

Environmental Product Declaration

# Hot rolled SSAB Zero<sup>™</sup> pre-fabricated steel plates

Hot rolled plate pre-fabricated  
Hot rolled plate pre-fabricated normalized

**EPD of multiple products, based on the average results of the product group  
In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021**

Programme: The International EPD<sup>®</sup> System, [www.environdec.com](http://www.environdec.com)  
Programme operator: EPD International AB  
EPD owner: SSAB Europe Oy  
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*An EPD may be updated or depublished if conditions change.  
To find the latest version of the EPD and to confirm its validity, see [www.environdec.com](http://www.environdec.com).*

**SSAB**

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# 1. General information

## PROGRAM INFORMATION

<b>Program:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	www.environdec.com
<b>Email:</b>	support@environdec.com

<b>Accountabilities for PCR, LCA and independent, third-party verification</b>
<b>Product Category Rules (PCR)</b>
Core product category rules: CEN standard EN 15804 serves as the core PCR.
Product category rules: PCR 2019:14 Construction products. Version 2.0.1. Date 2025-06-05.
Product group classification: UN CPC 412.
PCR review was conducted by: The Technical Committee of the International EPD System. A full list of members is available on <a href="http://www.environdec.com">www.environdec.com</a> . The review panel may be contacted via <a href="mailto:support@environdec.com">support@environdec.com</a> . Review chair: Rob Rouwette (chair), Noa Meron (co-chair)
<b>Life Cycle Assessment (LCA)</b>
LCA accountability: Emanuel Lindbäck, SSAB Europe Oy
<b>Third-party verification</b>
External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via EPD verification through: <input checked="" type="checkbox"/> Individual EPD verification without a pre-verified LCA/EPD tool Third-party verifier: David Althoff Palm, Dalemarken AB.
Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No [Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period. The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update is identified, the EPD shall be re-verified by a verifier]

***The EPD owner has the sole ownership, liability, and responsibility for the EPD.***

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units);

have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

## 1.1 SSAB'S VISION – A STRONGER, LIGHTER AND MORE SUSTAINABLE WORLD

SSAB is a global steel company with a leading position in high-strength steels and related services. The company is a frontrunner in the green transformation of the steel industry and aims to largely eliminate carbon dioxide emissions from its operations and together with suppliers and customers create a fossil-free value chain.

SSAB's production sites are in Sweden, Finland and the USA and have an annual crude steel production capacity of 8.8 million tonnes. SSAB Europe is responsible for sales of strip, heavy plate, and tubular products in Europe as well as for the global business in the Automotive customer segment. SSAB Special Steels has global responsibility for sales of SSAB's quenched and tempered (Q&T) steels and advanced high-strength steels (AHSS). SSAB Americas is the largest heavy plate producer in North America and has a strong position based on cost efficiency and quality. During 2023, the company started production of SSAB Zero™, a steel based on recycled steel and made using primary fossil-free electricity, biocoal and biofuels.

SSAB Zero™ steels are 100 % recyclable and are made from a unique production process using 100 % recycled steel. This reduces the environmental impacts of steel-making while maintaining SSAB's strict quality standards.

## 1.2 COMPANY INFORMATION

### EPD owner:

SSAB Europe Oy, Kaisa Ahvonen, Harvialantie 420, 13300 Hämeenlinna, Finland.

### Description of the organizations:

- SSAB Europe is responsible for strip, heavy plate, and tubular products in Europe as well as for the global business in the Automotive customer segment. SSAB Europe is also responsible for color coated products.
- SSAB Americas is responsible for heavy plate products in North America and for SSAB Zero™ slabs for SSAB Europe.
- SSAB Special steels is responsible for SSAB's quenched and tempered steels and advanced high-strength steels.

### Name and location of production sites:

- SSAB Americas (Iowa, USA): 1770 Bill Sharp Boulevard, Muscatine, 52761 Iowa (USA).
- SSAB EMEA AB (Oxelösund, Sweden): Aspleden 1, 613 80 Oxelösund (Sweden).
- SSAB Europe Oy (Raahe, Finland): Rautaruukintie 155, 92100 Raahe (Finland).

### Certifications:

Certificates applicable to SSAB sites are ISO 14001 and ISO 9001.

### Contact:

EPDssab@ssab.com.

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# 2. Product information

## 2.1 PRODUCT TECHNICAL INFORMATION AND APPLICATIONS

SSAB specializes in materials for demanding applications where high strength and formability are needed for weight savings and increased durability. Hot rolled pre-fabricated steel plates are used in many industries and applications, including construction e.g. bridges and building frames, containers and heat exchangers and in shipbuilding.

SSAB offers a comprehensive selection of hot rolled pre-fabricated steel plates that includes structural steels, wear-resistant and surface pressure-resistant steels.

