Environmental Product Declaration

In accordance with EN 15804+A2 & ISO 14025 / ISO 21930

Steel Beam

Smederna Sverige AB

Programme: The International EPD® System, www.environdec.com	Programme operator: **EPD International AB**	EPD registration number:S-P-04783	Publication date: 2021-11-24	Valid until: 2026-11-23

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Smederna Sverige AB
Address	Skyttbrinksvägen 12, 147 39 Tumba
Contact details	smederna@smederna.se
Website	www.smederna.se

PRODUCT IDENTIFICATION

Product name	Steel Beam
Place(s) of production	Tumba, Sweden
CPC code	4219 - Other structures (except prefabricated buildings) and parts of structures, of iron, steel or aluminium; plates, rods, angles, shapes, sections, profiles, tubes and the like, prepared for use in structures, of iron, steel or aluminium; props and similar equipment for scaffolding, shuttering or pitpropping.

The International EPD System

EPDs within the same product category but from different programmes may not be comparable.

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	The International EPD system
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the Int'l EPD System PCR 2019:14 Construction products, version 1.11 (2021.02.05) is used.
EPD author	Thommy Nyström, Smederna Sverige AB,
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verification date	2021-11-24
EPD verifier	Sergio A. Ballén Zamora
EPD number	S-P-04783
ECO Platform nr.	-
Publishing date	2021-11-26
EPD valid until	2026-11-25

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Steel beams are used as load-bearing structures and are manufactured in varying dimensions to fit in different types of buildings and conditions. The finished steel beams are purchased, and further processing is done by Smederna's (Sweden) before they are transported and assembled on construction sites to form the primary framework of the buildings.

PRODUCT APPLICATION

Due to its proven strength and durability, steel beams form the fundamental frames for the buildings and so it can be used as columns, support trusses and other critical load bearing structures.

TECHNICAL SPECIFICATIONS

The material quality used is steel up to S355.

PRODUCT STANDARDS

The requirements in EN1090-2: 2018 are applied and the steel structures can be manufactured in design classes up to EXC4

PHYSICAL PROPERTIES OF THE PRODUCT

More technical data and information is available if needed in our steel workshop in Tumba.

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at www.smederna.se.

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Virgin Steel	0,97	-	-	EU
Recycled Steel	0,02	100	-	EU
Welding filler metal	<0,1	-	-	EU
Alkyd paint	<0,1	-	-	EU
Zinc coating	<0,1	-	-	EU

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

Steel beams are procured from the external supplier (Tibnor, Sweden) as a finished product. Then the steel beams are cut and drilled, and for the most of the final products steel beams are welded and combined with the different steel components in Smederna's manufacturing unit (Sweden), based on the customer requirements. The welding process consumes welding fillers, and the gases are used as shielding agent. The steel beams are then loaded for shipping and sent to building site. In some cases, steel bars are galvanized, and complementary painting is applied. There is no other relevant secondary material used in the production supply. The manufacturing process requires electricity and fuels for the different equipment. The steel waste produced at the plant is directed into recycling.

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.

Average distance of transportation from production plant to building site is assumed as 60 km and the transportation method is assumed to be lorry. Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly.

Density of the product is 7850 kg/m3, however bulk density varies depending on product type and thickness. Therefore, the average loss due to the openings both in the product itself and between the nested products is assumed as 10%; accordingly, bulk density is calculated as an approximate 7000 kg/m3.

