epd-norge

Environmental product declaration

In accordance with ISO 14025 and EN 15804 +A2

Steel foundation for light- and charging poles

The Norwegian EPD Foundation

Owner of the declaration:
Pretec Norge AS

Declared unit:
1 kg Steel foundation for light- and charging poles

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

Product Category:

Program operator:
The Norwegian EPD Foundation

Declaration number:

Registration number:

ECO Platform reference number:

Issue date:
24.10.2022

Valid to:
07.11.2027

EPD Software:
LCA.no EPD generator

System ID:
26034

General information

Product

Steel foundation for light- and charging poles

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
Phone: +47 23 08 80 00
web: post@epd-norge.no

Declaration number:

ECO Platform reference number:

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

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.

Declared unit:

1 kg Steel foundation for light- and charging poles

Declared unit with option:

A1-A3,A4,C1,C2,C3,C4,D

Functional unit:

1kg of steel foundation for charging-and lighting pole.

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.

Third party verifier:

Fredrik Moltu Johnsen, Norsus AS

(no signature required)

Owner of the declaration:

Pretec Norge AS
Contact person: Fredrik Eggertsen
Phone: (+47) 69 10 24 60
e-mail: post@pretec.no

Manufacturer:

Pretec Norge AS
Kampenesmosen 3 , 1739 Borgenhaugen
Norway

Place of production:

Zhejiang Pretec Metal Products Co., Ltd
No.9 JinChang Road , Haining ZheJiang
China

Management system:

ISO 14001 and ISO 9001, AAA Sertification AB, sert no 794 - EN 1090-1, AAA Sertification AB, sert no 2296

Organisation no:

NO 980 429 245 MVA

Issue date:

24.10.2022

Valid to:

07.11.2027

Year of study:

2021

Comparability:

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

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Collected/registered by:

Lars Rune Aasberg

Reviewer of company-specific input data and EPD:

Fredrik Eggertsen

Approved:

Sign

Håkon Hauan, CEO EPD-Norge

Product

Product description:

Steel foundation for charging station or light pole. Delivered with pre mounted fasteners. Foundation can easily be adjusted after installation. Two sided cable slot. Available in 5 differnet sizes with height 500-1500 mm. See separate data sheet for specific details.

Product specification

Produced and CE marked acc to EN 1090-1. Mechancial load capacity calculated acc to NS EN 1991-1/4.

Pc-Coat® duplex coating. Provides optimum corrosion protection for steel using three different processes.
- Hot-dip galvanizing
- Zinc-manganeese phosphating
- Powder coating

Materials	kg	%
Metal - Steel	0,96	96,20
Metal - Zinc	0,03	3,00
Powder coating	0,01	0,80
Total	1,00	

Packaging	kg	%
Packaging - Pallet	0,10	90,91
Packaging - Plastic	0,01	9,09
Total incl. packaging	1,11	

Technical data:

Material grade S355J2/Q355D. Hex bolt grade 8.8 acc to ISO 898-1.

Market:

Woldwide

Reference service life, product

Reference service life, building

LCA: Calculation rules

Declared unit:

1 kg Steel foundation for light- and charging poles

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 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.

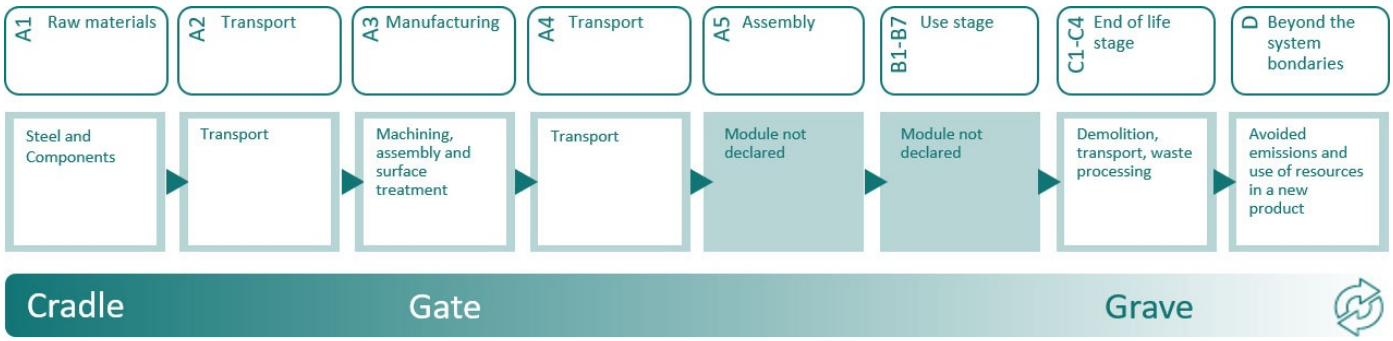
Materials	Source	Data quality	Year
Metal - Steel	ecoinvent 3.6	Database	2019
Metal - Zinc	ecoinvent 3.6	Database	2019
Packaging - Pallet	ecoinvent 3.6	Database	2019
Packaging - Plastic	ecoinvent 3.6	Database	2019
Powder coating	Ecoinvent 3.6	Database	2019

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

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
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	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:

This EPD is a “cradle-to-gate with options” EPD. The system boundary for this LCA report is from A1 to A4, C1-C4 and D



Additional technical information:

Delivered with fasteners with PC coat mounted on foundation.