Hot rolled pre-fabricated plates can be produced in a thickness range from 4.0 up to 160 mm, a maximum width up to 3 350 mm, and a maximum length up to 22 200 mm.

The products are often customized to meet national and/or international standards as well as customer-specific or other Original Equipment Manufacturer (OEM) standards. Besides standardized steel grades, SSAB's hot rolled plate product portfolio also includes products unique to SSAB and which in some cases may be patented.

For more detailed information about technical product properties and the product portfolio, please visit [www.ssab.com](http://www.ssab.com).

## 2.2 PRODUCT DESCRIPTION

The scope of this EPD is Hot rolled SSAB Zero™ pre-fabricated steel plates. SSAB Zero™ is made 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.

The steel is an alloy of mainly iron and carbon, with small amounts of alloying and trace elements. Alloying elements improve the chemical and physical properties of steel, such as strength, ductility, durability, and corrosion resistance.

The exact composition of the steel manufactured by SSAB depends on product requirements, either based on national and/or international standards, such as EN 10025 or EN 10225, or on customer-specific and/or other OEM standards. SSAB's unique products also have their own specific requirements.

Content declaration and average chemical composition is presented in section 4.2. More detailed information on the different steel compositions is available from national and international standards, and on [www.ssab.com](http://www.ssab.com).

## 2.3 LABELING AND PACKAGING

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.

Hot rolled pre-fabricated steel plates may be packed and, depending on product size and type, strapped to an appropriate pallet or packed in crates suitable for that purpose.

# 3. Production and transportation

## 3.1 PRODUCTION SITES

SSAB Zero™ steel slabs are manufactured at SSAB Iowa in the USA. Production is based on an electric arc furnace (EAF) using scrap steel as a raw material and primary fossil-free electricity and biocoal. Scrap steel along with raw materials, such as charge/injection carbon, lime and other additives, are added to the EAF, where electricity is used to melt the batch and make molten steel. The molten steel is cast into slabs.

SSAB Zero™ steel slabs are shipped to SSAB Raahe in Finland where they are cut, reheated, rolled, cooled, sheared and depending on the need quenched, tempered or normalized, and finally cut to length. Pre-fabrication is always done in SSAB Raahe, but plate production part for pre-fabricated plates can be done also in SSAB Oxelösund, Sweden.

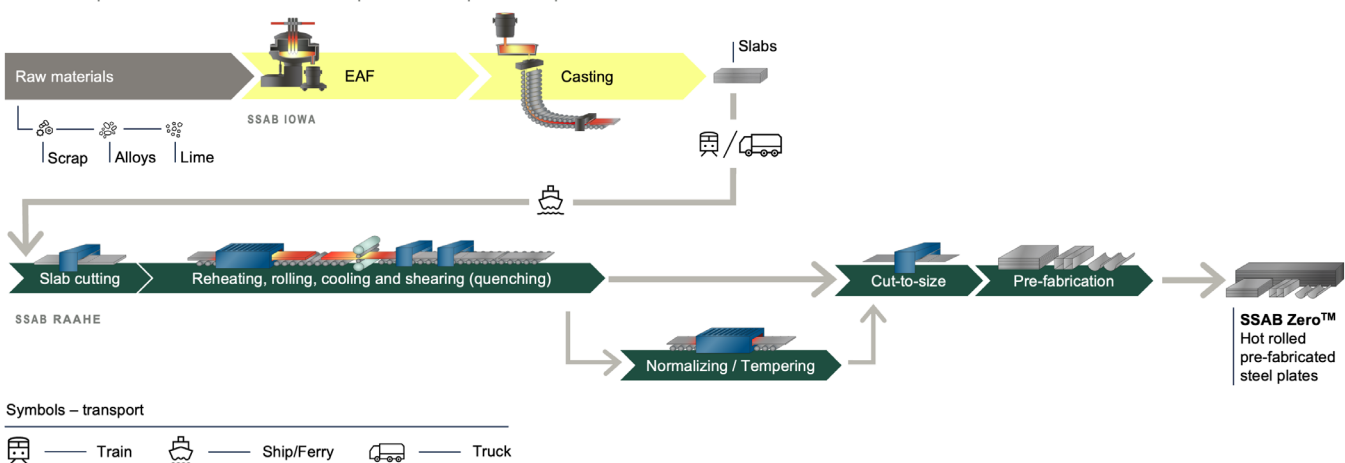
Co-products, such as slag, mill scale and iron oxide, generated from SSAB's steel production processes are recycled as industrial raw materials or materials to replace virgin resources. A high percentage of the baghouse dust originating from the EAF process is recycled to reduce waste and improve efficiency. However, no emissions were allocated to co-products in this EPD.

