epd-norge
The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Saferoad Sverige AB
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-3552-2145-EN
Registration number:	NEPD-3552-2145-EN
ECO Platform reference number:	-
Issue date:	02.06.2022
Valid to:	02.06.2027

Birsta WP Ground H2 / W3 / H=1400 mm

Saferoad Sverige AB

SAFEROAD
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General information

Product:

Birsta WP Ground H2 / W3 / H=1400 mm

Owner of the declaration:

Saferoad Sverige AB
Contact person: Ulf Sköld
Phone: +46 70200648
e-mail: ulf.skold@saferoad.se

Program operator:

The Norwegian EPD Foundation
Pb. 5250 Majorstuen, 0303 Oslo
Phone: +47 23 08 80 00
e-mail: post@epd-norge.no

Manufacturer:

Saferoad Sverige AB

Declaration number:

NEPD-3552-2145-EN

Place of production:

Saferoad Sverige AB
Volvogatan 2 731 36 Köping
Sweden

ECO Platform reference number:

Management system:

ISO 9001:2015 and ISO 14001:2015, Sert no. 2615, AB, SE

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR
NPCR 013:2019 Part B for Steel and aluminium construction products

Organisation no:

556030-8073

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Issue date: 02.06.2022

Valid to: 02.06.2027

Declared unit:

1 m Birsta WP Ground H2 / W3 / H=1400 mm

Year of study:

2020

Declared unit with option:

A1,A2,A3,A4,A5,C1,C2,C3,C4,D

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Functional unit:

Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

Developer of EPD:

Ulf Sköld

Reviewer of company-specific input data and EPD:

Håkan Galin

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Individual third party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the proccess is reviewed annualy. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Martin Erlandsson, IVL Swedish Environmental Research Institute

(no signature required)

Approved:

Sign

Håkon Hauan, CEO EPD-Norge

Product

Product description:

A sleek and stylish bridge railing with W-profile as beams follower and pipe as top follower

Product specification

Materials	%
Steel	95
Zink	5

Technical data:

Streng class H2
Working width W3
ASI value B
Height 1400 mm
Width 240 mm
Post distance c/c 2000 mm
Class of snow removal resistance 3
CE certificate Yes

Market:

Sweden

Reference service life, product

50 years

Reference service life, building

50 yeras

LCA: Calculation rules

Declared unit:

1 m Birsta WP Ground H2 / W3 / H=1400 mm

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

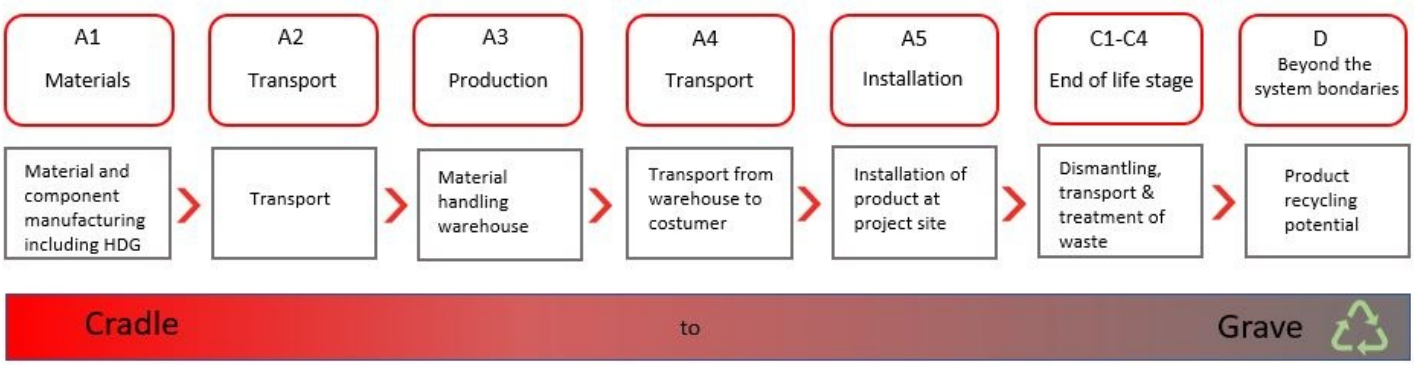
The allocation of production data is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Steel	Modified ecoinvent 3.5 and 3.6	Database	2020

System boundary:



Additional technical information:

The product is hot-dip galavanized in accordance with ISO 1461 Na1 Fe/Zn 115 in order to maintain a long service life along the road.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	55,0 %	Truck, over 32 tonnes, EURO 6 (kgkm)	200	0,022606	l/tkm	4,52
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
Output materials from waste treatment	kg	
Dust in the air	kg	
VOC emissions	kg	

End of Life (C1, C3, C4)

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction waste	kg	
Reuse	kg	
Recycling	kg	47,5200
Energy recovery	kg	
To landfill	kg	0,4800

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	55,0 %	Truck, over 32 tonnes, EURO 6 (kgkm)	200	0,022606	l/tkm	4,52
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

..