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)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonn)
Ship, Coastal Barge (km)	71,0 %	110	0,011	l/tkm	1,21
Truck, over 32 tonnes, EURO 6 (km)	53,3 %	300	0,023	l/tkm	6,90
Ship, Freight, Transoceanic, 194.000DWT (kgkm)	65,0 %	20300		l/tkm	
Truck, over 32 tonnes, EURO 4 (kgkm) - Global	55,0 %	60	0,023	l/tkm	1,38

End of Life (C1, C3, C4)	Unit	Value			
Diesel, burned (MJ)	MJ/DU	0,63			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonn)
Truck, over 32 tonnes, EURO 6 (km)	53,3 %	100	0,023	l/tkm	2,30

Waste processing (C3)	Unit	Value			
Materials to recycling (kg)	kg	0,89			
Waste, scrap steel, for incineration (kg)	kg	0,00			

Disposal (C4)	Unit	Value			
Waste, scrap steel, to landfill (kg)	kg	0,10			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary steel with net scrap (kg)	kg	0,68			

LCA: Results

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

Environmental impact									
	Parameter	**Unit**	A1-A3	A4	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	2,24E+00	1,59E-01	5,73E-02	8,72E-03	3,57E-05	4,25E-04	-7,52E-01
	GWP-fossil	kg CO_2 -eq	2,39E+00	1,58E-01	5,73E-02	8,71E-03	3,53E-05	4,25E-04	-7,51E-01
	GWP-biogenic	kg CO_2 -eq	-1,49E-01	6,08E-05	1,07E-05	3,73E-06	3,12E-07	3,61E-07	-4,14E-04
	GWP-luluc	kg CO_2 -eq	1,97E-03	1,44E-04	4,52E-06	2,65E-06	1,06E-08	8,33E-08	-3,36E-04
	ODP	kg CFC11 -eq	1,35E-07	2,87E-08	1,24E-08	2,10E-09	8,00E-12	2,07E-10	-2,38E-08
	AP	mol H+ -eq	1,08E-02	4,03E-03	6,00E-04	2,80E-05	2,57E-07	4,15E-06	-3,73E-03
	EP-FreshWater	kg P -eq	1,02E-04	9,93E-07	2,09E-07	6,93E-08	6,79E-10	3,17E-09	-4,62E-05
	EP-Marine	kg N -eq	2,15E-03	9,99E-04	2,65E-04	6,14E-06	9,36E-08	1,55E-06	-7,72E-04
	EP-Terrestial	mol N eq	2,35E-02	1,11E-02	2,90E-03	6,85E-05	1,03E-06	1,71E-05	-7,89E-03
	POCP	kg NMVOC -eq	1,10E-02	2,93E-03	7,98E-04	2,69E-05	3,05E-07	4,90E-06	-3,76E-03
	ADP-minerals&metals[1]	Kg Sb-eq	2,33E-03	1,94E-06	8,80E-08	1,55E-07	4,75E-10	3,76E-09	-1,30E-05
	ADP-fossil[1]	MJ	2,58E+01	2,12E+00	7,89E-01	1,41E-01	6,44E-04	1,37E-02	-6,32E+00
	WDP[1]	m^3	1,33E+01	8,15E-01	1,68E-01	1,08E-01	1,42E-03	2,89E-02	3,89E+01

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

1. 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 experienced with the indicator
3. Eutrophication aquatic freshwater shall be in kg P-eq., there is a typo in EN 15804:2012+A2:2019 regarding this unit. Eutrophication calculated as PO4-eq is presented on page 11

Remarks to environmental impacts

Additional environmental impact indicators

Parameter		Unit	A1-A3	A4	C1	C2	C3	C4	D
	PM	Disease incidence	1,81E-07	2,99E-09	1,59E-08	8,00E-10	8,00E-12	8,90E-11	-6,23E-08
	IRP[2]	kgBq U235 eq.	4,55E-02	9,10E-03	3,38E-03	6,18E-04	2,42E-06	5,95E-05	2,70E-03
	ETP-fw[1]	CTUe	6,76E+01	1,42E+00	4,31E-01	1,03E-01	1,43E-03	6,78E-03	-4,19E+01
	HTP-c[1]	CTUh	9,90E-09	0,00E+00	1,70E-11	0,00E+00	0,00E+00	0,00E+00	-3,61E-09
	HTP-nc[1]	CTUh	8,12E-08	3,60E-10	3,96E-10	1,00E-10	1,00E-12	4,00E-12	7,85E-08
	SQP[1]	Pt	2,21E+01	8,39E-01	1,00E-01	1,62E-01	1,12E-03	5,00E-02	-4,73E-01

PM Particulate Matter emissions; IRP Ionizing radiation – human health; ETP-fw Eco toxicity – freshwater; HTP-c Human toxicity – cancer effects; HTP-nc Human toxicity – non cancer effects; SQP Soil Quality (dimensionless)

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

1. 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 experienced with the indicator
2. 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.

