epd-norge.no
The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Øglænd System AS
Program operator:	EPD-Norge
Publisher:	The Norwegian EPD Foundation
Declaration number:	<From EPD-Norge>
Registration number:	<From EPD-Norge>
ECO Platform reference number:	<From EPD-Norge>
Issue date:	
Valid to:	<xx.xx.xxxx>

Welded and Pickled Stainless Steel Products

Øglænd System AS

General information

Product:
Welded and Pickled Stainless Steel Products

Owner of the declaration:
Øglænd System AS
Contact person: Rune Håvik
Phone: 0047 91 55 20 02
e-mail: rha@oglaend-system.com

Program operator:
EPD-Norge
Post Box 5250 Majorstuen, 0303 Oslo
Phone: +47 23 08 80 00
e-mail: post@epd-norge.no

Manufacturer:
Øglænd System AS
Engelsvollvegen 264, 4353 Klepp St., Norway
Phone: Tlf: +47 51 78 81 00
e-mail: oglaend@oglaend-system.com

Declaration number:
<From EPD-Norge>

Place of production:
Klepp, Norway

ECO Platform reference number:
<From EPD-Norge>

Management system:
NS-EN ISO 9001:2015
NS-EN ISO 14001:2015
SN-BS OHSAS 18001:2007

This declaration is based on Product Category Rules:
CEN Standard EN 15804 serves as core PCR
NPCR Construction products and services - Part A - April 2017

Organisation no.(Norway):
985748128

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:

Valid to:
<xx.xx.xxxx>

Declared unit:
1 kg Welded and Pickled Stainless Steel Products

Year of study:
2017-2018

Declared unit with option:

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

Functional unit:

The EPD has been worked out by:

NTNU

Annik Magerholm Fet

Annik Magerholm Fet

Verification:

The CEN Norm EN 15804 serves as the core PCR. Independent verification of the declaration and data, according to ISO14025:2010

☐ internal ☑ external

Third party verifier:
Selamawit Mamo Fufa
SINTEF Building and Infrastructure
(Independent verifier approved by EPD Norway)

Approved

sign

<Name>
(Managing Director EPD-Norway)

Product

Product description:

Øglænd System AS provides a wide range of products for support, cable ladders, cable trays and accessories. This EPD covers the products from Øglænd System AS that are made from stainless steel, and then machined, welded and pickled. Stainless steel forms a protective chromium oxide layer when the alloy is exposed to air, hindering direct contact between the alloy and the corrosive environment. If a stainless steel component is damaged, a new chromium oxide layer forms, effectively resealing the damaged area.

The following products are covered by this EPD:

Name/ designation	Item group nr.
OE Ladder VG/SS/AL W/Accessories	100
LOE/TOE Ladder SS/AL W/Accessories	110
Ladder LOE55/75/100,TOE100 W/Accessori	130
Multi Grid Support systems	141
RZ/RHF/RHU-Ladder W/Accessories	160

Material	kg	%
Stainless steel with alloys	1,0	100,0

Product specification:

The products covered by this EPD are produced by Øglænd System AS at their production site in Klepp, Norway. The steel grade used for these products is AISI 316L.

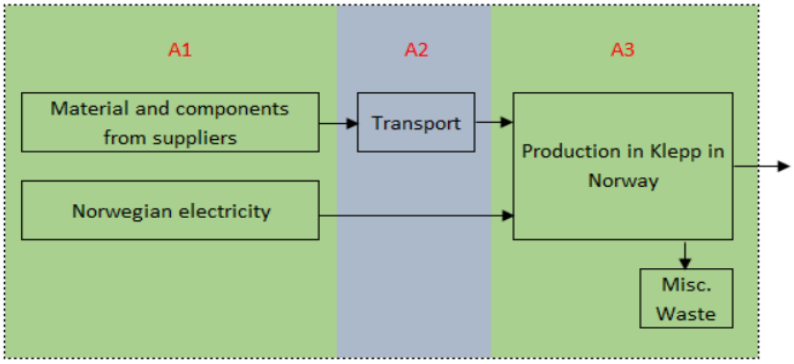
The manufacturing of these products comprises the cutting, punching, forming and welding of the steel input. In addition, these products are ”pickled and passivated”. This is a process to remove the heat tint that is created during welding. The heat tint is produced by an increase in the density of chromium at the surface and a corresponding decrease in the area below. As a result, the affected region is vulnerable to corrosion and less aesthetically pleasing. Both problems are efficiently solved through ”pickling and passivation”, which allows a new protective chromium oxide layer to be established.

