epd-norge

Environmental product declaration

In accordance with ISO 14025 and EN 15804 +A2

BFOU-E 1kV 4X 10/10mm2 BK

Draka | A Brand of Prysmian Group

Prysmian Group

The Norwegian EPD Foundation

Owner of the declaration:
Prysmian Group Norge AS

Declared unit:
1 m BFOU-E 1kV 4X 10/10mm2 BK

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 027 Part B for Electrical cables and wires

Program operator:
The Norwegian EPD Foundation

Declaration number:
NEPD-3863-2814-EN

Registration number:
NEPD-3863-2814-EN

Issue date: 04.11.2022

Valid to: 04.11.2027

EPD Software:
LCA.no EPD generator

System ID:
51701

General information

Product

BFOU-E 1kV 4X 10/10mm2 BK

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:

NEPD-3863-2814-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 027 Part B for Electrical cables and wires

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 m BFOU-E 1kV 4X 10/10mm2 BK

Declared unit with option:

A1,A2,A3,A4,A5,B1,B2,B3,B4,B5,B6,B7,C1,C2,C3,C4,D

Functional Unit

1 m of installed BFOU-E 1kV 4X 10/10mm2 armoured, fire resistant, flame retardant halogen-free, moisture protected power cable, used to transmit a reference energy throughput of 1A over a period of 30 years.

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. Individualthird 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. Approval number: NEPDT32

Third party verifier:

Vito D'Incognito - Take Care International

(no signature required)

Owner of the declaration:

Prysmian Group Norge AS
Contact person: Anders Nymark
Phone: +47 90066733
e-mail: anders.nymark@prysmiangroup.com

Manufacturer:

Prysmian Group Norge AS
Kjerraten 16 , 3013 Drammen
Norway

Place of production:

Prysmian Group production site Drammen (Norway
Kjerraten 16 , 3013 Drammen
Norway

Management system:

ISO 9001, ISO 14001, ISO 45001

Organisation no:

814 780 422

Issue date:

04.11.2022

Valid to:

04.11.2027

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. Approval number: NEPDT33

Developer of EPD:

Siri Andersen, Prysmian Group Norge AS

Reviewer of company-specific input data and EPD:

Anders Nymark, Prysmian Group Norge AS

Approved:

Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

BFOU-E 1kV
Armored, fire-resistant, flame-retardant, halogen-free power cable.
Fixed installation for power, control and lighting in both EX (Zone 0, 1 & 2)- and safe areas, emergency and critical systems where requirement for fire resistance exists.
Extra protected for underground use by an additional PE outer sheath.

Product specification

Conductor material Copper
Conductor surface Tinned
Core insulation material Mica + polymer
Core identification (acc. HD 308 S2) Yes
Armouring/reinforcement Braiding
Armouring Yes
Armouring/reinforcement material Copper, tinned
Material inner sheath Halogenfree polymer
Material outer sheath Polyethylene (PE)
Cable shape Round
Max. conductor temperature [°C] 90
Max. conductor temperature at short circuit [°C] 250

Materials	kg	%
Metal - Copper	0,48	46,95
Plastic - Ethylene propylene rubber (EPR)	0,29	27,91
Plastic - Ethylene vinyl acetate (EVA)	0,16	15,17
Plastic - Polyethylene	0,08	7,62
Tape - Mica	0,01	1,25
Tape - Polyester	0,01	1,10
Total	1,03	

Technical data:

BFOU-E 1kV 4X 10/10mm2 BK
Art.nr: 20365254
El.nr: 20365254

Market:

Northern Europe

Reference service life, product

Expected lifetime at least 30 years, provided proper installation, load and ambient temperature.

Reference service life, building or construction works

Service life installation 30 years.

