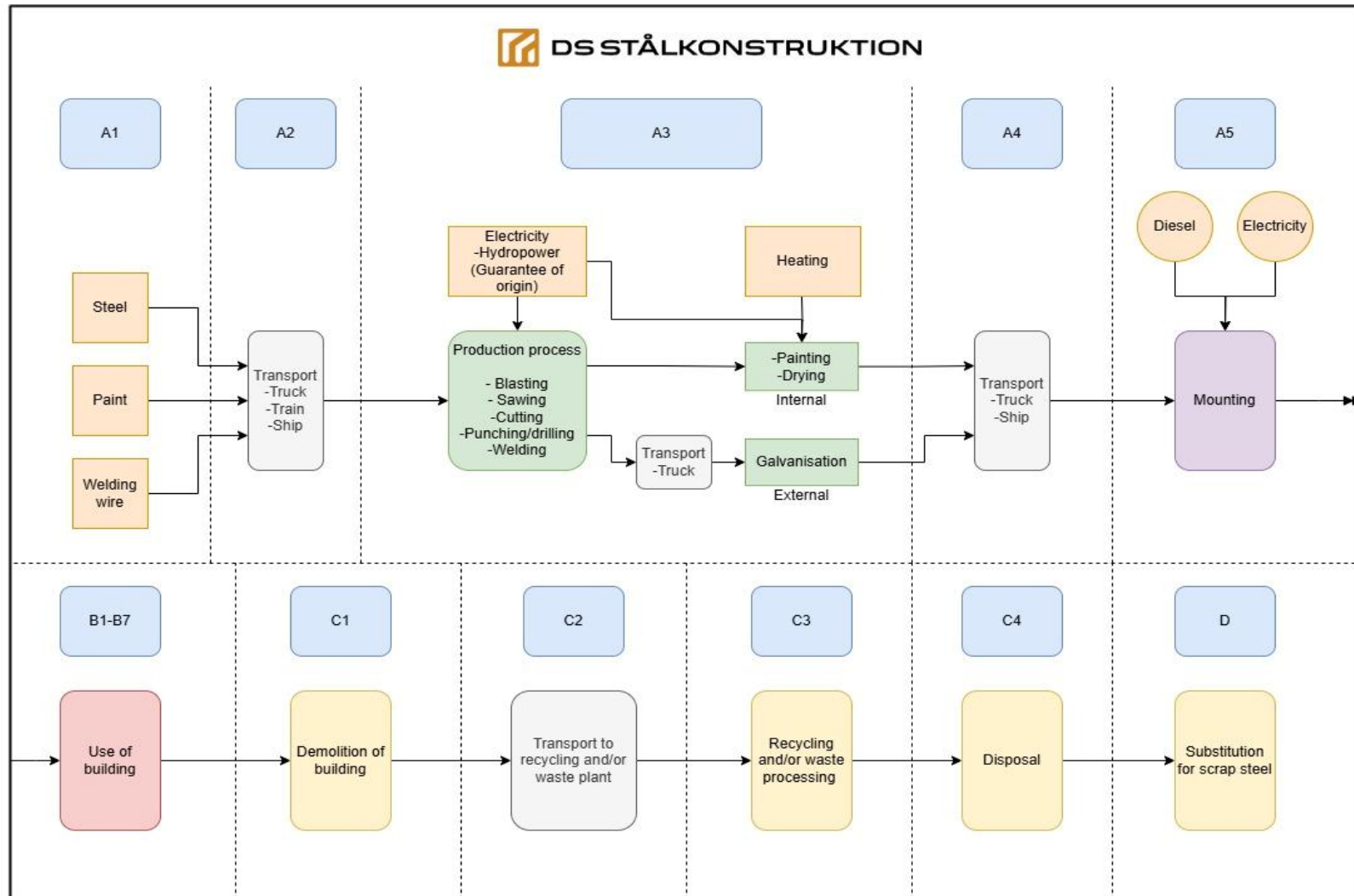
After decommissioning, the EoL steel is sent to recycling, where a part is reused, a part is remelted and the residue from remelting is landfilled.

C1 – Deconstructing of the steel structure, using demolition equipment and vehicles on site.

C2 – Transportation of the demolished steel parts to a waste processing site.

C3-C4 – Sorting of scrap steel and delivery to steel mill for remelting. Paint from the steel structure is co-incinerated in this module, but no energy recovery from paint is assumed. 85% is recycled, and 15% is eventually landfilled as per Worldsteel: <https://worldsteel.org/wp-content/uploads/Life-cycle-inventory-LCI-study-2020-data-release.pdf>

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.