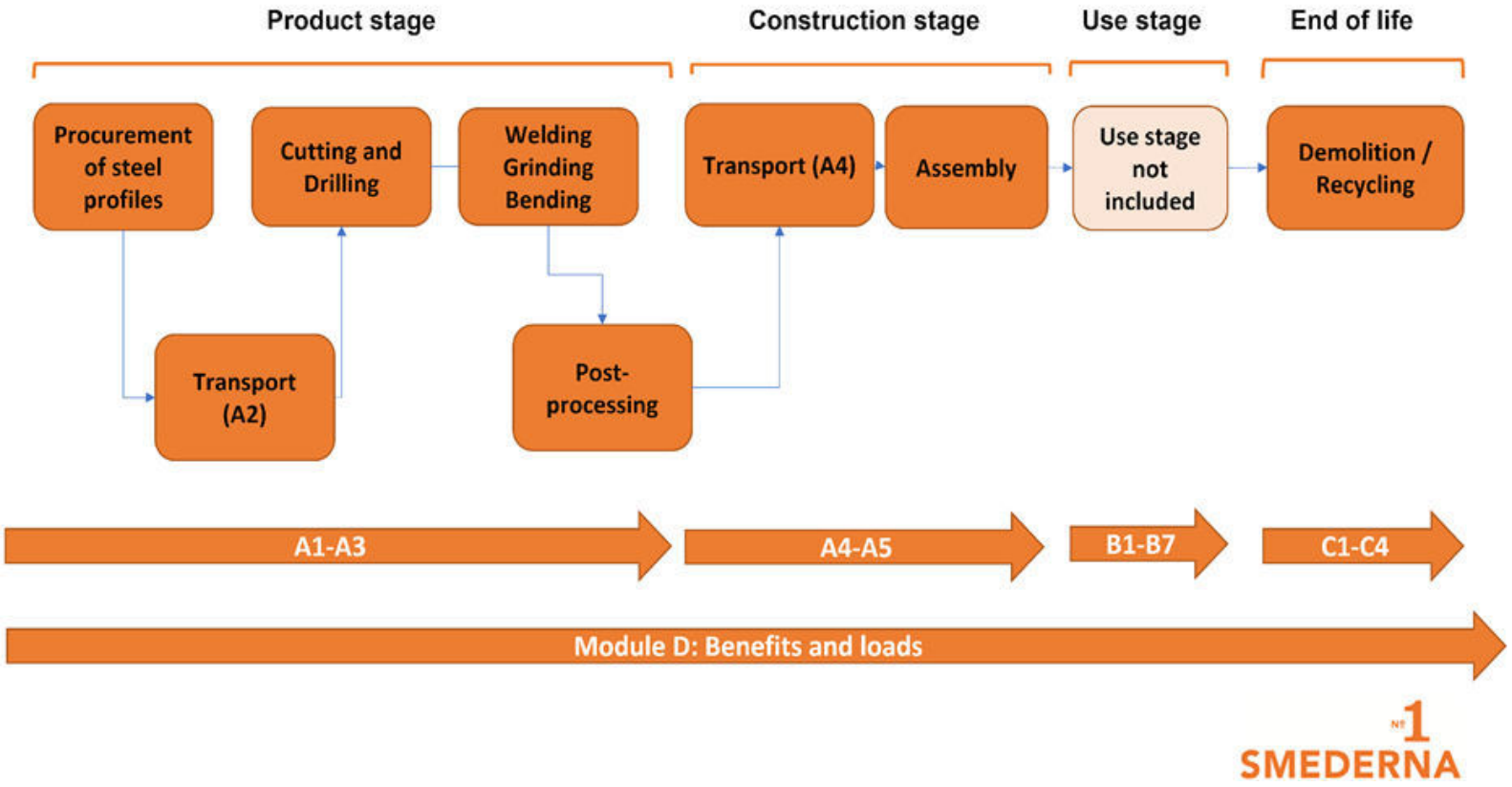
PRODUCT USE AND MAINTENANCE (B1-B7)

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)

The energy for the demolition is assumed to be taken as 0,01 kWh/kg of product. The source of energy is diesel fuel used by construction machines (C1). It is assumed that 100% of the waste is collected and transported to the waste treatment centre in Sweden. Distance for transportation to treatment is assumed as 18 km and the transportation method is assumed to be lorry (C2). Approximately 95% of steel is assumed to be recycled based on World Steel Association, 2020 (C3). It is assumed that the rest 5 % of steel bars are taken to landfill for final disposal (C4). Due to the recycling potential of the steel materials, the benefits and loads of the steel bars are considered in module D.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2020

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 kg
Mass per declared unit	1

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0,0001

SYSTEM BOUNDARY

This EPD covers the *cradle to gate with options* scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

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	D	D
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Geography, by two-letter ISO country code or regions. The International EPD System only.																		
EU	EU	EU	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	EU		
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.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and The International EPD System Construction Products 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 which data are available for are included in the calculation. There is no neglected unit process more than 1% of total mass and energy flows. The total neglected input and output flows do also not exceed 5% of energy usage or mass. The life cycle analysis includes all industrial processes from

raw material acquisition to production, distribution and end-of-life stages.

For easier modelling and because of lack of accuracy in available modelling resources many constituents under 0,1% of product mass are excluded. These include some ancillary materials which are all present in the product only in very small amounts and have no serious impact on the emissions of the product.

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.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.

3. Allocation should be based on economic values.

As it is impossible to collect raw material, ancillary material, energy consumption and waste production data separately for each product produced the in the plant, data is allocated. Allocation is based on annual production rate.