Benefits and loads beyond the system boundaries (D)

.	Unit	Value
Substitution of primary steel, with net scrap steel (kg)	kg	46,08

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		User stage							End of life stage				.	Beyond the system bondaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal		Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	.	D
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	.	X

Environmental impact

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	4,72E+02	8,32E-01	9,96E-01	9,96E-01	8,32E-01	9,50E-03	2,49E-03	-7,71E+01
ODP	kg CFC11 -eq	5,68E-05	1,63E-07	1,80E-07	1,80E-07	1,63E-07	1,05E-09	8,27E-10	-3,18E-06
POCP	kg C_2H_4-eq	1,31E-01	1,02E-04	2,00E-04	2,00E-04	1,02E-04	2,60E-06	7,59E-07	-5,38E-02
AP	kg SO_2 -eq	3,19E+00	1,74E-03	7,55E-03	7,55E-03	1,74E-03	5,93E-05	1,81E-05	-3,44E-01
EP	kg PO_4^{3-} -eq	6,30E-01	1,89E-04	1,62E-03	1,62E-03	1,89E-04	9,11E-06	3,20E-06	-1,15E-01
ADPM	kg Sb -eq	2,26E-02	1,49E-05	3,34E-07	3,34E-07	1,49E-05	7,13E-10	4,80E-11	-1,49E-03
ADPE	MJ	5,98E+03	1,36E+01	1,44E+01	1,44E+01	1,36E+01	8,84E-02	6,99E-02	-7,24E+02

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Resource use

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	3,07E+02	1,71E-01	8,26E-02	8,26E-02	1,71E-01	7,35E-01	5,71E-04	-6,53E+01
RPEM	MJ	2,91E+00	0,00E+00	-2,91E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	3,09E+02	1,71E-01	8,26E-02	8,26E-02	1,71E-01	7,35E-01	5,71E-04	-6,53E+01
NRPE	MJ	6,21E+03	1,37E+01	1,45E+01	1,45E+01	1,37E+01	1,19E-01	7,09E-02	-6,88E+02
NRPM	MJ	1,45E+00	0,00E+00	-1,45E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	6,21E+03	1,37E+01	1,45E+01	1,45E+01	1,37E+01	1,19E-01	7,09E-02	-6,88E+02
SM	kg	1,48E+00	4,69E-03	0,00E+00	0,00E+00	4,69E-03	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,48E+00	5,98E-03	0,00E+00	0,00E+00	5,98E-03	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	1,55E+00	2,00E-02	0,00E+00	0,00E+00	2,00E-02	0,00E+00	0,00E+00	0,00E+00
W	m^3	1,93E+02	1,55E-03	1,53E-03	1,53E-03	1,55E-03	4,90E-05	7,68E-05	-4,71E-01

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	1,47E+00	7,43E-04	6,47E-06	6,47E-06	7,43E-04	2,94E-07	1,06E-07	-6,67E-03
NHW	kg	1,96E+02	1,18E+00	6,95E-02	6,95E-02	1,18E+00	9,03E-03	4,80E-01	-1,32E+02
RW	kg	INA*	INA*	INA*	INA*	INA*	INA*	INA*	INA*

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Output flow

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	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
MR	kg	1,28E-01	6,57E-05	0,00E+00	0,00E+00	6,57E-05	4,75E+01	0,00E+00	0,00E+00
MER	kg	2,01E-02	4,06E-03	0,00E+00	0,00E+00	4,06E-03	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	INA*	INA*	INA*	INA*	INA*	INA*	INA*	INA*
ETE	MJ	INA*	INA*	INA*	INA*	INA*	INA*	INA*	INA*

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Additional Norwegian requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Data source	Amount	Unit
El-mix, Sweden (kWh)	ecoinvent 3.4 Alloc Rec	42,67	g CO2-ekv/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

Indoor environment

Bibliography

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epd-norge The Norwegian EPD Foundation	**Program operator and publisher** The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo,Norway	Phone: e-mail: web:	+47 23 08 80 00 post@epd-norge.no www.epd-norge.no
SAFEROAD Have a safe journey	**Owner of the declaration** Saferoad Sverige AB Volvogatan 2 731 36 Köping	Phone: e-mail: web:	+46 70200648 ulf.skold@saferoad.se www.saferoad.se
LCA.no	**Author of the Life Cycle Assessment** LCA.no AS Dokka 6B 1671 Kråkerøy	Phone: e-mail: web:	+47 916 50 916 post@lca.no www.lca.no
LCA.no	**Developer of EPD generator** LCA.no AS Dokka 1C,1671 Kråkerøy	Phone: e-mail: web:	+47 916 50 916 post@lca.no www.lca.no