LCA: Calculation rules

Declared unit:

1 m BFOU-E 1kV 4X 10/10mm2 BK

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. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

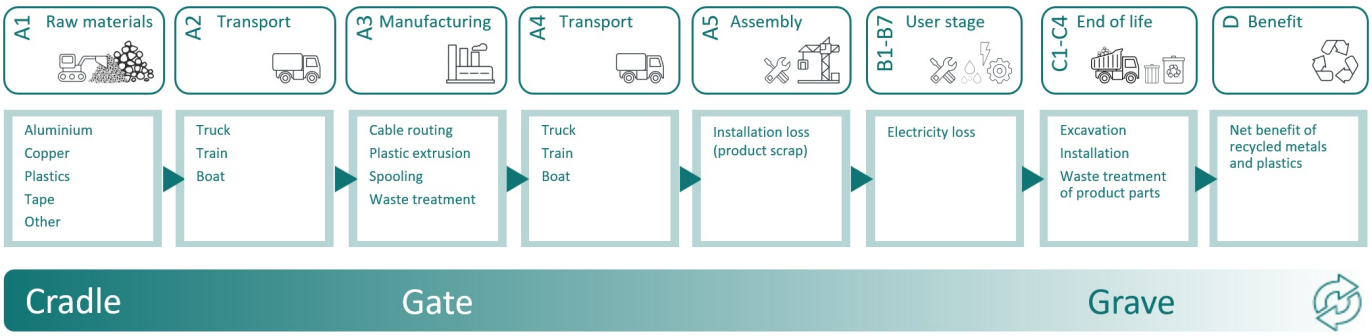
Materials	Source	Data quality	Year
Metal - Copper	ecoinvent 3.6	Database	2019
Plastic - Ethylene propylene rubber (EPR)	ecoinvent 3.6	Database	2019
Plastic - Ethylene vinyl acetate (EVA)	ecoinvent 3.6	Database	2019
Plastic - Polyethylene	ecoinvent 3.6	Database	2019
Tape - Mica	ecoinvent 3.6	Database	2019
Tape - Polyester	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	X	X	X	X	X	X	X	X	X	X	X	X	X

System boundary:

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

Test voltage [kV] 8.4
Rated voltage U0/U (Um) 0.6/1 (1.2) kV
Min. outer temperature, fixed installation [°C] -25
Max. outer temperature, fixed installation [°C] 75
Outdoor installation Yes
Min. outer temperature during installation [°C] -20
Max. outer temperature during installation [°C] 50
Underground installation Yes
Suitable as installation cable Yes
Bending radius (rule) 8 x OD (cable overall diameter) during installation
6 x OD (cable overall diameter) fixed installed

LCA: Scenarios and additional technical information

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

Module A4 = An average distance between the factory and the market is considered.

Modules A5 = 2% product losses during installation are estimated by the company. No energy use for installation has been quantified since this operation is assumed to be done with other products and should be assessed at a construction works level. Cable drums are reused and assumed under the cut-off criterion of 1%.

Modules B1, B2, B3, B4, B5, and B7 = Company data shows that no significant activities have been reported for use, maintenance, repair, replacement, refurbishment, and water use. This reflects an absence of impacts during the 30 years reference service life of the cable in these modules.

Module B6 = The operational energy use of the cable is calculated based on the methodology described in PEP Ecopassport, Product Specific Rules (PSR) for wires, cables and accessories, reference PSR-0001-ed3-EN-2015 10 16. The following parameters are used to calculate the electricity loss of the cable:

- Estimate service life = 30 years
- Number of conductors = 4 units
- Use rate = 100 percent (according to appendix 1 of the PSR)
- Linear conductor resistivity = 0,00184 Ohm per meter
- Current intensity = 1 Ampere

Module C1 = For both buildings and construction works, cables will be taken out as part of a larger demolition. The energy use for cable removal compared to other heaver materials is assumed to be low. This module can therefore be included with zero impact.

Module C2 = An average distance between the market and the waste treatment facility is considered.

Modules C3 and C4 = Waste treatment of the product follows the default values provided in EN 50693, Product Category Rules for life cycle assessments of electronic and electrical products and systems, table G.4. This table specified how different types of raw materials used in A1 will likely be treated during the end-of-life of the product. Waste treatments in C3 include material recycling and incineration with and without energy recovery and fly ash extraction. Disposal in C4 consist of landfilling of different waste fractions and of ashes.