## 3.2 TRANSPORTATION

SSAB Zero™ steel slabs from SSAB Iowa are transported via rail or truck to a port and shipped to either to Finland and SSAB Raahe or to Sweden where they are transported by rail to SSAB Oxelösund and then by rail and ship to SSAB Raahe to be pre-fabricated.

**FIGURE 1. SSAB Zero™ production sites and transportation between sites.**

Hot Rolled pre-fabricated SSAB Zero™ steel plates – main production processes



Note: Slab cutting, Reheating, rolling, cooling and shearing can be done at SSAB Oxelösund, Sweden.

# 4. LCA

## 4.1 LCA INFORMATION

**Declared unit:**  
1 kg of product

**Reference service life:**  
Not applicable.

**Description of system boundaries:**  
The system boundaries are type a, cradle-to-gate with modules C1– C4 and module D (A1–A3 + C + D).

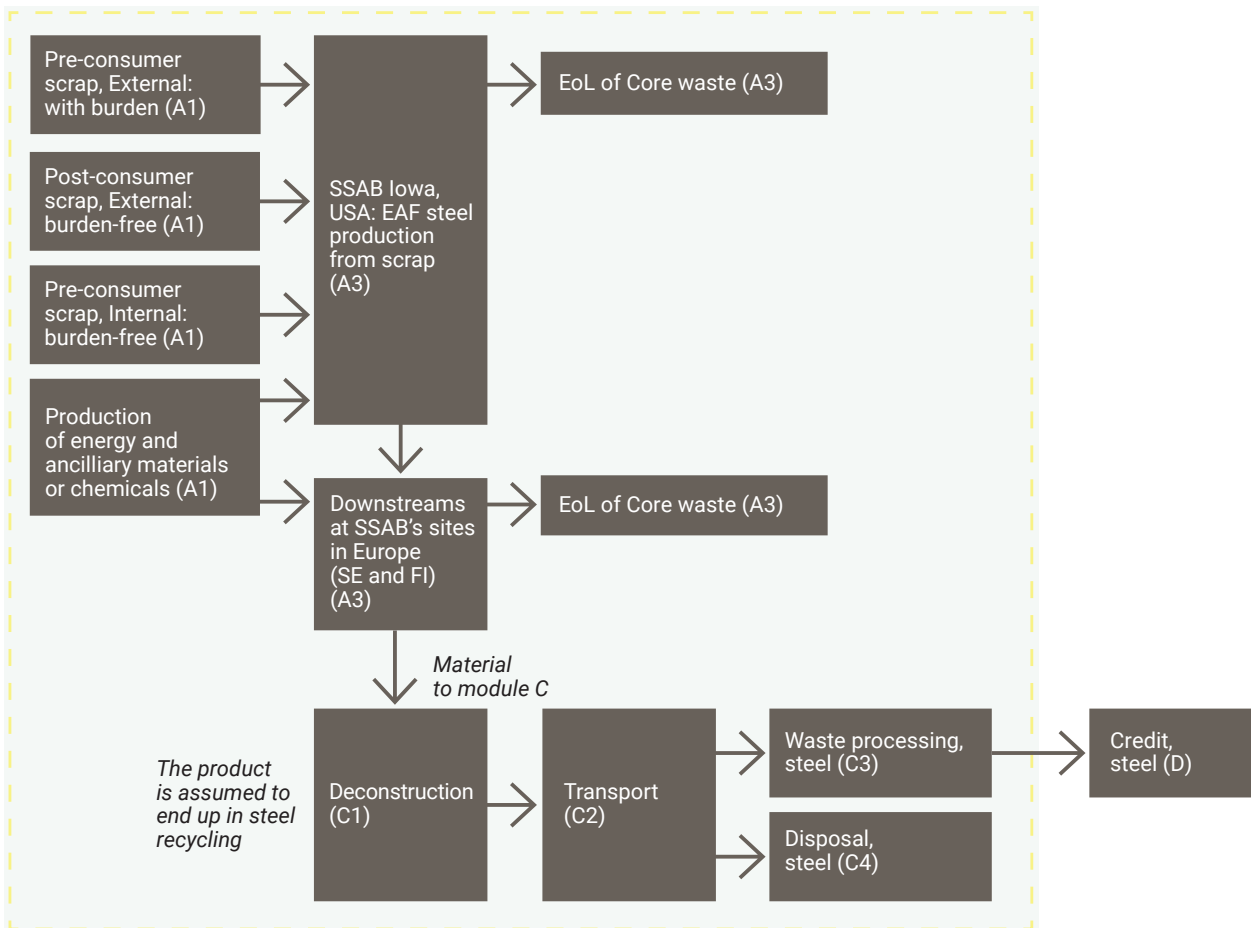
**Time representativeness:**

2025 for the slabs production at SSAB Iowa,  
2025 for the steel processing at SSAB Oxelösund,  
2025 for the steel processing at SSAB Raahe.