The values for 1 kilogram of steel beam are calculated by considering the total product weight per annual production. In the factory, several kinds of steel produts are produced; since the production processes of these products are very similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total raw materials, energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the product output fixed to 1 kg and the corresponding amount of product is used in the calculations.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs. Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology ‘allocation, cut-off by classification’. This methodology is in line with the requirements of the EN 15804 -standard.

AVERAGES AND VARIABILITY

The International EPD System additional data requirements

Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	>90 %
Variation in GWP-GHG between products	<10%
Variation in GWP-GHG between sites	-

ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

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	kg CO2e	7,02E-1	1,21E-2	3,88E-2	7,52E-1	5,42E-3	2,92E-3	MND	MND	MND	MND	MND	MND	MND	3,3E-3	1,64E-3	2,21E-2	2,64E-4	4,26E-2
GWP – fossil	kg CO2e	6,94E-1	1,21E-2	3,42E-2	7,41E-1	5,47E-3	3,3E-3	MND	MND	MND	MND	MND	MND	MND	3,3E-3	1,64E-3	2,34E-2	2,63E-4	4,33E-2
GWP – biogenic	kg CO2e	4,87E-3	8,72E-6	4,53E-3	9,4E-3	3,97E-6	-3,83E-4	MND	MND	MND	MND	MND	MND	MND	9,17E-7	1,19E-6	-1,34E-3	5,22E-7	-6,74E-4
GWP – LULUC	kg CO2e	2,26E-3	3,64E-6	2,5E-5	2,29E-3	1,64E-6	2,86E-7	MND	MND	MND	MND	MND	MND	MND	2,79E-7	4,92E-7	2,66E-5	7,82E-8	-1,76E-6
Ozone depletion pot.	kg CFC11e	7,41E-8	2,83E-9	5,03E-9	8,2E-8	1,29E-9	7,13E-10	MND	MND	MND	MND	MND	MND	MND	7,12E-10	3,85E-10	3,37E-9	1,08E-10	1,14E-9
Acidification potential	mol H+e	3,8E-3	5,05E-5	9,91E-5	3,95E-3	2,3E-5	3,45E-5	MND	MND	MND	MND	MND	MND	MND	3,45E-5	6,87E-6	2,84E-4	2,5E-6	1,66E-4
EP-freshwater[2)]	kg Pe	4,24E-5	9,82E-8	1,14E-6	4,36E-5	4,45E-8	1,36E-8	MND	MND	MND	MND	MND	MND	MND	1,33E-8	1,33E-8	1,62E-6	3,18E-9	1,71E-6
EP-marine	kg Ne	6,98E-4	1,52E-5	1,84E-5	7,31E-4	6,92E-6	1,52E-5	MND	MND	MND	MND	MND	MND	MND	1,52E-5	2,07E-6	6,27E-5	8,61E-7	3,24E-5
EP-terrestrial	mol Ne	9,02E-3	1,68E-4	1,96E-4	9,38E-3	7,64E-5	1,67E-4	MND	MND	MND	MND	MND	MND	MND	1,67E-4	2,29E-5	7,28E-4	9,48E-6	3,4E-4
POCP (“smog”)	kg NMVOCe	2,95E-3	5,39E-5	6,49E-5	3,07E-3	2,46E-5	4,59E-5	MND	MND	MND	MND	MND	MND	MND	4,59E-5	7,35E-6	1,99E-4	2,75E-6	2,26E-4
ADP-minerals & metals	kg Sbe	4,65E-5	2,08E-7	9,34E-8	4,68E-5	9,33E-8	5,11E-9	MND	MND	MND	MND	MND	MND	MND	5,03E-9	2,79E-8	1,3E-6	2,41E-9	4,22E-8
ADP-fossil resources	MJ	1,16E1	1,88E-1	5,55E-1	1,23E1	8,5E-2	4,54E-2	MND	MND	MND	MND	MND	MND	MND	4,54E-2	2,54E-2	3,25E-1	7,36E-3	3,19E-1
Water use[1)]	m3e depr.	5,38E-1	6,96E-4	1,82E-2	5,57E-1	3,16E-4	8,51E-5	MND	MND	MND	MND	MND	MND	MND	8,46E-5	9,47E-5	4,61E-3	3,4E-4	6,16E-3

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) 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 experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e.

