

Owner: Give Steel A/S
No.: MD-20046-EN
Issued: 01-02-2021
Valid to: 01-02-2026

3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration

Give Steel A/S
Sjællandsvej 14
DK-7330 Brande
26998115

Programme

EPD Danmark
www.epddanmark.dk

- Industry EPD
- Product EPD

Declared product(s)

GSY BEAM®

Number of declared datasets/product variations: 2

Production site

Sjællandsvej 14
DK-7330 Brande

Product(s) use

The product can be used as part elements or as an independent static system, where all parts are made of steel. The product is widely used in numerous construction projects in Denmark, Scandinavia and northern part of Europe.

Declared or functional unit

1 ton of GSY BEAM®

Year of data

2019



Issued:

01-02-2021

Valid to:

01-02-2026

Basis of calculation

This EPD is developed in accordance with the European standard EN 15804+A2.

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type

- Cradle-to-gate with modules C1-C4 and D
- Cradle-to-gate with options, modules C1-C4 and D
- Cradle-to-grave and module D
- Cradle-to-gate
- Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025 <input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier:  David Althoff Palm, Ramboll



Henrik Fred Larsen
EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Product information

Product description

The main product components are shown in the two tables below for painted GSY BEAM® and galvanized GSY BEAM® respectively.

The steel used consist of 25% scrap, with 85% post-consumer scrap.

The steel delivered to Give Steel is an average of 98% plates and 2% beams.

Material	Weight-% of declared product
Scrap steel	24%
Primary steel	73%
Welding rod (iron)	2%
Paint	1%

Material	Weight-% of declared product
Scrap steel	24%
Primary steel	73%
Welding rod (iron)	2%
Galvanization (zink)	1%

Representativity

This declaration, including data collection and the modeled foreground system including results represents the production of GSY BEAM® on the production site located in Brande in Denmark. Product specific data are based on average values collected in the period January 2019 to December 2019. Background data are based on GaBi professional and EcoInvent 3.6 and are less than 10 years old. Generally, the used background datasets are of good quality, and the majority of the datasets are only a couple of years old.

Hazardous substances

The GSY BEAM® does not contain substances listed in the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Essential characteristics (CE)

GSY BEAM® construction from Give Steel is designed and produced according to European design codes and production standards, as well as in compliance with project specifications. While Eurocode 1 and Eurocode 3 apply to the design and civil engineering works, manufacturing is carried out according to EN 1090 for steel construction.

Furthermore, these codes and standards outline specific product standards for choosing the most appropriate constitute products for each component. Such standards include EN 10025 which defines the requirements for non-alloy and fine grain weldable structural steels, EN 10219 for cold formed hollow sections and EN 13479 and ISO 544 which sets out the same set of requirements for materials.

Further technical information can be obtained by contacting the manufacturer or on the manufacturer's website:

<https://givesteel.com/>

Reference Service Life (RSL)

A reference service life for GSY BEAM® is not declared. It is a construction product with many different application purposes. The lifetime therefore will be limited by the service life of the work.

Picture of product(s)



LCA background

Declared unit

The LCI and LCIA results in this EPD relates to impacts caused by the production of 1 ton GSY BEAM®.

Name	Value	Unit
Declared unit	1	ton
Density	7850	kg/m ³
Conversion factor to 1 kg.	0.001	-

