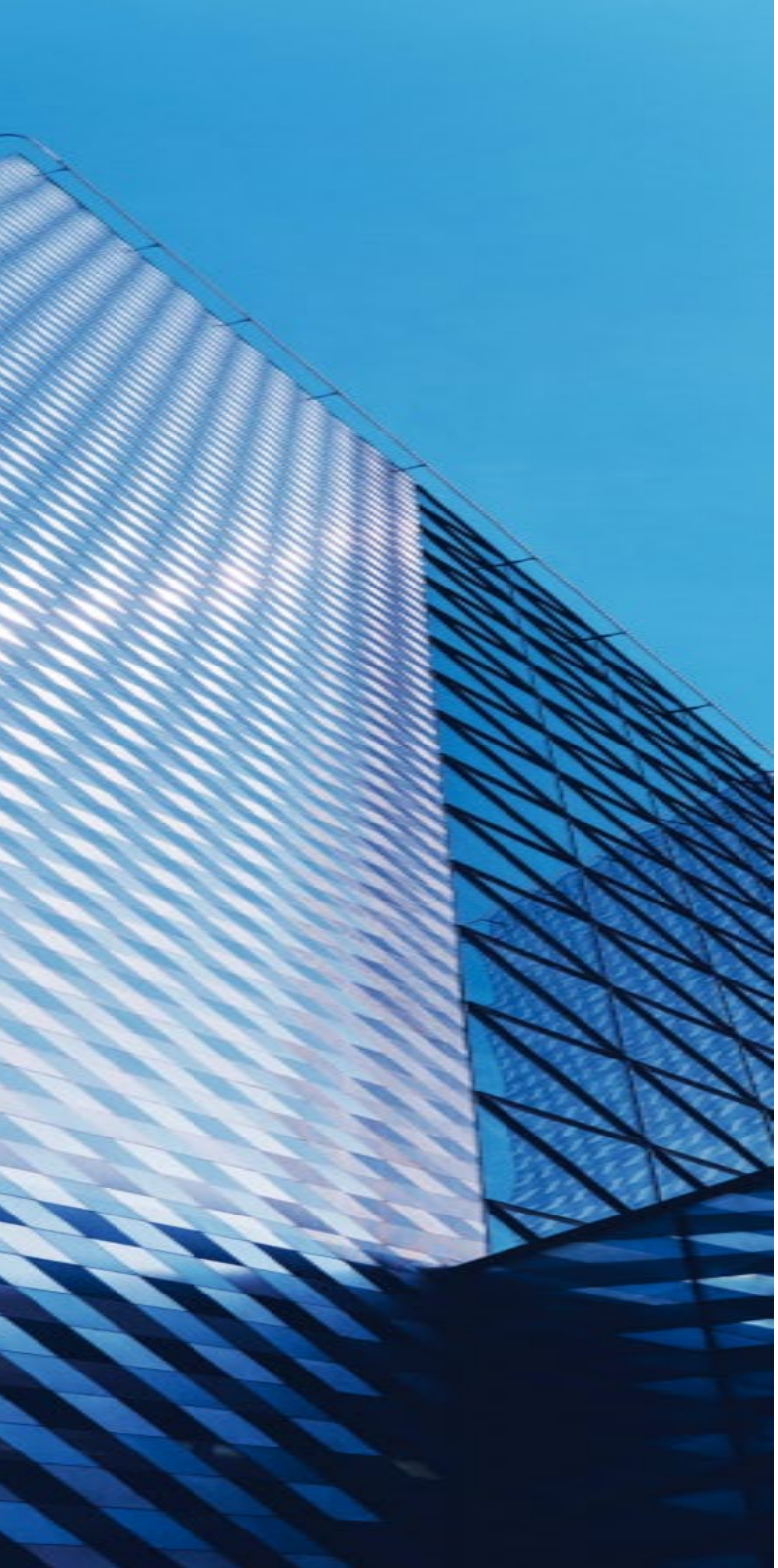


ENVIRONMENTAL PRODUCT DECLARATION

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

H- and I-profile beam and column systems - galvanized
DS Stålkonstruktion A/S

EPD HUB, HUB-1802
Published on 31.07.2024, last updated on 01.08.2024, valid until 31.07.2029

