

ENVIRONMENTAL PRODUCT DECLARATION

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

Welded and surface treated steel beams
AB Västanfors Industrier



Programme: The international EPD® system, www.environdec.com

Programme operator: EPD International AB

EPD registration number: S-P-08873

Publication date: 2024-02-16

Valid until: 2029-02-14

Revision date: 2024-05-22 (Version 1.1)

Geographical scope: Sweden

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	AB Västanfors Industrier
Address	Södra Linjan 1, 737 30 Fagersta
Contact details	fagersta@vastanfors.se
Website	www.vastanfors.se

PRODUCT IDENTIFICATION

Product name	Welded and surface treated steel beams
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 manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

EPD INFORMATION

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 1.3.2 (Preverified) is used.
Scope of the EPD	Cradle to gate with options A4-A5 and modules C1-C4, D
EPD author	Emma Ziegenhagen, AB Västanfors Industrier
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
Verification date	2024-02-14
EPD verifier	Daniel Böckin, Miljögiraff AB, daniel@miljogiraff.se
EPD number	S-P-08873
Publishing date	2024-02-16
EPD valid until	2029-02-14

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Load bearing steel structures for buildings. Manufactured in a range of different profiles and dimensions, with added steel plates and details as needed for the specific structure.

PRODUCT APPLICATION

Steel beams, columns and trusses used as parts of different load bearing structures, mainly used as building frames.

TECHNICAL SPECIFICATIONS

Material quality up to S355.

PRODUCT STANDARDS

Product is manufactured according to SS-EN 1090-2:2018, in design classes up to EXC3.

PHYSICAL PROPERTIES OF THE PRODUCT

For additional data or information, please contact our workshop in Fagersta.

ADDITIONAL TECHNICAL INFORMATION

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

VERSION DIFFERENCES

2024-02-16 Version 1

2024-05-22 Version 1.1

Environmental impact indicators updated because of a change in EPD used for raw materials.

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-%	Biogenic material, kg C/DU
Steel	0,98	62	0	0
Epoxy paint	0,01	-	-	-
Alkyd paint	<0,01	-	-	-
Welding material	<0,01	-	-	-
Packaging material	<0,01	-	-	-

PRODUCT RAW MATERIAL MAIN COMPOSITION

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

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

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.

However, since our main product is steel and it requires minimal packaging, any waste other than steel is assumed to be negligible because of the low quantities.

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. Installation (A5) is modelled as installation of a typical steel structure in a building. Fossil fuel for building machinery is included.

Average distance of transportation from production plant to building site is estimated at 281 km and the transportation method is lorry. Vehicle capacity utilization volume factor is assumed to be 100% 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 considered 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 well secured.

Installation consumes 0.01 kWh of energy to assemble 1 kilogram of steel beam.

PRODUCT USE AND MAINTENANCE (B1-B7)

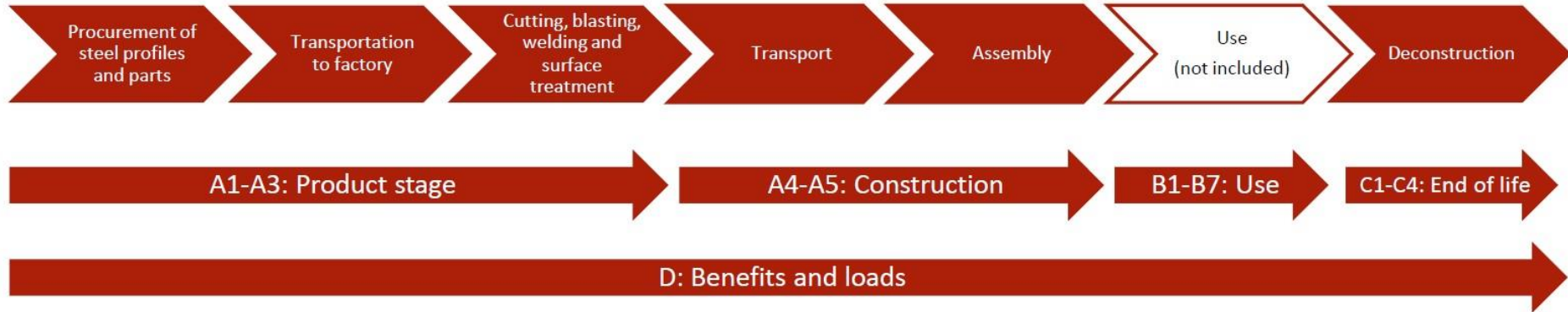
This EPD does not cover the use phase.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The energy required for demolition is assumed to be 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 a waste treatment centre. Distance for transportation to treatment is assumed as 20 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 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	2022
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DECLARED AND FUNCTIONAL UNIT

