ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

SSAB Zero™ Structural Hollow Sections

SSAB Europe Oy

EPD HUB, HUB-3416
Published on 05.06.2025, last updated on 05.06.2025, valid until 04.06.2030

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	SSAB Europe Oy
Address	Lehtolantie 76, FI-92600 Pulkkila, Finland
Contact details	tubular.tcs@ssab.com
Website	https://www.ssab.com/tubular

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
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Jori Jokela, Macon Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Haiha Nguyen, 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	SSAB Zero™ Structural Hollow Sections
Additional labels	Cold Formed SSAB Zero™ Steel Tubes
Place of production	Hämeenlinna, Oulainen and Pulkkila, Finland
Period for data	Calendar year 2024
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-A3 (%)	-5,5 % / +2,9 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 ton
Declared unit mass	1000 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	669,8
GWP-total, A1-A3 ($kgCO_2e$)	663
Secondary material, inputs (%)	100
Secondary material, outputs (%)	85,4
Total energy use, A1-A3 (kWh)	5210
Net freshwater use, A1-A3 (m^3)	6,91

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

SSAB is a global steel company with a leading position in high-strength steels and related services. We aim to be the first, in 2026, to offer fossil-free steel to the market and largely eliminate carbon dioxide emissions from our own operations in around 2030.

PRODUCT DESCRIPTION

Cold-formed structural hollow sections with excellent forming, machining and welding performance for stronger, lighter, safer, more competitive and more sustainable structures. It is available in a variety of steels such as hot-rolled or weathering resistant alternatives or high-strength grades for demanding applications.

For more detailed information about technical product properties and the product portfolio, please visit https://www.ssab.com/tubular.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	Sweden, EU
Minerals	-	-
Fossil materials	-	-
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	2,17

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 ton
Mass per declared unit	1000 kg

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	MND	MND	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	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.

SSAB Zero™ steels are 100 % recyclable and are made from a unique production process using 100 % recycled steel of which over 90 % comes from external scrap (post- and pre-consumer) and the remainder from internal scrap from the manufacturing process. This reduces the environmental impact of steelmaking while maintaining SSAB's strict quality standards. The use of energy has been optimized in steel production.

Transport distances for raw materials are calculated based on distances between known raw material manufacturers and product manufacturing sites.

SSAB products are labeled to be easily identifiable and traceable. The packaging and protection type of SSAB steel products is specified when ordering. Steel bands or strappings, wood props, paper or plastic film, corner protection and other accessories supporting packaging are used as appropriate, depending on the protection needed. The tube bundles are fastened with strap bands.

LCA study for country specific electricity mixes (Finland) based on IEA (OneClickLCA 2024) were used as energy sources profile. The use of energy has been optimized in steel product production.

TRANSPORT AND INSTALLATION (A4-A5)

This EPD does not cover the transportation impacts occurred from final products delivery to construction site (A4) or installation (A5). Installation contains only packaging waste impacts and has been declared in C-phase. Installation waste is handled by customer. Installation materials and energy consumption were not taken into account because installation situations vary case by case and are not managed by SSAB Europe Oy. Wooden and metal packing materials will be recycled as materials or used for energy recovery.

PRODUCT USE AND MAINTENANCE (B1-B7)

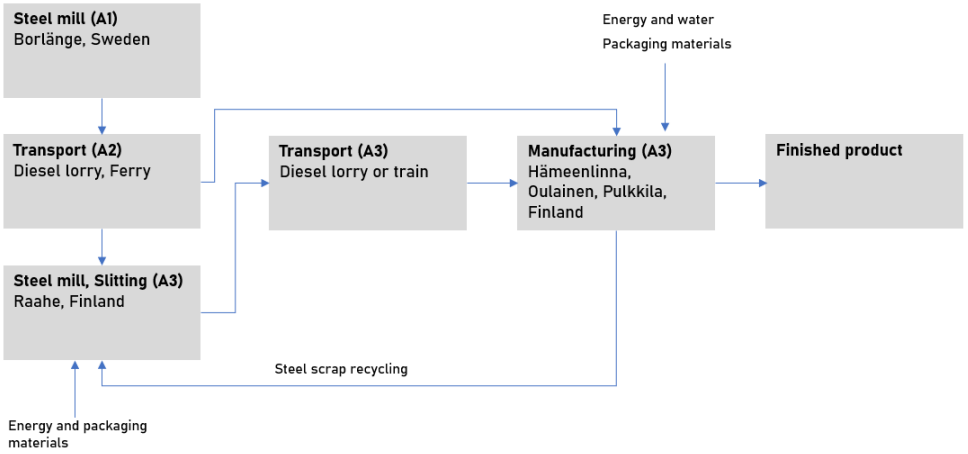
This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

This study considers that the Structural Hollow Sections in EoL are dismantled using machinery and separated from other construction waste. It is assumed that 100 % of the products are collected (C1). Distance for transportation to treatment is assumed as 50 km to 250 km and the transportation method is assumed to be lorry (C2). End of life scenario for materials is modelled based on data of World Steel Association (2020). At EoL, 85 % of the product's metal components are assumed to be recycled (C3) and 15 % goes to landfill. Packaging components can be recycled as materials or utilized in energy production (plastic (62 % recycled), wood (62 % recycled) and metal materials (81 % recycled) (Eurostat: https://ec.europa.eu/eurostat/web/main/home). Later reusable (D) metals and packaging materials are utilized to manufacture new products or are utilized as energy.

MANUFACTURING PROCESS

Hot rolled SSAB Zero™ steel coils are shipped from SSAB Borlänge directly to SSAB Oulainen or to SSAB Raahe, where they are slit into narrower steel strip coils. These slitted coils are transported by rail or lorry down to SSAB Hämeenlinna, and by lorry to SSAB Pulkkila, where they are processed into hollow sections products.