Resource use

Parameter		Unit	A1-A3	A4	C1	C2	C3	C4	D
	PERE	MJ	1,99E+00	2,18E-02	4,27E-03	1,78E-03	1,61E-05	2,11E-04	-5,13E-01
	PERM	MJ	1,39E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	3,38E+00	2,18E-02	4,27E-03	1,78E-03	1,61E-05	2,11E-04	-5,13E-01
	PENRE	MJ	2,54E+01	2,12E+00	7,89E-01	1,41E-01	6,44E-04	1,37E-02	-6,32E+00
	PENRM	MJ	4,25E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	2,58E+01	2,12E+00	7,89E-01	1,41E-01	6,44E-04	1,37E-02	-6,32E+00
	SM	kg	2,12E-01	1,02E-03	3,87E-04	0,00E+00	1,35E-03	3,61E-06	3,55E-01
	RSF	MJ	1,49E-02	6,19E-04	1,05E-04	6,23E-05	3,74E-07	4,36E-06	2,71E-02
	NRSF	MJ	1,84E+00	-4,19E-03	1,54E-03	2,09E-04	5,93E-06	1,25E-05	7,89E-01
	FW	m^3	1,48E-02	1,82E-04	4,06E-05	1,61E-05	6,01E-07	1,63E-05	-1,58E-03

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; 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; 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	C1	C2	C3	C4	D
	HWD	kg	4,67E-03	1,16E-04	2,32E-05	7,74E-06	1,99E-03	4,15E-07	-3,90E-03
	NHWD	kg	3,62E-01	4,97E-02	9,34E-04	1,23E-02	1,86E-05	9,91E-02	-3,07E-01
	RWD	kg	4,47E-05	1,45E-05	5,48E-06	9,66E-07	3,61E-09	9,33E-08	2,07E-06

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	C1	C2	C3	C4	D
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	2,10E-01	1,26E-03	3,80E-04	0,00E+00	8,94E-01	3,35E-06	3,56E-01
	MER	kg	5,18E-04	3,65E-06	1,18E-06	0,00E+00	4,07E-09	4,34E-08	2,26E-04
	EEE	MJ	3,14E-03	3,02E-05	4,04E-06	0,00E+00	8,32E-05	3,17E-07	-2,58E-04
	EET	MJ	4,76E-02	4,57E-04	6,12E-05	0,00E+00	1,26E-03	4,79E-06	-3,91E-03

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

Biogenic Carbon Content

Parameter	Unit	At the factory gate
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in accompanying packaging	kg C	4,13E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

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
Electricity, China, Zhejiang, high voltage (kWh)	ecoinvent 3.6	865,26	g CO2-eq/kWh

Dangerous substances

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

Indoor environment

For outdoor use only

Additional Environmental Information

Environmental impact indicators EN 15804+A1 and NPCR Part A v2.0								
Parameter	**Unit**	A1-A3	A4	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	2,25E+00	1,57E-01	5,67E-02	8,62E-03	3,43E-05	4,17E-04	-7,03E-01
ODP	kg CFC11 -eq	1,37E-07	2,72E-08	9,82E-09	1,70E-09	7,00E-12	1,64E-10	-2,42E-08
POCP	kg C_2H_4-eq	1,40E-03	8,63E-05	8,72E-06	1,07E-06	1,57E-08	1,02E-07	-4,65E-04
AP	kg SO_2 -eq	8,10E-03	3,20E-03	8,37E-05	1,82E-05	1,24E-07	1,23E-06	-2,82E-03
EP	kg PO_4^{3-} -eq	1,01E-03	3,49E-04	9,31E-06	1,97E-06	2,09E-08	1,46E-07	-4,17E-04
ADPM	kg Sb -eq	2,33E-03	1,94E-06	8,80E-08	1,55E-07	4,75E-10	3,76E-09	-1,30E-05
ADPE	MJ	2,46E+01	2,10E+00	7,89E-01	1,39E-01	6,26E-04	1,35E-02	-6,87E+00
GWPIOBC	kg CO_2 -eq	2,31E+00	1,59E-01	5,67E-02	8,72E-03	0,00E+00	0,00E+00	-1,12E+00

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; GWP-IOBC/GHG Global warming potential calculated according to the principle of instantanious oxidation (except emissions and uptake of biogenic carbon)

Bibliography

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EPD for the best environmental decision

The Norwegian EPD Foundation

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