Declared unit	1
Mass per declared unit	1 kg

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	-

SYSTEM BOUNDARY

This EPD covers 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	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x	x	x	
Geography, by two-letter ISO country code or regions. The International EPD System only.																			
SE	SE	SE	SE	SE	-	-	-	-	-	-	-	SE	SE	SE	SE	SE			
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Operational	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = ND. Modules not relevant = NR.

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 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.

For easier modeling and because the total impact is so low, any materials present in quantities at or below 1% of total product mass, have been left out. This includes paint, welding materials and packaging materials.

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, energy consumption and waste production data separately for each beam produced in the plant, data is allocated. Allocation has been done either by mass or volume.

The values for 1 kg of steel beam are calculated by considering the total product weight per annual production.

Module A1: Raw material composition is an average value calculated using total annual material consumption for the product by mass.

Module A4: Transportation from the manufacturing site to the building site has been averaged by total number of transportations and the total transported distance during the year.

Module A5: Assembly/Installation is modelled as installation of a typical steel structure in a building. Fossil fuel for building machinery is included. It is assumed that the waste is insignificant during the assembly process.

Module C2: It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed to have the same weight as the declared product.

The allocations in the Ecoinvent 3.8 datasets used in this study follow the Ecoinvent system model 'Allocation, cut-off, EN15804'.

AVERAGES AND VARIABILITY

Primary data represents the manufacturing of painted steel structures. The data was used to calculate average impacts for the products.

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	%
Variation in GWP-GHG between sites	- %

ENVIRONMENTAL IMPACT DATA

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. It is discouraged to use the results of modules A1-A3 without considering the results of module C. Additional impact categories are reported in the LCA but not included in the EPD. The primary energy use indicators were calculated using option A.

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

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	1,48E+00	4,67E-02	3,31E-03	ND	ND	ND	ND	ND	ND	ND	3,31E-03	4,70E-03	2,09E-02	2,64E-04	-3,54E-01
GWP – fossil	kg CO ₂ e	1,38E+00	4,67E-02	3,31E-03	ND	ND	ND	ND	ND	ND	ND	3,31E-03	4,69E-03	2,08E-02	2,63E-04	-3,54E-01
GWP – biogenic	kg CO ₂ e	9,27E-02	1,86E-05	6,06E-07	ND	ND	ND	ND	ND	ND	ND	6,06E-07	1,81E-06	9,22E-05	1,72E-07	2,93E-04
GWP – LULUC	kg CO ₂ e	9,93E-04	1,83E-05	3,30E-07	ND	ND	ND	ND	ND	ND	ND	3,30E-07	1,73E-06	2,73E-05	2,49E-07	3,27E-05
Ozone depletion pot.	kg CFC ₁₁ e	1,27E-07	1,08E-08	7,07E-10	ND	ND	ND	ND	ND	ND	ND	7,07E-10	1,08E-09	2,57E-09	1,07E-10	-1,26E-08
Acidification potential	mol H ⁺ e	8,04E-03	1,90E-04	3,44E-05	ND	ND	ND	ND	ND	ND	ND	3,44E-05	1,99E-05	2,64E-04	2,48E-06	-1,12E-03
EP-freshwater ²⁾	kg Pe	1,18E-06	3,28E-07	1,10E-08	ND	ND	ND	ND	ND	ND	ND	1,10E-08	3,84E-08	1,12E-06	2,76E-09	-1,48E-05
EP-marine	kg Ne	1,61E-03	5,66E-05	1,52E-05	ND	ND	ND	ND	ND	ND	ND	1,52E-05	5,90E-06	5,58E-05	8,57E-07	-2,67E-04
EP-terrestrial	mol Ne	2,00E-02	6,24E-04	1,67E-04	ND	ND	ND	ND	ND	ND	ND	1,67E-04	6,51E-05	6,45E-04	9,43E-06	-3,14E-03
POCP (“smog”) ³⁾	kg NMVOCe	6,92E-03	1,91E-04	4,59E-05	ND	ND	ND	ND	ND	ND	ND	4,59E-05	2,08E-05	1,77E-04	2,74E-06	-1,97E-03
ADP-minerals & metals ⁴⁾	kg Sbe	3,90E-06	1,66E-07	1,68E-09	ND	ND	ND	ND	ND	ND	ND	1,68E-09	1,10E-08	2,80E-06	6,05E-10	-4,50E-08
ADP-fossil resources	MJ	1,68E+01	6,93E-01	4,45E-02	ND	ND	ND	ND	ND	ND	ND	4,45E-02	7,05E-02	2,82E-01	7,22E-03	-2,79E+00
Water use ⁵⁾	m ³ e depr.	1,80E+00	3,21E-03	1,20E-04	ND	ND	ND	ND	ND	ND	ND	1,20E-04	3,15E-04	5,47E-03	2,29E-05	-5,44E-02