Functional Unit

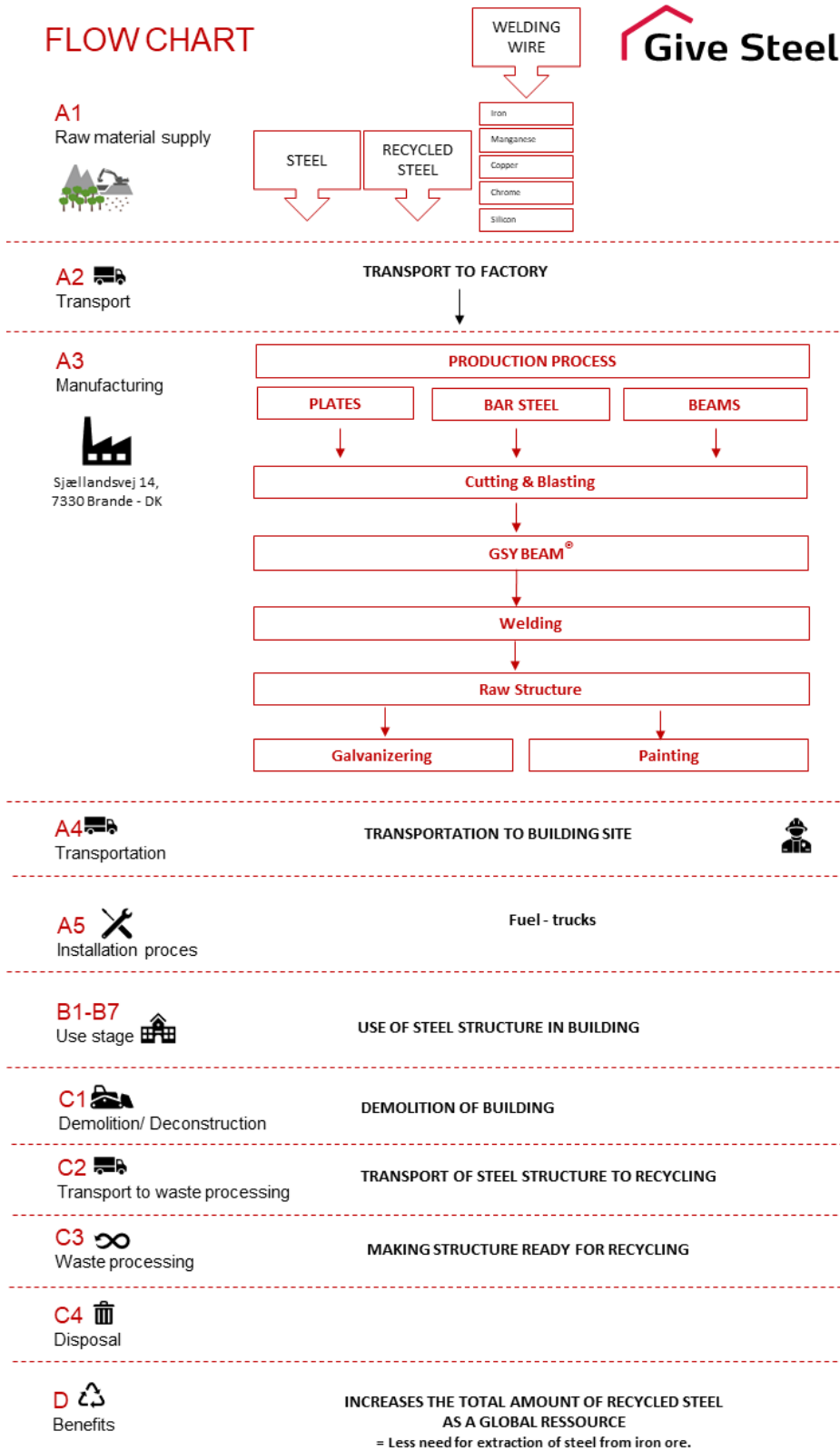
Not defined

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804+A2 and NPCR – Part B for steel and aluminum construction products.

Flowdiagram

FLOW CHART



System boundary

This EPD is based on a cradle-to-grave + module D LCA.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.6. where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

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 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.

The raw materials: plate and beams are brought in, processed, shot cleaned, cut and welded. The process will vary, depending on the involved raw material.