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+A2:2019 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
Parent EPD number	
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Stefan Emil Danielsson
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	H- and I-profile beam and column systems - galvanized
Additional labels	H- og I- bjælkebaserede søjler - galvaniseret
Product reference	-
Place of production	Hobro, Denmark
Period for data	Calendar year 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1000 kg
Declared unit mass	1000 kg
GWP-fossil, A1-A3 (kgCO2e)	6,52E+02
GWP-total, A1-A3 (kgCO2e)	6,07E+02
Secondary material, inputs (%)	88.4
Secondary material, outputs (%)	89.7
Total energy use, A1-A3 (kWh)	3290
Net fresh water use, A1-A3 (m3)	6.17

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

DS Stålkonstruktion is one of the largest steel producers of welded steel structures 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 considers H- and I-profiles based beam and column systems, of which a large share (>90%) of sold products are painted, the remainder being galvanized.

The steel used for the painted and galvanized H- and I-profile based beam and column systems consists of a weighted average of 96% recycled steel, the main part being post-consumer scrap. H- and I-profile based beam and column systems from DS Stålkonstruktion on average consists of 93% beams, 6% flat bars and 1% plates.

Each supplier of steel has provided an EPD with an indication of recycled steel content and data used as a basis for this product specific EPD. >97% (in terms of mass) of the supplier specific EPDs provide the recycling rate data, while the origin of 98% of the mass of steel supplied is known, as well as the transportation form. The missing gap is extrapolated based on the existing average. As such, the data quality and EPD is deemed very robust.

Further information can be found at www.ds-staal.dk.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	94.5	Denmark, Europe, World
Minerals	5.5	Europe
Fossil materials	0	-
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	12.46

FUNCTIONAL UNIT AND SERVICE LIFE

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

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	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production 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.

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 parts 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 cutting, drilling and punching.

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

After the cutting phase, the structures are welded. The welding process is divided into three categories: Manual welding, automated welding and robot welding. The manual welding process is used for pillar constructions, where it is difficult to apply automated and robot welding technologies. It is also used to finish the welding from the robots and automated weldings.

Once welded, the structures must be protected with surface treatment. DS Stålkonstruktion uses two main surface treatments: Painting and galvanization. The painting process is an internal process. It contains a painting cabin, and a heating area, where the surface treatment is hardened. The galvanization process is external. In both cases, the product continues the transport to customer after treatment. This EPD is specifically made for painted H- and I-profile based beam and column systems.

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 a construction site in Scandinavia, by truck and ship.

A5 – Installation of the steel structure using a truck crane and lift.

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.

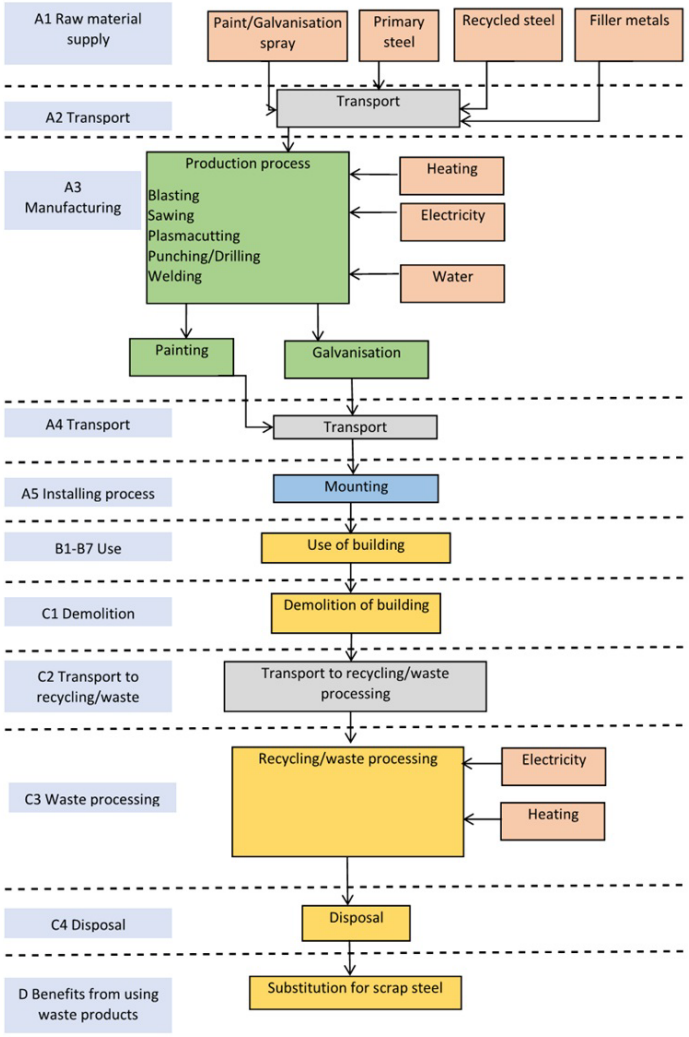
C1 – Deconstructing of the steel structure, using demolition equipment and vehicles on site.