Module D = The recyclability of metals and plastics allows the producers a credit for the net scrap that is produced at the end of a product's life. The benefits from recycling of net scrap are described in formula from EN 15804:2012+A2:2019. Substitution of heat and electricity generated by the incineration with energy recovery of plastic insulation and other parts is also calculated in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonn)
Truck, 16-32 tonnes, EURO 5 (km)	36,7 %	500	0,044	l/tkm	22,00

Operational energy (B6) and water consumption (B7)	Unit	Value			
Electricity, European average (kWh)	kWh/DU	1,93			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonn)
Truck, 16-32 tonnes, EURO 5 (km)	36,7 %	500	0,044	l/tkm	22,00

Waste processing (C3)	Unit	Value			
Copper to recycling (kg)	kg	0,29			
Waste treatment of non-hazardous waste, incineration with fly ash extraction (kg)	kg	0,01			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,23			
Waste treatment of polyethylene (PE), incineration with energy recovery and fly ash extraction (kg)	kg	0,04			

Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Non-hazardous waste, process per kg ashes and residues (kg)	kg	0,00			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,01			
Landfilling of ashes from incineration of Polyethylene (PE), process per kg ashes and residues (kg)	kg	0,00			
Landfilling of copper (kg)	kg	0,19			
Landfilling of plastic mixture (kg)	kg	0,27			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary copper with net scrap (kg)	kg	0,21			
Substitution of electricity, in Norway (MJ)	MJ	0,43			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	6,45			

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	A2	A3	A4	A5	B1	B2	B3
GWP-total	kg CO_2 -eq	3,47E+00	1,38E-01	1,73E-01	8,61E-02	9,33E-02	0	0	0
GWP-fossil	kg CO_2 -eq	3,41E+00	1,38E-01	1,54E-01	8,60E-02	9,14E-02	0	0	0
GWP-biogenic	kg CO_2 -eq	5,06E-02	5,64E-05	1,83E-02	3,51E-05	1,79E-03	0	0	0
GWP-luluc	kg CO_2 -eq	3,20E-03	4,19E-05	2,32E-04	3,01E-05	7,08E-05	0	0	0
ODP	kg CFC11 -eq	1,41E-06	3,19E-08	6,92E-09	1,96E-08	2,99E-08	0	0	0
AP	mol H+ -eq	1,17E-01	6,39E-04	5,74E-04	3,52E-04	2,38E-03	0	0	0
EP-FreshWater	kg P -eq	9,46E-04	1,05E-06	5,75E-06	6,76E-07	1,91E-05	0	0	0
EP-Marine	kg N -eq	8,42E-03	1,88E-04	1,16E-04	1,04E-04	1,81E-04	0	0	0
EP-Terrestial	mol N eq	1,22E-01	2,08E-03	1,05E-03	1,15E-03	2,56E-03	0	0	0
POCP	kg NMVOC -eq	3,20E-02	6,56E-04	3,00E-04	3,53E-04	6,78E-04	0	0	0
ADP-minerals&metals[1]	Kg Sb-eq	1,64E-03	2,45E-06	4,20E-06	2,33E-06	3,31E-05	0	0	0
ADP-fossil[1]	MJ	6,23E+01	2,14E+00	1,20E+00	1,30E+00	1,37E+00	0	0	0
WDP[1]	m^3	2,30E+02	1,66E+00	1,13E+02	1,24E+00	7,00E+00	0	0	0