**Database(s) and LCA software used:**

The LCA was modelled using the LCA software LCA for Experts and corresponding database (version 2026.1) provided by Sphera.

**System diagram:**



- Module A1: Production of raw materials and production of fuels
- Module A2: Transportation of raw materials to SSAB's manufacturing site (including transportation of steel between SSAB sites)
- Module A3: Manufacturing of steel products and management of production waste
- Module C1: Deconstruction of the product
- Module C2: Transport to waste processing and disposal
- Module C3: Waste processing of the product, to be sent to steel recycling
- Module C4: Disposal of the remaining part of the product in a landfill
- Module D: Benefits from recycling the steel

**Allocation:**

Pre-consumer scrap is used in the production of steel. The environmental burden from the use of this scrap is allocated based on economic value by making a conservative assumption equal to 5 % of virgin (blast furnace-based) steel. This corresponds to a value of 0.1 kg CO<sub>2</sub>eq per kg of pre-consumer scrap.

Co-product allocation has been applied to the scrap generated in modules A1 – A3 as per PCR 2019:14, wherein the impacts are allocated to the declared product, based on negligible economic value to scrap as compared to the steel products.

**Cut-off criteria:**

The maximum cut-off criteria established by the PCR and EN 15804:2012+A2:2019 standard is 1 % of all material and energy flows to a single unit process and 5 % of total inflows (mass and energy) to the upstream and core module. No cut-offs exceeding this limit have been made.

**Inclusion of infrastructure and capital goods:**

Infrastructure and capital goods are not included in any of the modules covered in this EPD. For the electricity sources of renewable origin (within the residual mix), the infrastructure of the power plant is included.

**Electricity information:**

The electricity used in the production of the steel slabs at SSAB Iowa is a mix supported by a contractual document. The mix is based on 91.3 % wind and 8.7 % nuclear, corresponding to a GWP-GHG impact of 0.0093 kg CO<sub>2</sub>eq per kWh.

At SSAB Oxelösund, some of the electricity used is produced internally (corresponds to a GWP-GHG impact of 0.9 kg CO<sub>2</sub>eq per kWh). For most of the electricity, the residual electricity mix for Sweden has been applied (corresponding to a GWP-GHG impact of 0.12 kg CO<sub>2</sub>eq per kWh).

At SSAB Raahе some of the electricity used is produced internally (corresponding to a GWP-GHG impact of 2.0 kg CO<sub>2</sub>eq per kWh, respectively). For external electricity, the residual electricity mix for Finland has been applied (corresponding to a GWP-GHG impact of 0.59 kg CO<sub>2</sub>eq per kWh, respectively).

**Scenario for module C1:**

The product is being deconstructed by a machine powered by diesel.

**Scenario for module C2:**

The waste is transported 80 km by truck to waste processing (C3) and disposal (C4). (Truck, diesel, Euro VI, 26-28t gross weight, 50% utilization)

**Scenario for module C3:**

98 % of the product is assumed to be processed in order to be sent for recycling in an EAF.

**Scenario for module C4:**

2 % of the product is assumed to be disposed of as waste at a landfill.

**Scenario for module D:**

The environmental benefit of the recycled steel is gained through the avoided production of primary steel. This benefit corresponds to -1.7 kg CO<sub>2</sub>eq per kg of scrap in module D. The net flow of the recycled steel being credited in module D corresponds to 0.12 kg and is based on an assumed recycling rate of 98 % and as well as on an assumption of yield losses in the steel recycling process.

**Weighted average for the EPD:**

The results represent a weighted average based on the production volumes for the product group.

## Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation

Life cycle stage	Module	Modules declared	Geography	Share of primary data	Variation - products	Variation - sites	
Product stage	Raw material supply	A1	X	GLO	69 %	+7 % -4 %	<10 %
	Transport	A2	X	US & EU			
	Manufacturing	A3	X	US & FI			
Construction process stage	Transport	A4	ND	-	-	-	
	Construction installation	A5	ND	-	-	-	
Use stage	Use	B1	ND	-	-	-	
	Maintenance	B2	ND	-	-	-	
	Repair	B3	ND	-	-	-	
	Replacement	B4	ND	-	-	-	
	Refurbishment	B5	ND	-	-	-	
	Operational energy use	B6	ND	-	-	-	
	Operational water use	B7	ND	-	-	-	
End of life stage	De-construction demolition	C1	X	EU	-	-	
	Transport	C2	X	EU	-	-	
	Waste processing	C3	X	EU	-	-	
	Disposal	C4	X	EU	-	-	
Resource recovery stage	Reuse-Recovery-Recycling-potential	D	X	EU	-	-	

X: Module Declared

ND: Module not declared

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

## 4.2 DATA QUALITY ASSESSMENT

A data quality assessment has been performed for the processes that together account for at least 80% of the environmental impact for any of the reported indicators

within life cycle stages A1–A3. Processes contributing more than 10% to GWP GHG are listed below.