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	MJ	1,17E0	2,36E-3	6,82E-1	1,85E0	1,07E-3	2,46E-4	MND	MND	MND	MND	MND	MND	MND	2,45E-4	3,2E-4	5,1E-2	5,95E-5	-1,71E-2
Renew. PER as material	MJ	0E0	0E0	3,76E-3	3,76E-3	0E0	-3,79E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	1,17E0	2,36E-3	6,86E-1	1,86E0	1,07E-3	-3,55E-3	MND	MND	MND	MND	MND	MND	MND	2,45E-4	3,2E-4	5,1E-2	5,95E-5	-1,71E-2
Non-re. PER as energy	MJ	1,16E1	1,88E-1	5,55E-1	1,23E1	8,5E-2	4,54E-2	MND	MND	MND	MND	MND	MND	MND	4,54E-2	2,54E-2	3,25E-1	7,36E-3	3,19E-1
Non-re. PER as material	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

Total use of non-re. PER	MJ	1,16E1	1,88E-1	5,55E-1	1,23E1	8,5E-2	4,54E-2	MND	MND	MND	MND	MND	MND	MND	4,54E-2	2,54E-2	3,25E-1	7,36E-3	3,19E-1
Secondary materials	kg	8,85E-1	0E0	7,73E-5	8,85E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	-2,03E-2
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m3	6,91E-3	3,89E-5	1,45E-4	7,09E-3	1,77E-5	4,03E-6	MND	MND	MND	MND	MND	MND	MND	4,01E-6	5,3E-6	1,33E-4	8,05E-6	2,87E-4

6) 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	1,99E-1	1,82E-4	9,67E-4	2E-1	8,26E-5	4,92E-5	MND	MND	MND	MND	MND	MND	MND	4,88E-5	2,47E-5	0E0	6,87E-6	5,2E-3
Non-hazardous waste	Kg	1,94E0	2,01E-2	5,86E-2	2,02E0	9,14E-3	5,34E-4	MND	MND	MND	MND	MND	MND	MND	5,22E-4	2,74E-3	0E0	5E-2	5,83E-2
Radioactive waste	Kg	5,05E-5	1,29E-6	1,47E-6	5,33E-5	5,84E-7	3,18E-7	MND	MND	MND	MND	MND	MND	MND	3,18E-7	1,75E-7	0E0	4,87E-8	-2,38E-7

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	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	Kg	0E0	0E0	4,2E-3	4,2E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,5E-1	0E0	0E0
Materials for energy rec	Kg	0E0	0E0	0E0	0E0	0E0	4,74E-4	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO2e	6,94E-1	1,21E-2	3,42E-2	7,41E-1	5,47E-3	3,3E-3	MND	MND	MND	MND	MND	MND	MND	3,3E-3	1,64E-3	2,34E-2	2,63E-4	4,33E-2

8) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator Is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, hydro, run-of-river (Reference product: electricity, high voltage)
Electricity CO2e / kWh	0,0039
District heating data source and quality	Heat and power co-generation, natural gas, conventional power plant, 100mw electrical (Reference product: heat, district or industrial, natural gas)
District heating CO2e / kWh	0,00775

BIBLIOGRAPHY

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ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

Ecoinvent database v3.6 (2019) and One Click LCA database.

EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

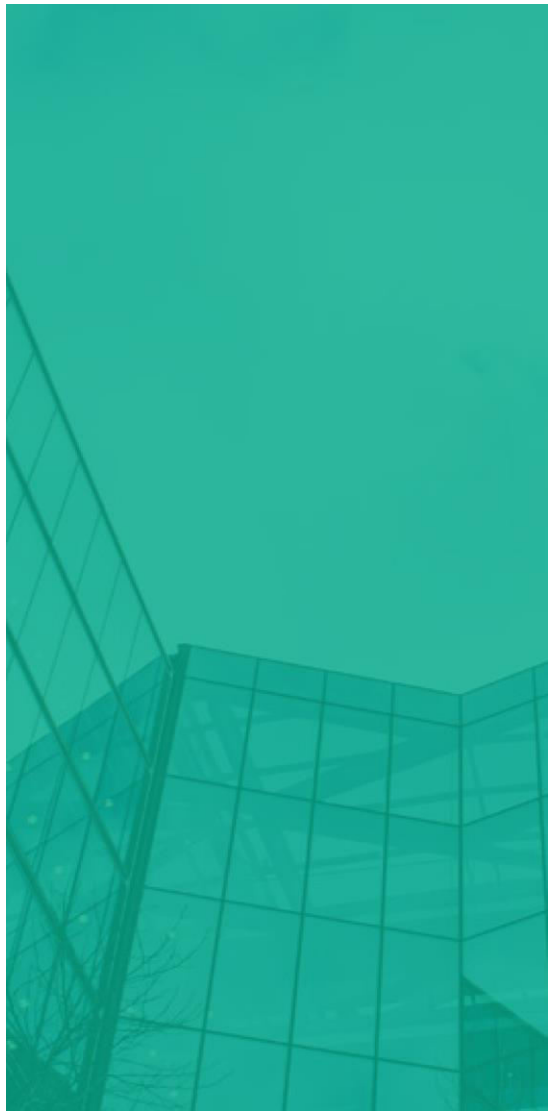
Int'l EPD System PCR 2019:14 Construction products, version 1.11 (2021.02.05)