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

C3 – Sorting of scrap steel and delivery to steel mill for remelting. Zinc (from galvanization) from the steel structure is co-incinerated in this module, but no energy recovery from zinc is assumed. 13% steel parts is reused, 86% is recycled, and 1% is eventually landfilled.

C4 – There is assumed to be 1% mass loss in the recycling process, considered as landfilling steel slag residues from the remelting process.

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	Allocated by mass or volume
Packaging materials	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	No allocation

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. A specific EPD for galvanized H- and I-profile beams and columns systems is available, too.

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	4,82E+02	4,05E+01	8,42E+01	6,07E+02	3,07E+01	5,56E+01	MND	MND	MND	MND	MND	MND	MND	9,68E+00	1,66E+01	4,91E+01	4,92E-02	-1,06E+02
GWP – fossil	kg CO_2e	4,82E+02	4,05E+01	1,30E+02	6,52E+02	3,07E+01	9,97E+00	MND	MND	MND	MND	MND	MND	MND	9,68E+00	1,66E+01	4,95E+01	5,27E-02	-1,06E+02
GWP – biogenic	kg CO_2e	3,55E-01	2,82E-02	-4,57E+01	-4,53E+01	0,00E+00	4,57E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-3,51E-01	-3,55E-03	0,00E+00
GWP – LULUC	kg CO_2e	2,01E-01	3,39E-02	2,61E-01	4,96E-01	1,19E-02	1,57E-03	MND	MND	MND	MND	MND	MND	MND	1,53E-03	6,76E-03	4,93E-03	4,97E-05	-5,09E-02
Ozone depletion pot.	kg CFC_{-11}e	4,48E-06	8,17E-06	1,95E-05	3,21E-05	7,60E-06	2,04E-06	MND	MND	MND	MND	MND	MND	MND	2,01E-06	3,83E-06	1,06E-05	2,13E-08	-4,77E-06
Acidification potential	mol H^+e	4,16E+00	6,49E-01	1,05E+01	1,53E+01	1,18E-01	1,01E-01	MND	MND	MND	MND	MND	MND	MND	9,87E-02	5,44E-02	5,14E-01	4,95E-04	-3,82E-01
EP-freshwater[2)]	kg Pe	4,45E-03	4,93E-04	7,41E-03	1,24E-02	2,17E-04	5,77E-05	MND	MND	MND	MND	MND	MND	MND	5,61E-05	1,17E-04	1,64E-04	5,52E-07	-4,00E-03
EP-marine	kg Ne	1,51E+00	1,54E-01	4,68E-01	2,13E+00	2,62E-02	4,47E-02	MND	MND	MND	MND	MND	MND	MND	4,34E-02	1,11E-02	2,28E-01	1,71E-04	-7,74E-02
EP-terrestrial	mol Ne	1,10E+01	1,71E+00	4,50E+01	5,77E+01	2,91E-01	4,91E-01	MND	MND	MND	MND	MND	MND	MND	4,76E-01	1,23E-01	2,50E+00	1,89E-03	-8,41E-01
POCP ("smog")[3)]	kg NMVOCe	4,21E+00	4,67E-01	5,66E-01	5,24E+00	1,07E-01	1,35E-01	MND	MND	MND	MND	MND	MND	MND	1,31E-01	4,48E-02	6,86E-01	5,48E-04	-4,08E-01
ADP-minerals & metals[4)]	kg Sbe	3,73E-04	1,04E-04	3,12E-02	3,17E-02	7,45E-05	9,15E-06	MND	MND	MND	MND	MND	MND	MND	8,70E-06	5,94E-05	2,51E-05	1,21E-07	0,00E+00
ADP-fossil resources	MJ	7,44E+03	5,72E+02	2,06E+03	1,01E+04	4,87E+02	1,32E+02	MND	MND	MND	MND	MND	MND	MND	1,30E+02	2,46E+02	6,66E+02	1,44E+00	0,00E+00
Water use[5)]	m^3e depr.	1,49E+02	3,77E+00	9,94E+01	2,52E+02	2,24E+00	7,05E-01	MND	MND	MND	MND	MND	MND	MND	5,60E-01	1,15E+00	1,79E+00	4,58E-03	-5,00E+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	1,17E-05	2,87E-06	1,01E-04	1,16E-04	3,49E-06	2,66E-06	MND	MND	MND	MND	MND	MND	MND	2,62E-06	1,32E-06	1,38E-05	9,97E-09	-6,84E-06