The various materials are transported by side loader from our warehouse to the appropriate production machines: plates to the CNC plasma cutter and beams to the shot ball cleaner. Plate is plasma cut following 2D models. Beams are shot cleaned and cut to length. Steel plates and beams are shot cleaned before production to produce the correct surface. The shot cleaner is always kept full to save power. The steel balls are reused in production until steel dust is all that remains. After cleaning, plates are distributed to the welding robot. Beams and associated plates are stapled together. Beams are then welded, according to design diagrams.

When manufacturing welded wedges for robot welding, all parts are assembled from the CNC cutting table and CNC flat iron cutter. Once the parts are collected, they are stapled together according to design diagrams. The stapled wedges are robot welded and sent on. The

remaining components are mounted, and remaining parts are welded manually.

Plates are brought from the warehouse to the CNC plasma cutter, where they are cut according to generated files to avoid waste. They are cleaned in our shot ball cleaner, stapled and welded according to design diagrams.

When the items are ready for surface treatment, they are moved to the factory's painting booth, where they are painted according to the desired paint system, which is shown on a label on the beam. Drying follows the specifications of the paint supplier. Once dry, the painted beams are ready for transportation to the construction site.

Beams that need to be galvanised instead of painted are loaded onto a lorry and transported to a subcontractor. After galvanisation, the beams are brought back to the factory and stored until delivery to the construction site.

Construction process stage (A4-A5) includes:

A4 – Transportation from the Give Steel factory in Brande, Denmark to a construction site.

A5 – Installation of the steel structure, using a truck.

Use stage (B1-B7) includes:

The entire use phase is not included as the product has no impact during this phase and therefore has no associated environmental impacts.

End of Life (C1-C4) includes:

C1 – Deconstructing of the steel structure, using a truck.

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

C3 – Sorting of scrap steel. Paint from the steel structure is incinerated in this module.

C4 – The end of life processes is handled in C1-C3.

Re-use, recovery and recycling potential (D) includes: Refers to the possible benefits and loads from the end of life of the structural steel, including reuse and recycling.

LCA results

LCA results for 1 ton painted GSY BEAM®

ENVIRONMENTAL IMPACTS PER TON										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	1.93E+03	8.39E+00	6.58E-01	0.00E+00	6.58E-01	8.47E+00	4.23E+01	0.00E+00	-1.18E+03
GWP-fossil	[kg CO ₂ eq.]	1.93E+03	8.23E+00	6.93E-01	0.00E+00	6.93E-01	8.32E+00	4.36E+01	0.00E+00	-1.17E+03
GWP-biogenic	[kg CO ₂ eq.]	6.92E-01	8.95E-02	0.00E+00	0.00E+00	0.00E+00	9.04E-02	-8.76E-04	0.00E+00	-7.21E-01
GWP-luluc	[kg CO ₂ eq.]	1.27E+00	6.74E-02	7.62E-03	0.00E+00	7.62E-03	6.80E-02	2.87E-02	0.00E+00	1.65E-01
ODP	[kg CFC 11 eq.]	4.89E-12	1.53E-15	1.73E-16	0.00E+00	1.73E-16	1.54E-15	3.54E-06	0.00E+00	-1.99E-12
AP	[mol H ⁺ eq.]	5.43E+00	3.00E-02	3.41E-03	0.00E+00	3.41E-03	3.03E-02	3.09E-01	0.00E+00	-2.11E+00
EP-freshwater	[kg PO ₄ eq.]	1.86E-03	2.54E-05	2.87E-06	0.00E+00	2.87E-06	2.56E-05	2.09E-02	0.00E+00	-2.52E-04
EP-marine	[kg N eq.]	1.39E+00	1.37E-02	1.52E-03	0.00E+00	1.52E-03	1.38E-02	7.17E-02	0.00E+00	-3.15E-01
EP-terrestrial	[mol N eq.]	1.51E+01	1.53E-01	1.69E-02	0.00E+00	1.69E-02	1.54E-01	8.10E-01	0.00E+00	-3.07E+00
POCP	[kg NMVOC eq.]	4.45E+00	2.67E-02	4.29E-03	0.00E+00	4.29E-03	2.70E-02	2.19E-01	0.00E+00	-1.61E+00
ADPm ¹	[kg Sb eq.]	1.30E-04	6.73E-07	7.61E-08	0.00E+00	7.61E-08	6.80E-07	1.37E-03	0.00E+00	-2.55E-03
ADPf ¹	[MJ, net calorific value]	1.83E+04	1.11E+02	1.26E+01	0.00E+00	1.26E+01	1.12E+02	3.79E+02	0.00E+00	-1.02E+04
WDP ¹	[m ³ world eq. deprived]	-4.70E+01	8.12E-02	9.18E-03	0.00E+00	9.18E-03	8.20E-02	9.34E+00	0.00E+00	-2.30E+02
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use									
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.									