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1–A3
Steel slab production*	Collected data Database data	EPD owner Sphera MLC 2026.1	2025	Primary data Secondary data	12 %
Transport of steel	Database data	Sphera MLC 2026.1	2025	Primary data	11 %
Process gas and fuels used in manufacturing	Collected data Database data	EPD owner Sphera MLC 2026.1	2025	Primary data	17 %
Internal generation of energy used in manufacturing	Collected data	EPD owner	2025	Primary data	21 %
Other processes	Collected data Database data	Sphera MLC 2026.1	2025	Primary data Secondary data	8 %
Total share of primary data, of GWP-GHG results for A1–A3					69 %

\*Some alloying materials used in slab production are based on secondary data that have been evaluated as poor or very poor with respect to geographical and/or technical representativeness in the data quality assessment. In addition, certain alloying materials contribute more than 30% to one or more core environmental impact indicators. These specific datasets have been evaluated as Fair with respect to geographical and technical representativeness.

## 4.3 PRODUCT CONTENT DECLARATION

Pre- and post-consumer scrap content is 90.2 %. Recycled material content with internal pre-consumer scrap is 98.0 %. SSAB's scrap management and recycled content methodology are aligned with ISO 14021.

Content declaration and average chemical composition of hot rolled SSAB Zero™ pre-fabricated steel plates per kg produced is:

Product Composition	Weight (%)	Weight (kg)	Biogenic carbon, weight (%)	Biogenic carbon, weight (kg)
Pre-consumer scrap	3.2 %	0.03	0 %	0
Post-consumer scrap	87.0 %	0.87	0 %	0
Internal scrap	7.8 %	0.08	0 %	0
Alloys	2.0 %	0.02	0 %	0
Average chemical composition*				
Iron (Fe)	> 97 %			
Manganese (Mn)	1.3 %			
Silicon (Si)	0.2 %			
Carbon (C)	0.2 %			
Other	< 1.5 %			

\*SSAB Zero™ is based on recycled scrap, which may contain small amounts of residual elements such as copper and tin. The figures provided represent the best estimate at the time of publication.

Content Declaration of packaging material	Weight (kg)	Weight % (of product)	Biogenic carbon, weight (kg/declared unit)
Wood	0.0016	0.16%	0.0007

The production of the packaging materials has been omitted since it falls under the cut-off limit. The content of biogenic material in the packaging is 0.0007 kg per kg of steel.

The products do not contain any of the substances of very high concern (SVHC) regulated by the Regulation (EC) No 1907/2006 (REACH) of the European Parliament and of the Council.

## 4.4 ENVIRONMENTAL PERFORMANCE INDICATORS RESULTS

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

### Potential environmental impact – mandatory indicators according to EN 15804+A2 (version EF 3.1)

Results per declared unit: 1 kg of product								
Indicator	Unit	A1 – A3	C1	C2	C3	C4	D	
Global warming potential (GWP)	Climate Change - fossil	kg CO <sub>2</sub> eq	<b>0.92</b>	3.7E-04	8.7E-03	3.7E-03	1.1E-05	-2.0E-01
	Climate Change - biogenic	kg CO <sub>2</sub> eq	9.9E-04	3.7E-07	1.9E-05	1.1E-05	1.1E-08	4.2E-05
	Climate Change - land use and land use change (LULUC)	kg CO <sub>2</sub> eq	6.6E-04	1.5E-06	8.6E-05	1.4E-05	4.2E-08	-2.6E-05
	Climate Change - total	kg CO <sub>2</sub> eq	<b>0.93</b>	3.7E-04	8.8E-03	3.8E-03	1.1E-05	-2.0E-01
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq	8.1E-12	7.0E-17	9.8E-16	3.2E-14	2.0E-18	2.7E-13	
Acidification potential (AP)	mole H <sup>+</sup> eq	4.8E-03	3.1E-06	1.3E-05	2.7E-05	9.1E-08	-4.9E-04	
Eutrophication potential (EP)	Freshwater	kg P eq	3.7E-07	8.7E-10	2.3E-08	7.9E-09	2.5E-11	-4.6E-08
	Marine	kg N eq	9.4E-04	1.5E-06	5.2E-06	1.3E-05	4.4E-08	-7.8E-05
	Terrestrial	mole N eq	9.9E-03	1.7E-05	5.5E-05	1.4E-04	4.8E-07	-7.0E-04
Formation potential of tropospheric ozone (POCP)	kg NMVOC eq	2.6E-03	4.1E-06	1.1E-05	3.5E-05	1.2E-07	-3.2E-04	
Abiotic depletion potential (ADP)	Minerals and metals*	kg Sb eq	3.8E-06	2.5E-11	5.5E-10	3.8E-10	7.2E-13	-1.1E-06
	Fossil resources*	MJ	7.2E+00	4.4E-03	1.1E-01	5.0E-02	1.3E-04	-2.0E+00
Water scarcity potential (WDP)*	m <sup>3</sup>	4.8E-01	1.2E-06	3.3E-05	1.5E-04	3.4E-08	-1.3E-02	

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Note: Biogenic carbon in packaging is balanced in A1 – A3.