Ionizing radiation[6)]	kBq U235e	3,12E+01	3,73E+00	2,22E+01	5,72E+01	2,50E+00	6,61E-01	MND	MND	MND	MND	MND	MND	MND	6,52E-01	1,29E+00	3,06E+00	6,53E-03	-1,81E+00
Ecotoxicity (freshwater)	CTUe	1,89E+03	4,61E+02	1,77E+04	2,01E+04	4,03E+02	8,61E+01	MND	MND	MND	MND	MND	MND	MND	8,34E+01	2,05E+02	4,00E+02	9,42E-01	-2,57E+03
Human toxicity, cancer	CTUh	4,47E-07	2,63E-08	3,41E-07	8,14E-07	1,09E-08	5,17E-09	MND	MND	MND	MND	MND	MND	MND	3,10E-09	6,42E-09	1,53E-08	2,35E-11	-4,64E-07
Human tox. non-cancer	CTUh	3,51E-06	4,00E-07	1,15E-05	1,54E-05	4,08E-07	6,74E-08	MND	MND	MND	MND	MND	MND	MND	6,06E-08	2,00E-07	2,89E-07	6,16E-10	-4,21E-06
SQP[7)]	-	4,90E+02	3,74E+02	1,17E+03	2,04E+03	5,57E+02	2,21E+01	MND	MND	MND	MND	MND	MND	MND	2,15E+01	1,73E+02	8,66E+01	3,09E+00	-1,79E+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	8,65E+02	1,47E+01	4,96E+02	1,38E+03	6,26E+00	4,29E+00	MND	MND	MND	MND	MND	MND	MND	4,25E+00	3,55E+00	3,81E+00	1,25E-02	-7,61E+01
Renew. PER as material	MJ	6,02E+00	0,00E+00	4,18E+02	4,24E+02	0,00E+00	-4,18E+02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-6,02E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	8,71E+02	1,47E+01	9,15E+02	1,80E+03	6,26E+00	-4,14E+02	MND	MND	MND	MND	MND	MND	MND	4,25E+00	3,55E+00	-2,21E+00	1,25E-02	-7,61E+01
Non-re. PER as energy	MJ	7,84E+03	5,72E+02	2,06E+03	1,05E+04	4,87E+02	1,32E+02	MND	MND	MND	MND	MND	MND	MND	1,30E+02	2,46E+02	6,66E+02	1,44E+00	-1,57E+03
Non-re. PER as material	MJ	1,24E+01	0,00E+00	3,79E+00	1,62E+01	0,00E+00	-3,79E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,24E+01	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	7,85E+03	5,72E+02	2,07E+03	1,05E+04	4,87E+02	1,28E+02	MND	MND	MND	MND	MND	MND	MND	1,30E+02	2,46E+02	6,54E+02	1,44E+00	-1,57E+03
Secondary materials	kg	8,84E+02	3,42E-01	3,03E+00	8,87E+02	1,40E-01	5,31E-02	MND	MND	MND	MND	MND	MND	MND	5,05E-02	8,45E-02	2,61E-01	3,03E-04	0,00E+00
Renew. secondary fuels	MJ	3,01E-03	1,29E-03	1,17E+00	1,18E+00	1,20E-03	1,75E-04	MND	MND	MND	MND	MND	MND	MND	1,70E-04	9,13E-04	8,52E-04	7,93E-06	0,00E+00
Non-ren. secondary fuels	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
Use of net fresh water	m^3	3,59E+00	1,02E-01	2,48E+00	6,17E+00	6,40E-02	2,20E-02	MND	MND	MND	MND	MND	MND	MND	1,85E-02	3,12E-02	4,04E-02	1,58E-03	-1,29E+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	4,62E+00	1,20E+00	1,02E+01	1,60E+01	5,27E-01	2,03E-01	MND	MND	MND	MND	MND	MND	MND	2,02E-01	2,81E-01	8,91E-01	0,00E+00	-3,30E-02
Non-hazardous waste	kg	4,98E+01	2,14E+01	2,73E+02	3,44E+02	9,02E+00	9,15E+00	MND	MND	MND	MND	MND	MND	MND	2,27E+00	4,95E+00	6,26E+00	1,00E+01	-6,36E+00
Radioactive waste	kg	7,39E-01	3,90E-03	1,05E-02	7,53E-01	3,36E-03	9,15E-04	MND	MND	MND	MND	MND	MND	MND	9,07E-04	1,69E-03	4,69E-03	0,00E+00	-2,74E-03