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.

INPUT: RAW MATERIALS - SPECIFIC DATASETS (SUPPLIER EPDS): Primary data are used for all the steel types and paint supplied to the Manufacturer for assembly. There are in total 45 suppliers and most of these has a valid EPD which is imported to the Design of this EPD.

4x suppliers have no valid EPDs. A conservative proxy dataset is used instead.

4x +A1 EPDs are accounted for by selecting a +A2 proxy dataset or EPD along with a mass regulator in order to ensure similar GWP and mass.

Due to the complication arising from incomplete EPDs (only having either +A1 or +A2 formats), and to simplify the transportation calculations, instead of indicating each distance for each transported mass in 1. Manufacturing materials - A1, this was done in 3. Additional transport - A1-A3. However, only the sum of transported masses was consolidated in one single transport process for each transport mode, and multiplied with the calculated average

distance transported with respectively truck, train and ship.

INPUT: A2 TRANSPORT FROM SUPPLIER

According to NPCR 013 NPCR 013:2019 – “Part B for Steel and Aluminium Construction Products, the supplied distance ranges from supplier/steel producer to Manufacturer, and not only from the suppliers regional distribution centre to Manufacturer. Data for the transport distances are thoroughly provided by Manufacturer. Most are on land, and some by sea. According to the report on transport of steel in the EU by Eurofer, roughly 50,2% is transported by truck, 36,7% by rail and 13,1% by ship.

References:

<https://www.eurofer.eu/assets/publications/archive/archive-of-older-eurofer-documents/2003-Transport.pdf>

INPUT: PACKAGING MATERIALS:

A disposable wood pallet and wood beams are used to support the construction parts on the delivery truck. The edges are protected with PE plastic pieces. Construction parts are held together with steel straps and seals. The packaging material mass is specifically allocated for the construction element.

Manufacturing energy and waste: since there is only one electricity meter in the production building, it has been a challenge to allocate the power consumption to only the specific construction elements. Instead the kWh are evenly allocated over the total mass of steel products produced over the year. Similarly with waste, with an exception of steel scrap and paint. Steel scrap accounts for an estimated 8% of the total input steel, while the paint loss is about 3,8 kg (dry dust) of 15,1 kg (wet) input.

RECYCLING RATE - INPUT:

It is assumed that all steel mills without EPDs as well as steel mills that do not indicate the proportion of recycled steel in their EPD use 0% recycled steel, in order to keep the number conservative. The weighted proportion of recycled steel from steel mills in this specific case is 74%.

RECYCLING RATE - OUTPUT:

Structural sections

Recycling % 85

Landfill % 15

<https://worldsteel.org/wp-content/uploads/Life-cycle-inventory-LCI-study-2020-data-release.pdf>

OTHER INFORMATION

Utilization of energy value in paint in module C3 and and corresponding crediting in module D, due to lack of calorific value data in Tikkurila paint EPD and because in 80 years at product EoL, steelworks will no longer be using natural gas which is substituted, but rather green electricity. As such, no considerable credit will appear.

Otherwise, the document: *"Miljøprojekt fra Miljøstyrelsen Nr. 488 1999 Livscyklusvurdering af 3 typer metalmaling COWI A/S Miljø- og Energiministeriet Miljøstyrelsen, 1999"* on page 75 indicates a calorific value of 16 MJ/kg paint. This source is very old though and paint composition has also evolved, especially when containing high amount of zinc which has 0 calorific value.

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 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	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

The manufacturer has made a meticulous data collection for all lifecycle modules. In particular A1 is done thoroughly with almost all steel component suppliers indicated with associated EPDs (of 45 EPDs only 4 only comply with +A1 and not +A2 standard. This is handled in the LCA model by using generic data.

Almost each supplier has shared the % of recycled steel such that an average % recycled steel is made in Excel to declare in this EPD. This information is also used for module D in which credit is not given to recycled content. A few suppliers have not indicated their recycled steel content and as such is assumed as 0%.

PRODUCT & MANUFACTURING SITES GROUPING

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

This EPD covers the entire production of steel structures for buildings at the company's manufacturing facility. The products are custom-made and vary in geometry and quantity, but are manufactured using the same materials and production processes. The data is based on the company's total procurement and production during the reference year 2024.