## Additional mandatory and voluntary impact category indicators

Results per declared unit: 1 kg of product								
Indicator		Unit	A1 – A3	C1	C2	C3	C4	D
Global warming potential (GWP)	GWP-GHG <sup>(1)</sup>	kg CO <sub>2</sub> eq	<b>0.93</b>	3.7E-04	8.8E-03	3.8E-03	1.1E-05	-2.0E-01

(1) This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the characterisation factor for biogenic CO<sub>2</sub> is set to zero.

## Resource use indicators

Results per declared unit: 1 kg of product								
Indicator		Unit	A1 – A3	C1	C2	C3	C4	D
Primary energy resources – Renewable	Used as energy carrier (PERE)	MJ	7.6E+00	3.1E-04	7.8E-03	1.3E-02	8.9E-06	7.8E-02
	Used as raw materials (PERM)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total (PERT)	MJ	7.6E+00	3.1E-04	7.8E-03	1.3E-02	8.9E-06	7.8E-02
Primary energy resources – Non-renewable	Used as energy carrier (PENRE)	MJ	7.2E+00	4.4E-03	1.1E-01	5.0E-02	1.3E-04	-2.0E+00
	Used as raw materials (PENRM)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total (PENRT)	MJ	7.2E+00	4.4E-03	1.1E-01	5.0E-02	1.3E-04	-2.0E+00
Use of secondary material (SM)		kg	1.3E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of renewable secondary fuels (RSF)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of non renewable secondary fuels (NRSF)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Net use of fresh water (FW)		m <sup>3</sup>	1.2E-02	9.0E-08	3.8E-06	7.2E-06	2.6E-09	-2.0E-02

Note: Primary energy calculated using PCR option B.

## Waste indicators

Results per declared unit: 1 kg of product								
Indicator		Unit	A1 – A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)		kg	6.2E-06	1.9E-13	3.9E-12	2.2E-11	5.4E-15	-1.5E-08
Non-hazardous waste disposed (NHWD)		kg	1.0E-01	8.2E-07	1.4E-05	1.8E-05	2.4E-08	2.4E-02
Radioactive waste disposed (RWD)		kg	3.9E-04	4.7E-09	1.4E-07	1.9E-06	1.4E-10	2.2E-07

## Output indicators

Results per declared unit: 1 kg of product								
Indicator		Unit	A1 – A3	C1	C2	C3	C4	D
Components for re-use (CRU)		kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for recycling (MFR)		kg	0.0E+00	0.0E+00	0.0E+00	9.8E-01	0.0E+00	0.0E+00
Material for energy recovery (MER)		kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported electrical energy (EEE)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported thermal energy (EET)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

## Disclaimer

ILCD classification	Indicator
ILCD Type 1	Global warming potential (GWP)
	Depletion potential of the stratospheric ozone layer (ODP)
	Potential incidence of disease due to PM emissions (PM)
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)
	Formation potential of tropospheric ozone (POCP)
	Potential Human exposure efficiency relative to U235 (IRP)
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)
	Abiotic depletion potential for fossil resources (ADP-fossil)
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)
	Potential Comparative Toxic Unit for humans (HTP-c)
	Potential Comparative Toxic Unit for humans (HTP-nc)
	Potential Soil quality index (SQP)

Disclaimer 1 – 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.

Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

## 4.5 END-OF-LIFE STAGE SCENARIO FOR 100% RECYCLING

### Potential environmental impact – mandatory indicators according to EN 15804+A2 (version EF 3.1)

Results per declared unit: 1 kg of product							
Indicator	Unit	C1	C2	C3	C4	D	
Global warming potential (GWP)	Climate Change - fossil	kg CO <sub>2</sub> eq	3.7E-04	8.7E-03	3.8E-03	0.0E+00	-2.0E-01
	Climate Change - biogenic	kg CO <sub>2</sub> eq	3.7E-07	1.9E-05	1.1E-05	0.0E+00	4.3E-05
	Climate Change - land use and land use change (LULUC)	kg CO <sub>2</sub> eq	1.5E-06	8.6E-05	1.4E-05	0.0E+00	-2.7E-05
	Climate Change - total	kg CO <sub>2</sub> eq	3.7E-04	8.8E-03	3.8E-03	0.0E+00	-2.0E-01
Depletion potential of the stratospheric ozone layer (ODP)		kg CFC-11 eq	7.0E-17	9.8E-16	3.2E-14	0.0E+00	2.7E-13
Acidification potential (AP)		mole H+ eq	3.1E-06	1.3E-05	2.8E-05	0.0E+00	-5.0E-04
Eutrophication potential (EP)	Freshwater	kg P eq	8.7E-10	2.3E-08	8.0E-09	0.0E+00	-4.7E-08
	Marine	kg N eq	1.5E-06	5.2E-06	1.3E-05	0.0E+00	-8.0E-05
	Terrestrial	mole N eq	1.7E-05	5.5E-05	1.4E-04	0.0E+00	-7.2E-04
Formation potential of tropospheric ozone (POCP)		kg NMVOC eq	4.1E-06	1.1E-05	3.6E-05	0.0E+00	-3.2E-04
Abiotic depletion potential (ADP)	Minerals and metals*	kg Sb eq	2.5E-11	5.5E-10	3.9E-10	0.0E+00	-1.2E-06
	Fossil resources*	MJ	4.4E-03	1.1E-01	5.1E-02	0.0E+00	-2.0E+00
Water scarcity potential (WDP)*		m <sup>3</sup>	1.2E-06	3.3E-05	1.5E-04	0.0E+00	-1.4E-02

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Note: Biogenic carbon in packaging is balanced in A1 – A3.

### Additional mandatory and voluntary impact category indicators

Results per declared unit: 1 kg of product							
Indicator	Unit	C1	C2	C3	C4	D	
Global warming potential (GWP)	GWP-GHG <sup>(1)</sup>	kg CO <sub>2</sub> eq	3.7E-04	8.8E-03	3.8E-03	0.0E+00	-2.0E-01

(1) This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the characterisation factor for biogenic CO<sub>2</sub> is set to zero.

### Resource use indicators

Results per declared unit: 1 kg of product							
Indicator	Unit	C1	C2	C3	C4	D	
Primary energy resources – Renewable	Used as energy carrier (PERE)	MJ	3.1E-04	7.8E-03	1.3E-02	0.0E+00	8.0E-02
	Used as raw materials (PERM)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total (PERT)	MJ	3.1E-04	7.8E-03	1.3E-02	0.0E+00	8.0E-02
Primary energy resources – Non-renewable	Used as energy carrier (PENRE)	MJ	4.4E-03	1.1E-01	5.1E-02	0.0E+00	-2.0E+00
	Used as raw materials (PENRM)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total (PENRT)	MJ	4.4E-03	1.1E-01	5.1E-02	0.0E+00	-2.0E+00
Use of secondary material (SM)		kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of renewable secondary fuels (RSF)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of non renewable secondary fuels (NRSF)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Net use of fresh water (FW)		m <sup>3</sup>	9.0E-08	3.8E-06	7.3E-06	0.0E+00	-2.1E-02

Note: Primary energy calculated using PCR option B.

## Waste indicators

Results per declared unit: 1 kg of product						
Indicator	Unit	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	1.9E-13	3.9E-12	2.2E-11	0.0E+00	-1.5E-08
Non-hazardous waste disposed (NHWD)	kg	8.2E-07	1.4E-05	1.9E-05	0.0E+00	2.4E-02
Radioactive waste disposed (RWD)	kg	4.7E-09	1.4E-07	1.9E-06	0.0E+00	2.2E-07

## Output indicators

Results per declared unit: 1 kg of product						
Indicator	Unit	C1	C2	C3	C4	D
Components for re-use (CRU)	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for recycling (MFR)	kg	0.0E+00	0.0E+00	1.0E+00	0.0E+00	0.0E+00
Material for energy recovery (MER)	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported electrical energy (EEE)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported thermal energy (EET)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