Market:
Norway/Nordics

Reference service life, product:
Not relevant for cradle to gate

LCA: Calculation rules

Declared unit:
1 kg Welded and Pickled Stainless Steel Products



System boundary:
System boundaries are shown in the flowchart. Cradle to gate (A1-A3).

Data quality:
General requirements and guidelines concerning use of generic and specific data and the quality of those are as described in EN 15804: 2012, clause 6.3.6 and 6.3.7. The data is representative according to temporal, geographical and technological requirements.

Temporal:
Data for use in module A3 is supplied by the manufacturer and consists of the recorded amount of specific material and energy consumption for the products studied. Specific data has been collected in 2017-2018. Generic data has been created or updated within the last 10 years, except for minor exceptions for generic data used that are slightly older than 10 years.

Geographical:
The geographic region of the production sites included in the calculation is Europe. The specific data from manufacturer is from one site, so no average data is used for several sites.

Technological:
Data represents technology in use. All generic (background) data has been gathered from the PE International GaBi 6 Professional Database and the Ecoinvent V3 database.

Cut-off criteria:
All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances.

Allocation:
The allocation of energy and ancilliary material during production was determined by recorded production time for the different product groups. Waste was allocated using total waste streams from the factory and adjusted for the different product groups using mass allocation.

LCA: Results

All key assumptions and estimates are either presented in the EPD or can be found in NPCR (2017) Construction products and services.
The impacts generated in the life cycle stages described within the system boundaries are calculated using GaBi 6.
Background data is from the GaBi 6 professional database and Ecoinvent v3.
The impact assessment methodology used is CML 2001.

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

Product stage			Assemby 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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Environmental impact

Parameter	Unit	A1-A3
GWP	kg CO_2-eqv	4,72E+00
ODP	kg CFC11-eqv	2,57E-07
POCP	kg C_2H_4-eqv	2,90E-02
AP	kg SO_2-eqv	6,15E-02
EP	kg PO_4^{3-}-eqv	3,09E-03
ADPM	kg Sb-eqv	6,17E-04
ADPE	MJ	6,35E+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

Resource use

Parameter	Unit	A1-A3
RPEE	MJ	9,84E+00
RPEM	MJ	1,87E-03
TPE	MJ	9,84E+00
NRPE	MJ	6,45E+01
NRPM	MJ	5,35E-05
TRPE	MJ	6,45E+01
SM	kg	9,96E-01
RSF	MJ	-
NRSF	MJ	-
W	m^3	5,27E-04

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

End of life - Waste

Parameter	Unit	A1-A3
HW	kg	2,05E-03
NHW	kg	1,89E-02
RW	kg	3,88E-03

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

End of life - Output flow

Parameter	Unit	A1-A3
CR	kg	-
MR	kg	4,02E-01
MER	kg	-
EEE	MJ	-
ETE	MJ	-

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

Additional Norwegian requirements

Greenhous gas emission from the use of electricity in the manufacturing phase
National production mix from import, low woltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing prosess(A3).

Data source	Amount	Unit
GaBi 6 Electricity mix (NO) (2013)	0,0377	kg CO_2-eqv/kWh

Dangerous substances

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

☐ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.

☐ The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.

☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskiften, Annex III).

Indoor environment
No tests has been carried out on the product concerning indoor climate - Not relevant.

Carbon footprint
Carbon footprint has not been worked out for the product.

Bibliography

ISO 14025:2010	*Environmental labels and declarations - Type III environmental declarations - Principles and procedures*
ISO 14044:2006	*Environmental management - Life cycle assessment - Requirements and guidelines*
EN 15804:2012	*Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products*
LCA-Report C - Øgland System AS	*Life Cycle Assessment Report: Øglænd System AS - EPD C - Welded and Pickled Stainless Steel Products*
EPD Outokumpu Oyj	*Cold Rolled Stainless Steel (2014)*
NPCR April 2017	*Construction products and services - Part A*

epd-norge.no The Norwegian EPD Foundation	**Program holder 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
ØGLÆND SYSTEM	**Owner of the declaration** Øglænd System AS Engelsvollvegen 264 4353 Klepp St., Norway	Phone: e-mail: web	(+47) 91 66 27 74 rha@oglaend-system.com https://www.oglaend-system.com
NTNU	**Author of the Life Cycle Assessment** Annik Magerholm Fet Høgskoleringen 1 7491 Trondheim	Phone: e-mail: web	(+47) 922 96 890 annik.fet@ntnu.no www.sisvi.no