Additional environmental impacts, as declared in the project report of this EPD, are declared in this EPD:

ADDITIONAL ENVIRONMENTAL IMPACTS PER TON										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	[Disease incidence]	6.93E-05	1.72E-07	3.76E-08	0.00E+00	3.76E-08	1.74E-07	3.85E-06	0.00E+00	-3.55E-05
IRP ²	[kBq U235 eq.]	1.81E+01	3.03E-02	3.43E-03	0.00E+00	3.43E-03	3.06E-02	3.58E+00	0.00E+00	3.07E+01
ETP-fw ¹	[CTUe]	4.35E+03	8.31E+01	9.40E+00	0.00E+00	9.40E+00	8.39E+01	1.70E+03	0.00E+00	8.66E+00
HTP-c ¹	[CTUh]	2.18E-06	1.72E-09	1.94E-10	0.00E+00	1.94E-10	1.73E-09	3.65E-08	0.00E+00	3.96E-07
HTP-nc ¹	[CTUh]	2.37E-05	1.00E-07	1.08E-08	0.00E+00	1.08E-08	1.01E-07	1.74E-06	0.00E+00	-1.60E-05
SQP ¹	-	1.77E+03	3.90E+01	4.41E+00	0.00E+00	4.41E+00	3.94E+01	7.00E+02	0.00E+00	3.45E+02

Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.
	² 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.

RESOURCE USE PER TON										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	[MJ]	1.52E+03	6.42E+00	7.26E-01	0.00E+00	7.26E-01	6.49E+00	5.52E+01	0.00E+00	9.11E+02
PERM	[MJ]	5.88E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.52E+03	6.42E+00	7.26E-01	0.00E+00	7.26E-01	6.49E+00	5.52E+01	0.00E+00	9.11E+02
PENRE	[MJ]	1.83E+04	1.11E+02	1.26E+01	0.00E+00	1.26E+01	1.13E+02	3.79E+02	0.00E+00	-1.02E+04
PENRM	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.83E+04	1.11E+02	1.26E+01	0.00E+00	1.26E+01	1.13E+02	3.79E+02	0.00E+00	-1.02E+04
SM	[kg]	2.43E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.68E+00	7.48E-03	8.46E-04	0.00E+00	8.46E-04	7.56E-03	2.18E-01	0.00E+00	-5.18E+00
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water									

WASTE CATEGORIES AND OUTPUT FLOWS PER TON										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	[kg]	9.89E-05	5.16E-06	5.83E-07	0.00E+00	5.83E-07	5.21E-06	3.32E-08	0.00E+00	2.80E-06
NHWD	[kg]	2.42E+01	1.77E-02	2.00E-03	0.00E+00	2.00E-03	1.78E-02	2.59E+00	0.00E+00	1.23E+02
RWD	[kg]	1.98E-01	2.06E-04	2.32E-05	0.00E+00	2.32E-05	2.08E-04	3.95E-04	0.00E+00	-4.02E-04

CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.91E+02	0.00E+00	0.00E+00
MER	[kg]	6.19E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+01	0.00E+00	0.00E+00
EE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EE = Exported energy									

BIOGENIC CARBON CONTENT PER TON		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packaging	[kg C]	0.012
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

LCA results for 1 ton galvanized GSY BEAM®

ENVIRONMENTAL IMPACTS PER TON										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	1.92E+03	8.39E+00	6.58E-01	0.00E+00	6.58E-01	8.47E+00	2.33E+01	0.00E+00	-1.17E+03
GWP-fossil	[kg CO ₂ eq.]	1.91E+03	8.23E+00	6.93E-01	0.00E+00	6.93E-01	8.32E+00	2.47E+01	0.00E+00	-1.17E+03
GWP-biogenic	[kg CO ₂ eq.]	2.52E+00	8.95E-02	0.00E+00	0.00E+00	0.00E+00	9.04E-02	0.00E+00	0.00E+00	-7.59E-01
GWP-luluc	[kg CO ₂ eq.]	1.26E+00	6.74E-02	7.62E-03	0.00E+00	7.62E-03	6.80E-02	2.81E-02	0.00E+00	1.70E-01
ODP	[kg CFC 11 eq.]	5.04E-12	1.53E-15	1.73E-16	0.00E+00	1.73E-16	1.54E-15	3.54E-06	0.00E+00	-1.95E-12
AP	[mol H ⁺ eq.]	5.41E+00	3.00E-02	3.41E-03	0.00E+00	3.41E-03	3.03E-02	2.99E-01	0.00E+00	-2.10E+00
EP-freshwater	[kg PO ₄ eq.]	1.83E-03	2.54E-05	2.87E-06	0.00E+00	2.87E-06	2.56E-05	2.09E-02	0.00E+00	-2.40E-04
EP-marine	[kg N eq.]	1.38E+00	1.37E-02	1.52E-03	0.00E+00	1.52E-03	1.38E-02	6.79E-02	0.00E+00	-3.13E-01
EP-terrestrial	[mol N eq.]	1.50E+01	1.53E-01	1.69E-02	0.00E+00	1.69E-02	1.54E-01	7.66E-01	0.00E+00	-3.06E+00
POCP	[kg NMVOC eq.]	4.38E+00	2.67E-02	4.29E-03	0.00E+00	4.29E-03	2.70E-02	2.09E-01	0.00E+00	-1.60E+00
ADPm ¹	[kg Sb eq.]	2.78E-04	6.73E-07	7.61E-08	0.00E+00	7.61E-08	6.80E-07	1.37E-03	0.00E+00	-2.55E-03
ADPf ¹	[MJ]	1.78E+04	1.11E+02	1.26E+01	0.00E+00	1.26E+01	1.12E+02	3.70E+02	0.00E+00	-1.02E+04
WDP ¹	[m ³]	-3.04E+01	8.12E-02	9.18E-03	0.00E+00	9.18E-03	8.20E-02	6.97E+00	0.00E+00	-2.30E+02
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use									
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.									

Additional environmental impacts. as declared in the project report of this EPD. are declared in this EPD:

ADDITIONAL ENVIRONMENTAL IMPACTS PER TON										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	[Disease incidence]	6.92E-05	1.72E-07	3.76E-08	0.00E+00	3.76E-08	1.74E-07	3.78E-06	0.00E+00	-3.55E-05
IRP ²	[kBq U235 eq.]	1.69E+01	3.03E-02	3.43E-03	0.00E+00	3.43E-03	3.06E-02	3.52E+00	0.00E+00	3.08E+01
ETP-fw ¹	[CTUe]	3.91E+03	8.31E+01	9.40E+00	0.00E+00	9.40E+00	8.39E+01	1.70E+03	0.00E+00	1.75E+01
HTP-c ¹	[CTUh]	2.17E-06	1.72E-09	1.94E-10	0.00E+00	1.94E-10	1.73E-09	3.61E-08	0.00E+00	3.97E-07
HTP-nc ¹	[CTUh]	2.31E-05	1.00E-07	1.08E-08	0.00E+00	1.08E-08	1.01E-07	1.71E-06	0.00E+00	-1.59E-05
SQP ¹	-	1.74E+03	3.90E+01	4.41E+00	0.00E+00	4.41E+00	3.94E+01	6.98E+02	0.00E+00	3.90E+02
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)									
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.									
	² 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.									