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 ₂ e	1,12E+03	9,99E+01	-8,25E+01	1,14E+03	3,16E+01	1,41E+02	ND	ND	ND	ND	ND	ND	ND	2,23E+01	4,30E+01	2,17E+01	1,38E+00	-7,10E+02
GWP – fossil	kg CO ₂ e	1,12E+03	9,98E+01	3,55E+01	1,26E+03	3,16E+01	2,28E+01	ND	ND	ND	ND	ND	ND	ND	2,23E+01	4,30E+01	1,92E+01	9,36E-01	-7,10E+02
GWP – biogenic	kg CO ₂ e	-2,97E+00	3,19E-02	-1,18E+02	-1,21E+02	0,00E+00	1,18E+02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,38E-03	2,49E+00	4,46E-01	0,00E+00
GWP – LULUC	kg CO ₂ e	1,24E+00	6,23E-02	8,03E-03	1,31E+00	1,47E-02	2,97E-03	ND	ND	ND	ND	ND	ND	ND	2,90E-03	1,90E-02	2,37E-02	5,35E-04	-3,42E-01
Ozone depletion pot.	kg CFC-11e	2,03E-05	1,83E-06	2,04E-06	2,42E-05	5,08E-07	3,47E-07	ND	ND	ND	ND	ND	ND	ND	3,42E-07	6,01E-07	2,58E-07	2,71E-08	-3,21E-05
Acidification potential	mol H ⁺ e	1,79E+01	8,11E-01	1,97E-01	1,89E+01	8,04E-02	2,04E-01	ND	ND	ND	ND	ND	ND	ND	2,01E-01	1,43E-01	2,29E-01	6,64E-03	-2,57E+00
EP-freshwater ²⁾	kg Pe	1,01E-01	1,09E-02	2,41E-03	1,14E-01	2,53E-03	8,18E-04	ND	ND	ND	ND	ND	ND	ND	7,48E-04	3,34E-03	1,24E-02	7,70E-05	-2,69E-02
EP-marine	kg Ne	7,75E+00	2,11E-01	9,76E-02	8,06E+00	2,04E-02	9,43E-02	ND	ND	ND	ND	ND	ND	ND	9,29E-02	4,64E-02	5,06E-02	2,53E-03	-5,20E-01
EP-terrestrial	mol Ne	5,69E+01	2,32E+00	8,14E-01	6,00E+01	2,21E-01	1,03E+00	ND	ND	ND	ND	ND	ND	ND	1,02E+00	5,05E-01	5,72E-01	2,76E-02	-5,65E+00
POCP (“smog”) ³⁾	kg NMVOCe	2,11E+01	7,91E-01	2,20E-01	2,21E+01	1,22E-01	3,07E-01	ND	ND	ND	ND	ND	ND	ND	3,03E-01	1,99E-01	1,69E-01	9,90E-03	-2,74E+00
ADP-minerals & metals ⁴⁾	kg Sbe	2,16E-03	2,54E-04	5,48E-05	2,47E-03	9,13E-05	1,32E-05	ND	ND	ND	ND	ND	ND	ND	1,26E-05	1,41E-04	1,36E-03	1,49E-06	-4,66E-03
ADP-fossil resources	MJ	1,51E+04	1,43E+03	3,64E+02	1,69E+04	4,75E+02	2,95E+02	ND	ND	ND	ND	ND	ND	ND	2,92E+02	6,03E+02	2,58E+02	2,30E+01	-9,87E+03
Water use ⁵⁾	m ³ e depr.	4,01E+02	9,90E+00	1,12E+01	4,22E+02	2,34E+00	1,44E+00	ND	ND	ND	ND	ND	ND	ND	9,92E-01	2,80E+00	4,64E+00	6,63E-02	-3,36E+02

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	3,61E-03	8,14E-06	7,62E-06	3,63E-03	3,10E-06	5,73E-06	ND	ND	ND	ND	ND	ND	ND	5,68E-06	3,41E-06	3,10E-06	1,51E-07	-4,60E-05
Ionizing radiation ⁶⁾	kBq 11235a	3,43E+01	4,18E+00	9,71E-01	3,95E+01	4,13E-01	1,86E-01	ND	ND	ND	ND	ND	ND	ND	1,81E-01	4,88E-01	2,19E+00	1,44E-02	-1,22E+01
Ecotoxicity (freshwater)	CTUe	4,38E+03	1,91E+02	1,22E+02	4,69E+03	6,68E+01	1,87E+01	ND	ND	ND	ND	ND	ND	ND	1,68E+01	9,53E+01	1,50E+02	1,93E+00	-1,73E+04
Human toxicity, cancer	CTUh	1,20E-06	2,01E-08	1,19E-08	1,23E-06	5,27E-09	2,70E-09	ND	ND	ND	ND	ND	ND	ND	2,37E-09	7,31E-09	1,72E-08	1,73E-10	-3,12E-06
Human tox. non-cancer	CTUh	9,25E-06	8,03E-07	5,11E-07	1,06E-05	3,06E-07	6,31E-08	ND	ND	ND	ND	ND	ND	ND	4,10E-08	3,77E-07	1,17E-06	3,97E-09	-2,83E-05
SQP ⁷⁾	-	1,11E+03	1,12E+03	3,57E+02	2,59E+03	4,78E+02	2,55E+01	ND	ND	ND	ND	ND	ND	ND	2,45E+01	3,60E+02	5,02E+02	4,52E+01	-1,21E+03