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-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	2,39E+00	9,94E-03	2,54E-04	ND	ND	ND	ND	ND	ND	ND	2,54E-04	7,94E-04	5,00E-02	6,27E-05	1,28E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	2,39E+00	9,94E-03	2,54E-04	ND	ND	ND	ND	ND	ND	ND	2,54E-04	7,94E-04	5,00E-02	6,27E-05	1,28E-01
Non-re. PER as energy	MJ	2,02E+01	6,93E-01	4,45E-02	ND	ND	ND	ND	ND	ND	ND	4,45E-02	7,05E-02	2,82E-01	7,22E-03	-2,79E+00
Non-re. PER as material	MJ	7,00E-03	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	2,02E+01	6,93E-01	4,45E-02	ND	ND	ND	ND	ND	ND	ND	4,45E-02	7,05E-02	2,82E-01	7,22E-03	-2,79E+00
Secondary materials	kg	6,51E-01	2,32E-04	1,74E-05	ND	ND	ND	ND	ND	ND	ND	1,74E-05	1,96E-05	3,14E-04	1,52E-06	2,69E-01
Renew. secondary fuels	MJ	4,17E-03	2,56E-06	5,70E-08	ND	ND	ND	ND	ND	ND	ND	5,70E-08	1,97E-07	1,63E-05	3,96E-08	1,26E-05
Non-ren. secondary fuels	MJ	4,41E-05	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	2,07E-02	8,72E-05	2,70E-06	ND	ND	ND	ND	ND	ND	ND	2,70E-06	9,13E-06	1,65E-04	7,90E-06	-1,11E-04

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	5,72E-02	7,78E-04	5,96E-05	ND	ND	ND	ND	ND	ND	ND	5,96E-05	9,34E-05	1,92E-03	0,00E+00	1,96E-02
Non-hazardous waste	kg	7,48E-01	1,38E-02	4,19E-04	ND	ND	ND	ND	ND	ND	ND	4,19E-04	1,54E-03	6,12E-02	5,00E-02	-5,20E-01
Radioactive waste	kg	4,90E-04	4,78E-06	3,13E-07	ND	ND	ND	ND	ND	ND	ND	3,13E-07	4,71E-07	1,65E-06	0,00E+00	4,62E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	3,08E-06	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,55E-03	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	1,80E-03	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,48E+00	4,67E-02	3,31E-03	ND	ND	ND	ND	ND	ND	ND	3,31E-03	4,70E-03	2,09E-02	2,64E-04	-3,54E-01
ADP-minerals & metals	kg Sbe	4,26E-06	1,62E-07	1,65E-09	ND	ND	ND	ND	ND	ND	ND	1,65E-09	1,07E-08	2,80E-06	5,96E-10	-4,85E-08
ADP-fossil	MJ	1,90E+01	6,93E-01	4,45E-02	ND	ND	ND	ND	ND	ND	ND	4,45E-02	7,05E-02	2,82E-01	7,22E-03	-2,79E+00
Water use	m ³ e depr.	1,80E+00	3,21E-03	1,20E-04	ND	ND	ND	ND	ND	ND	ND	1,20E-04	3,15E-04	5,47E-03	2,29E-05	-5,44E-02
Secondary materials	kg	6,51E-01	2,32E-04	1,74E-05	ND	ND	ND	ND	ND	ND	ND	1,74E-05	1,96E-05	3,14E-04	0,00E+00	2,69E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ¹⁰⁾	kg CO ₂ e	1,38E+00	4,67E-02	3,31E-03	ND	ND	ND	ND	ND	ND	ND	3,31E-03	4,69E-03	2,08E-02	2,63E-04	-3,54E-01