Steel Beam LCA background report 2021.10.04

World Steel Association, 2020: https://www.worldsteel.org/publications/steel-reports.html

Tibnor Steel Beam: https://www.environdec.com/library/epd2043

Vattenfall's Hydropower: https://www.environdec.com/library/epd88



ABOUT THE MANUFACTURER

Smederna Sverige AB currently has around 100 employees and in 2019 our turnover was SEK 194 million. Every month, at least 300 tonnes of steel pass through Smedernas premises in Tumba. This makes us Mälardalen's largest forging company. With production around the clock, specially trained personnel, CNC controlled machines, our own Tekla department and trained assembly personnel, we are pioneers in the industry. We are certified according to: EN 1090-1, EN 1090-2 for EXC 1, 2, 3 and 4 and EN ISO 3834-2, 3 and 4 and may CE mark our products. This applies to the manufacture, delivery and assembly of steel structures and welded profiles. We are also certified for the environment ISO 14001.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Smederna Sverige AB
EPD author	Thommy Nyström, Smederna Sverige AB,
EPD verifier	Sergio A. Ballén Zamora
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Primary steel and aluminium and all metal based products

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 EN 15804, 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 background report (project report) for this EPD

Why does verification transparency matter? Read more online.

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Sergio A. Ballén Zamora
EPD verification started on	2021-10-22
EPD verification completed on	2021-11-24
Supply-chain specific data %	>90%
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	Thommy Nyström, Smederna Sverige AB
EPD author training completion	2021-05-10
EPD Generator module	Primary steel and aluminium and all metal-based products
Independent software verifier	Ugo Pretato, Studio Fieschi & soci Srl.
Software verification date	2021-05-11

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 EN 15804:2012+A2:2019. 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.

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Sergio A. Ballén Zamora

VERIFICATION AND REGISTRATION (ENVIRONDEC)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.11
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Third party verifier	Sergio A. Ballén Zamora
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	☐ yes ☑ no

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ANNEX 1 : 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 CO2e	6,79E-1	1,2E-2	3,4E-2	7,25E-1	5,42E-3	3,28E-3	MND	MND	MND	MND	MND	MND	MND	3,27E-3	1,62E-3	2,31E-2	2,58E-4	4,12E-2
Ozone depletion Pot.	kg CFC11e	6,78E-8	2,25E-9	4,14E-9	7,42E-8	1,02E-9	5,64E-10	MND	MND	MND	MND	MND	MND	MND	5,63E-10	3,06E-10	2,86E-9	8,59E-11	1,01E-9
Acidification	kg SO2e	2,67E-3	2,45E-5	8,64E-5	2,78E-3	1,11E-5	4,89E-6	MND	MND	MND	MND	MND	MND	MND	4,87E-6	3,33E-6	1,77E-4	1,04E-6	1,3E-4
Eutrophication	kg PO4 3e	1,61E-3	4,96E-6	4,37E-5	1,66E-3	2,25E-6	8,66E-7	MND	MND	MND	MND	MND	MND	MND	8,57E-7	6,72E-7	7,21E-5	2,02E-7	7,22E-5
POCP (“smog”)	kg C2H4e	2,58E-4	1,55E-6	4,83E-6	2,64E-4	7,05E-7	5,02E-7	MND	MND	MND	MND	MND	MND	MND	5,01E-7	2,11E-7	8,28E-6	7,64E-8	3,39E-5
ADP-elements	kg Sbe	4,65E-5	2,08E-7	9,34E-8	4,68E-5	9,33E-8	5,11E-9	MND	MND	MND	MND	MND	MND	MND	5,03E-9	2,79E-8	1,3E-6	2,41E-9	4,22E-8
ADP-fossil	MJ	1,16E1	1,88E-1	5,55E-1	1,23E1	8,5E-2	4,54E-2	MND	MND	MND	MND	MND	MND	MND	4,54E-2	2,54E-2	3,25E-1	7,36E-3	3,19E-1