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	1,66E-04	0,00E+00	0,00E+00	1,66E-04	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,30E+02	0,00E+00	0,00E+00
Materials for recycling	kg	1,13E+02	0,00E+00	4,03E+01	1,54E+02	0,00E+00	9,60E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,60E+02	0,00E+00	-2,16E-03
Materials for energy rec	kg	8,21E-02	0,00E+00	1,35E+01	1,36E+01	0,00E+00	6,81E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,59E-11
Exported energy	MJ	0,00E+00	0,00E+00	3,11E-01	3,11E-01	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 – 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	4,87E+02	4,01E+01	1,27E+02	6,54E+02	3,04E+01	9,86E+00	MND	MND	MND	MND	MND	MND	MND	9,57E+00	1,64E+01	4,89E+01	5,16E-02	-1,06E+02
Ozone depletion Pot.	kg CFC_{-11}e	3,97E-05	6,49E-06	1,69E-05	6,31E-05	6,02E-06	1,62E-06	MND	MND	MND	MND	MND	MND	MND	1,60E-06	3,03E-06	8,38E-06	1,69E-08	-6,41E-06
Acidification	kg SO_2e	2,07E+00	5,21E-01	5,76E+00	8,35E+00	9,58E-02	7,24E-02	MND	MND	MND	MND	MND	MND	MND	7,05E-02	4,46E-02	3,67E-01	3,74E-04	-4,28E-01
Eutrophication	kg PO_4^3e	3,08E-01	7,07E-02	1,49E+00	1,87E+00	1,83E-02	1,92E-02	MND	MND	MND	MND	MND	MND	MND	1,71E-02	8,87E-03	8,50E-02	8,07E-05	-7,46E-02
POCP (“smog”)	kg C_2H_4e	2,25E-01	1,54E-02	2,41E-02	2,65E-01	4,11E-03	1,64E-03	MND	MND	MND	MND	MND	MND	MND	1,57E-03	2,10E-03	8,02E-03	1,57E-05	-6,21E-02
ADP-elements	kg Sbe	2,49E-03	1,02E-04	3,12E-02	3,38E-02	7,24E-05	8,99E-06	MND	MND	MND	MND	MND	MND	MND	8,61E-06	5,80E-05	2,47E-05	1,19E-07	-6,94E-04
ADP-fossil	MJ	7,09E+03	5,72E+02	2,05E+03	9,72E+03	4,87E+02	1,32E+02	MND	MND	MND	MND	MND	MND	MND	1,30E+02	2,46E+02	6,66E+02	1,44E+00	-1,47E+03

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
31.07.2024