RESOURCE USE PER TON										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	[MJ]	1.49E+03	6.42E+00	7.26E-01	0.00E+00	7.26E-01	6.49E+00	5.37E+01	0.00E+00	9.38E+02
PERM	[MJ]	5.88E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.49E+03	6.42E+00	7.26E-01	0.00E+00	7.26E-01	6.49E+00	5.37E+01	0.00E+00	9.38E+02
PENRE	[MJ]	1.78E+04	1.11E+02	1.26E+01	0.00E+00	1.26E+01	1.13E+02	3.70E+02	0.00E+00	-1.02E+04
PENRM	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.78E+04	1.11E+02	1.26E+01	0.00E+00	1.26E+01	1.13E+02	3.70E+02	0.00E+00	-1.02E+04

SM	[kg]	2.43E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.78E+00	7.48E-03	8.46E-04	0.00E+00	8.46E-04	7.56E-03	1.62E-01	0.00E+00	-5.16E+00
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water									

WASTE CATEGORIES AND OUTPUT FLOWS PER TON										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	[kg]	4.10E-05	5.16E-06	5.83E-07	0.00E+00	5.83E-07	5.21E-06	0.00E+00	0.00E+00	2.84E-06
NHWD	[kg]	2.36E+01	1.77E-02	2.00E-03	0.00E+00	2.00E-03	1.78E-02	0.00E+00	0.00E+00	1.23E+02
RWD	[kg]	1.91E-01	2.06E-04	2.32E-05	0.00E+00	2.32E-05	2.08E-04	0.00E+00	0.00E+00	3.69E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.91E+02	0.00E+00	0.00E+00
MER	[kg]	6.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EE = Exported energy									

BIOGENIC CARBON CONTENT PER TON		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packaging	[kg C]	0.012
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

Additional information

Technical information on scenarios

Transport to the building site (A4)

Scenario information	Value	Unit
Fuel type and consumption	2.7	L diesel
Transport distance	300	km
Capacity utilisation (including empty runs)	85%	%
Gross density of products transported	7850	kg/m ³
Capacity utilisation volume factor	0.55	-

Installation of the product in the building (A5)

Scenario information	Value	Unit
Ancillary materials	0	kg
Water use	0	m ³
Other resource use	0	kg
Energy type and consumption (diesel fuel)	0.31	L
Waste materials	0	kg
Output materials	0	kg
Direct emissions to air, soil or water	0	kg

Reference service life

RSL information	Unit
Reference service Life	Depend on application

Use (B1-B7)

Modules not relevant

End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	1000	kg
Collected with mixed waste	0	kg
For reuse	0	kg
For recycling	970	kg
For energy recovery	10	kg
For final disposal	0	kg

Re-use, recovery and recycling potential (D)

Scenario information/Materiel	Value	Unit
Credit for recycling of steel scrap	691	kg

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

References

Publisher	 www.epddanmark.dk
Programme operator	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	Julie Rønholt and Linda Høiby COWI A/S Parallelvej 2 2800 Kgs. Lyngby
LCA software /background data	GaBi Professional 2020 and EcoInvent 3.6
3rd party verifier	David Althoff Palm Ramboll Sweden AB

General programme instructions

Version 2.0

www.epddanmark.dk

NPCR 013

NPCR 013 – "Part B for steel and aluminium construction products". version 3.0.

EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

ISO 14044

DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"