10) 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). In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.3.2 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO₂ is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, Sweden
Electricity CO ₂ e / kWh	0,0418
District heating data source and quality	District Heat, Sweden
District heating CO ₂ e / kWh	0,0345

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO ₂ e emissions, kg CO ₂ e / tkm	0,17
Average transport distance, km	281
Capacity utilization (including empty return) %	90
Bulk density of transported products	7000
Volume capacity utilization factor	1

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	1
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0,95
Recovery process – kg for energy	0
Disposal (total) – kg for final deposition	0,05
Scenario assumptions e.g. transportation	End-of-life product is transported 50 km with an average lorry

BIBLIOGRAPHY

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 v3.8 (2021) 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 1.3.2 (Preverified)

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.

EPD International (2021). General Programme Instructions of the international EPD® system. Version 4.0. www.environdec.com.

World Steel Association, 2020.

BE Group Sverige AB, EPD S-P-02936, EPD S-P-04888

Welded and surface treated steel beams LCA background report 13.05.2024

ABOUT THE MANUFACTURER

Since the foundation of the company in 1953, Västanfors have built over 7000 steel frame buildings, everything from small warehouses to large, structurally complicated arenas, and our buildings can be found all over Sweden.

One of the company's large strengths have always been the in-house competence. With its own salesmen, engineers, workshop- and assembly personnel, the whole building chain is managed by Västanfors own employees.

Manufacturer	AB Västanfors Industrier
EPD author	Emma Ziegenhagen, AB Västanfors Industrier
EPD verifier	Daniel Böckin, Miljögiraff AB, daniel@miljogiraff.se
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.8 (Allocation, cut-off, EN15804) 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

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	Daniel Böckin, Miljögiraff AB,
EPD verification started on	2024-01-02
EPD verification completed on	2024-02-14
Supply-chain specific data %	>90
Approver of the EPD verifier	The International EPD System
Author & tool verification	Answer
EPD author	Emma Ziegenhagen, AB Västanfors
EPD author training completion	2021-03-18
EPD Generator module	Primary steel and aluminium
Independent software verifier	Ugo Pretato and Elia Rillo - Studio Fieschi & Soci Srl.
Software verification date	5 January 2024

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.

Daniel Böckin, Miljögiraff AB, daniel@miljogiraff.se

VERIFICATION AND REGISTRATION (INTERNATIONAL EPD SYSTEM)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.3.2
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: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
Third party verifier	Daniel Böckin, Miljögiraff AB, daniel@miljogiraff.se
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no



THE INTERNATIONAL EPD® SYSTEM

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ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	1,62E+00	4,63E-02	3,27E-03	ND	ND	ND	ND	ND	ND	ND	3,27E-03	4,64E-03	2,05E-02	2,58E-04	-3,32E-01
Ozone depletion Pot.	kg CFC ₋₁₁ e	3,73E-08	8,57E-09	5,60E-10	ND	ND	ND	ND	ND	ND	ND	5,60E-10	8,55E-10	2,08E-09	8,43E-11	-1,59E-08
Acidification	kg SO ₂ e	4,77E-03	1,47E-04	2,45E-05	ND	ND	ND	ND	ND	ND	ND	2,45E-05	1,54E-05	2,13E-04	1,87E-06	-8,83E-04
Eutrophication	kg PO ₄ ³ e	9,43E-04	3,34E-05	5,69E-06	ND	ND	ND	ND	ND	ND	ND	5,69E-06	3,52E-06	7,05E-05	4,03E-07	-5,71E-04
POCP ("smog")	kg C ₂ H ₄ e	5,81E-04	6,03E-06	5,36E-07	ND	ND	ND	ND	ND	ND	ND	5,36E-07	6,03E-07	8,07E-06	7,84E-08	-2,43E-04
ADP-elements	kg Sbe	4,26E-06	1,62E-07	1,65E-09	ND	ND	ND	ND	ND	ND	ND	1,65E-09	1,07E-08	2,80E-06	5,96E-10	-4,85E-08
ADP-fossil	MJ	1,90E+01	6,93E-01	4,45E-02	ND	ND	ND	ND	ND	ND	ND	4,45E-02	7,05E-02	2,82E-01	7,22E-03	-2,79E+00