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	1,60E+03	4,63E+01	3,40E+02	1,98E+03	6,51E+00	-2,17E+02	ND	ND	ND	ND	ND	ND	ND	5,52E+00	8,27E+00	4,81E+01	2,22E-01	-5,11E+02
Renew. PER as material	MJ	2,40E+01	0,00E+00	2,14E+01	4,54E+01	0,00E+00	-2,14E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-2,40E+01	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,62E+03	4,63E+01	3,61E+02	2,03E+03	6,51E+00	-2,38E+02	ND	ND	ND	ND	ND	ND	ND	5,52E+00	8,27E+00	2,40E+01	2,22E-01	-5,11E+02
Non-re. PER as energy	MJ	1,43E+04	1,43E+03	2,23E+02	1,60E+04	4,75E+02	2,93E+02	ND	ND	ND	ND	ND	ND	ND	2,92E+02	6,03E+02	2,58E+02	2,30E+01	-1,05E+04
Non-re. PER as material	MJ	4,01E+01	0,00E+00	9,96E+00	5,01E+01	0,00E+00	-9,96E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-4,01E+01	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,44E+04	1,43E+03	2,33E+02	1,60E+04	4,75E+02	2,83E+02	ND	ND	ND	ND	ND	ND	ND	2,92E+02	6,03E+02	2,18E+02	2,30E+01	-1,05E+04
Secondary materials	kg	7,18E+02	9,11E-01	1,52E+00	7,20E+02	2,02E-01	1,27E-01	ND	ND	ND	ND	ND	ND	ND	1,22E-01	2,71E-01	3,15E-01	5,78E-03	0,00E+00
Renew. secondary fuels	MJ	1,43E-01	6,27E-03	4,60E-01	6,10E-01	2,57E-03	3,39E-04	ND	ND	ND	ND	ND	ND	ND	3,24E-04	3,45E-03	1,46E-02	1,20E-04	0,00E+00
Non-ren. secondary fuels	MJ	6,15E-02	0,00E+00	1,19E+00	1,25E+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
Use of net fresh water	m ³	2,27E+01	2,80E-01	3,31E-01	2,33E+01	7,14E-02	3,10E-02	ND	ND	ND	ND	ND	ND	ND	2,79E-02	7,99E-02	1,37E-01	2,39E-02	-8,65E+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	6,49E+00	3,00E+00	1,10E+00	1,06E+01	8,01E-01	4,04E-01	ND	ND	ND	ND	ND	ND	ND	3,37E-01	1,05E+00	1,69E+00	2,54E-02	-2,22E-01
Non-hazardous waste	kg	1,36E+02	6,42E+01	7,96E+00	2,08E+02	1,48E+01	1,87E+01	ND	ND	ND	ND	ND	ND	ND	4,93E+00	1,97E+01	6,09E+01	5,80E-01	-4,27E+01
Radioactive waste	kg	4,01E-01	1,06E-03	9,79E-04	4,03E-01	1,01E-04	4,47E-05	ND	ND	ND	ND	ND	ND	ND	4,36E-05	1,20E-04	5,60E-04	3,52E-06	-1,84E-02

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	3,14E+01	0,00E+00	0,00E+00	3,14E+01	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	7,37E+01	0,00E+00	8,63E+01	1,60E+02	0,00E+00	1,37E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,50E+02	0,00E+00	-1,45E-02
Materials for energy rec	kg	4,85E-01	0,00E+00	3,78E+00	4,26E+00	0,00E+00	1,31E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,07E-10
Exported energy	MJ	3,19E-01	0,00E+00	2,25E-01	5,44E-01	0,00E+00	6,88E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-6,88E+01
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,28E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,28E+01
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,60E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-4,60E+01

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 ₂ e	1,12E+03	9,99E+01	3,55E+01	1,26E+03	3,16E+01	2,28E+01	ND	ND	ND	ND	ND	ND	ND	2,23E+01	4,30E+01	1,92E+01	9,37E-01	-7,10E+02

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

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
28.08.2025