## 4.6 END-OF-LIFE STAGE SCENARIO FOR 100% LANDFILL

### Potential environmental impact – mandatory indicators according to EN 15804+A2 (version EF 3.1)

Results per declared unit: 1 kg of product							
Indicator	Unit	C1	C2	C3	C4	D	
Global warming potential (GWP)	Climate Change - fossil	kg CO <sub>2</sub> eq	3.7E-04	8.7E-03	0.0E+00	5.4E-04	0.0E+00
	Climate Change - biogenic	kg CO <sub>2</sub> eq	3.7E-07	1.9E-05	0.0E+00	5.3E-07	0.0E+00
	Climate Change - land use and land use change (LULUC)	kg CO <sub>2</sub> eq	1.5E-06	8.6E-05	0.0E+00	2.1E-06	0.0E+00
	Climate Change - total	kg CO <sub>2</sub> eq	3.7E-04	8.8E-03	0.0E+00	5.4E-04	0.0E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq	7.0E-17	9.8E-16	0.0E+00	1.0E-16	0.0E+00	
Acidification potential (AP)	mole H <sup>+</sup> eq	3.1E-06	1.3E-05	0.0E+00	4.5E-06	0.0E+00	
Eutrophication potential (EP)	Freshwater	kg P eq	8.7E-10	2.3E-08	0.0E+00	1.3E-09	0.0E+00
	Marine	kg N eq	1.5E-06	5.2E-06	0.0E+00	2.2E-06	0.0E+00
	Terrestrial	mole N eq	1.7E-05	5.5E-05	0.0E+00	2.4E-05	0.0E+00
Formation potential of tropospheric ozone (POCP)	kg NMVOC eq	4.1E-06	1.1E-05	0.0E+00	6.0E-06	0.0E+00	
Abiotic depletion potential (ADP)	Minerals and metals*	kg Sb eq	2.5E-11	5.5E-10	0.0E+00	3.6E-11	0.0E+00
	Fossil resources*	MJ	4.4E-03	1.1E-01	0.0E+00	6.4E-03	0.0E+00
Water scarcity potential (WDP)*	m <sup>3</sup>	1.2E-06	3.3E-05	0.0E+00	1.7E-06	0.0E+00	

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Note: Biogenic carbon in packaging is balanced in A1 – A3.

## Additional mandatory and voluntary impact category indicators

Results per declared unit: 1 kg of product							
Indicator		Unit	C1	C2	C3	C4	D
Global warming potential (GWP)	GWP-GHG <sup>(1)</sup>	kg CO <sub>2</sub> eq	3.7E-04	8.8E-03	0.0E+00	5.4E-04	0.0E+00

(1) This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the characterisation factor for biogenic CO<sub>2</sub> is set to zero.

## Resource use indicators

Results per declared unit: 1 kg of product							
Indicator		Unit	C1	C2	C3	C4	D
Primary energy resources – Renewable	Used as energy carrier (PERE)	MJ	3.1E-04	7.8E-03	0.0E+00	4.5E-04	0.0E+00
	Used as raw materials (PERM)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total (PERT)	MJ	3.1E-04	7.8E-03	0.0E+00	4.5E-04	0.0E+00
Primary energy resources – Non-renewable	Used as energy carrier (PENRE)	MJ	4.4E-03	1.1E-01	0.0E+00	6.5E-03	0.0E+00
	Used as raw materials (PENRM)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total (PENRT)	MJ	4.4E-03	1.1E-01	0.0E+00	6.5E-03	0.0E+00
Use of secondary material (SM)		kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of renewable secondary fuels (RSF)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of non renewable secondary fuels (NRSF)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Net use of fresh water (FW)		m <sup>3</sup>	9.0E-08	3.8E-06	0.0E+00	1.3E-07	0.0E+00

Note: Primary energy calculated using PCR option B.

## Waste indicators

Results per declared unit: 1 kg of product							
Indicator		Unit	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)		kg	1.9E-13	3.9E-12	0.0E+00	2.7E-13	0.0E+00
Non-hazardous waste disposed (NHWD)		kg	8.2E-07	1.4E-05	0.0E+00	1.2E-06	0.0E+00
Radioactive waste disposed (RWD)		kg	4.7E-09	1.4E-07	0.0E+00	6.8E-09	0.0E+00

## Output indicators

Results per declared unit: 1 kg of product							
Indicator		Unit	C1	C2	C3	C4	D
Components for re-use (CRU)		kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for recycling (MFR)		kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Material for energy recovery (MER)		kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported electrical energy (EEE)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported thermal energy (EET)		MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

# 5. Abbreviations

Abbreviation	Definition
EPD	Environmental product declaration
PCR	Product category rules
LCA	Life cycle assessment
EN	European norm (Standard)
ISO	International Organization for Standardization
Q&T	Quenched & tempered
AHSS	Advanced high-strength steel
OEM	Original equipment manufacturer
EAf	Electric arc furnace
CEN	European Committee for Standardization
CPC	Central product classification
EU	Europe
SE	Sweden
FI	Finland
GLO	Global
ND	Not declared
SVHC	Substances of Very High Concern

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# 6. References

- General Programme Instructions of the International EPD® System. Version 5.0.0.
- PCR 2019:14 Construction products. Version 2.0.1 (2025-06-05)
- CEN European Committee for Standardisation (2021). EN15804:2012+A2:2019/AC:2021 (CEN 2021), Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.
- LCA for experts Software System and database for Life Cycle Engineering, sphera, Leinfelden-Echterdingen, Germany
- Lindbäck, E., LCA methodology report – SSAB Zero steel, as basis for the publication of EPDs within the International EPD® System, April 2026

# 7. Version history

Original version of the EPD, version 001.