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.

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	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of average	Multiple factories
Grouping method	Based on average results of product group - by total mass
Variation in GWP-fossil for A1-A3 (%)	-5,5 % / +2,9 %

This EPD contains average calculations due to several manufacturing sites. Coefficient variation in GWB-fossil for A1-A3 is 3,44 %. The Hämeenlinna site exhibits the highest GWP-fossil values, while the Pulkkila site shows the lowest. This variation is primarily attributable to differences in total production volumes (manufacturing site sizes), transportation modes and the distances from raw material sources.

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

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	5,09E+02	1,42E+02	1,16E+01	6,63E+02	3,61E+00	4,31E+01	2,43E+01	3,99E+00	-1,32E+00
GWP – fossil	kg CO_2e	5,08E+02	1,42E+02	1,96E+01	6,70E+02	3,60E+00	4,30E+01	1,93E+01	9,57E-01	-1,85E+00
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-7,97E+00	-7,97E+00	0,00E+00	9,39E-03	4,91E+00	3,03E+00	5,26E-01
GWP – LULUC	kg CO_2e	1,14E+00	5,90E-02	2,43E-02	1,22E+00	3,69E-04	1,90E-02	2,39E-02	5,48E-04	-1,07E-03
Ozone depletion pot.	kg $CFC\text{-}_{11}e$	2,17E-09	2,85E-06	8,73E-07	3,72E-06	5,52E-08	6,02E-07	2,60E-07	2,76E-08	-1,18E-08
Acidification potential	mol H^+e	2,21E+00	4,34E-01	1,89E-01	2,83E+00	3,25E-02	1,43E-01	2,29E-01	6,78E-03	-8,68E-03
EP-freshwater[2)]	kg Pe	1,52E-02	1,06E-02	1,14E-02	3,72E-02	1,04E-04	3,35E-03	1,24E-02	9,16E-05	-9,01E-04
EP-marine	kg Ne	6,23E-01	1,37E-01	9,54E-02	8,55E-01	1,51E-02	4,65E-02	5,09E-02	3,15E-03	-1,67E-03
EP-terrestrial	mol Ne	6,83E+00	1,49E+00	5,19E-01	8,83E+00	1,65E-01	5,06E-01	5,74E-01	2,82E-02	-1,77E-02
POCP ("smog")[3)]	kg NMVOCe	1,77E+00	7,05E-01	9,56E-02	2,57E+00	4,93E-02	2,00E-01	1,70E-01	1,01E-02	-5,95E-03
ADP-minerals & metals[4)]	kg Sbe	1,21E-03	4,00E-04	2,24E-04	1,84E-03	1,29E-06	1,41E-04	1,36E-03	1,53E-06	-1,29E-05
ADP-fossil resources	MJ	7,27E+03	2,10E+03	4,40E+02	9,81E+03	4,72E+01	6,03E+02	2,59E+02	2,34E+01	-2,13E+01
Water use[5)]	m^3e depr.	1,89E+02	1,13E+01	3,86E+01	2,39E+02	1,18E-01	2,80E+00	4,69E+00	6,84E-02	-3,98E-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.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	8,75E+03	3,67E+01	1,53E+02	8,94E+03	2,99E-01	8,28E+00	1,17E+01	-2,81E+01	1,13E+01
Renew. PER as material	MJ	1,00E-02	0,00E+00	7,08E+01	7,08E+01	0,00E+00	0,00E+00	-4,39E+01	-2,69E+01	3,64E+00
Total use of renew. PER	MJ	8,75E+03	3,67E+01	2,24E+02	9,01E+03	2,99E-01	8,28E+00	-3,22E+01	-5,50E+01	1,49E+01
Non-re. PER as energy	MJ	7,29E+03	2,10E+03	4,40E+02	9,83E+03	4,72E+01	6,04E+02	2,59E+02	2,33E+01	-2,13E+01
Non-re. PER as material	MJ	4,77E-03	0,00E+00	2,30E-01	2,34E-01	0,00E+00	0,00E+00	-1,81E-01	-5,35E-02	1,36E+00
Total use of non-re. PER	MJ	7,29E+03	2,10E+03	4,40E+02	9,83E+03	4,72E+01	6,04E+02	2,58E+02	2,33E+01	-2,00E+01
Secondary materials	kg	1,21E+03	1,07E+00	2,96E-01	1,21E+03	1,96E-02	2,71E-01	3,16E-01	5,93E-03	6,91E-01
Renew. secondary fuels	MJ	6,68E-07	1,13E-02	1,94E-02	3,07E-02	5,12E-05	3,45E-03	1,46E-02	1,23E-04	-1,12E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	1,81E-01	1,81E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	6,24E+00	3,18E-01	3,59E-01	6,91E+00	3,12E-03	8,00E-02	1,37E-01	1,77E-02	-1,01E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous waste	kg	2,47E-03	3,50E+00	2,02E+00	5,52E+00	5,25E-02	1,05E+00	1,70E+00	2,61E-02	-4,55E-01
Non-hazardous waste	kg	2,88E+01	6,61E+01	3,84E+03	3,93E+03	7,15E-01	1,97E+01	6,24E+01	8,90E+00	-5,14E+00
Radioactive waste	kg	5,24E-01	6,43E-04	4,47E-03	5,29E-01	5,12E-06	1,20E-04	5,62E-04	3,63E-06	-3,59E-05

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	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	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	3,83E+03	3,83E+03	0,00E+00	0,00E+00	8,52E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,32E+00	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	0,00E+00	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	2,97E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,08E+00	0,00E+00	0,00E+00

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.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
05.06.2025

VERIFIED ISO 14025