Parameter	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 -eq	0	0	8,28E-01	0	0	8,61E-02	6,79E-01	3,34E-02	-5,41E-01
GWP-fossil	kg CO_2 -eq	0	0	8,20E-01	0	0	8,60E-02	6,59E-01	3,34E-02	-5,37E-01
GWP-biogenic	kg CO_2 -eq	0	0	5,77E-03	0	0	3,51E-05	2,03E-02	2,77E-06	-2,40E-03
GWP-luluc	kg CO_2 -eq	0	0	1,91E-03	0	0	3,01E-05	2,40E-06	1,70E-06	-1,82E-03
ODP	kg CFC11 -eq	0	0	6,95E-08	0	0	1,96E-08	1,30E-09	1,63E-09	-2,72E-03
AP	mol H+ -eq	0	0	4,79E-03	0	0	3,52E-04	1,36E-04	4,27E-05	-8,42E-02
EP-FreshWater	kg P -eq	0	0	8,76E-05	0	0	6,76E-07	1,17E-07	7,92E-08	-5,69E-04
EP-Marine	kg N -eq	0	0	6,08E-04	0	0	1,04E-04	6,52E-05	4,70E-05	-3,55E-03
EP-Terrestial	mol N eq	0	0	7,49E-03	0	0	1,15E-03	6,72E-04	1,71E-04	-5,45E-02
POCP	kg NMVOC -eq	0	0	1,90E-03	0	0	3,53E-04	1,62E-04	5,50E-05	-1,48E-02
ADP-minerals&metals[1]	Kg Sb-eq	0	0	6,01E-06	0	0	2,33E-06	6,49E-08	4,21E-08	-4,70E-04
ADP-fossil[1]	MJ	0	0	1,69E+01	0	0	1,30E+00	8,41E-02	1,27E-01	-5,00E+00
WDP[1]	m^3	0	0	2,54E+02	0	0	1,24E+00	5,39E-01	2,19E+00	2,07E+01

GWP total Global Warming Potential total; GWP fossil Global Warming Potential fossil fuels ; GWP biogenic Global Warming Potential biogenic; GWP luluc Global W Potential land use change; ODP Ozone Depletion; AP Acidification; EP freshwater Eutrophication aquatic freshwater; EP marine Eutrophication aquatic marine; EP terrestrial Eutrophication terrestrial ;POCP Photochemical zone formation; ADPE Abiotic Depletion Potential minerals and metals; ADPf Abiotic Depletion Potential fossil fuels;

"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	A2	A3	A4	A5	B1	B2	B3
	PM	Disease incidence	3,68E-07	1,18E-08	4,51E-09	6,19E-09	7,95E-09	0	0	0
	IRP[2]	kgBq U235 eq.	2,25E-01	9,35E-03	1,47E-02	5,67E-03	5,22E-03	0	0	0
	ETP-fw[1]	CTUe	1,41E+03	1,56E+00	3,70E+00	9,55E-01	3,07E+01	0	0	0
	HTP-c[1]	CTUh	2,51E-08	0,00E+00	2,36E-10	0,00E+00	5,08E-10	0	0	0
	HTP-nc[1]	CTUh	1,85E-06	1,51E-09	5,69E-09	1,03E-09	3,72E-08	0	0	0
	SQP[1]	Pt	3,10E+01	2,35E+00	5,19E-01	8,94E-01	7,21E-01	0	0	0

Parameter		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	PM	Disease incidence	0	0	1,26E-08	0	0	6,19E-09	6,02E-10	7,96E-10	-1,86E-07
	IRP[2]	kgBq U235 eq.	0	0	1,48E-01	0	0	5,67E-03	2,05E-04	7,32E-04	-8,96E-03
	ETP-fw[1]	CTUe	0	0	1,19E+01	0	0	9,55E-01	1,19E+00	1,20E+02	-7,75E+02
	HTP-c[1]	CTUh	0	0	3,31E-10	0	0	0,00E+00	3,60E-11	6,00E-12	-1,09E-08
	HTP-nc[1]	CTUh	0	0	1,14E-08	0	0	1,03E-09	1,56E-09	1,46E-10	-9,36E-07
	SQP[1]	Pt	0	0	4,09E+00	0	0	8,94E-01	1,49E-02	3,46E-01	-1,34E+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	A2	A3	A4	A5	B1	B2	B3
	PERE	MJ	8,33E+00	2,70E-02	7,80E+00	1,83E-02	3,24E-01	0	0	0
	PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0
	PERT	MJ	8,33E+00	2,70E-02	7,80E+00	1,83E-02	3,24E-01	0	0	0
	PENRE	MJ	5,01E+01	2,14E+00	1,20E+00	1,30E+00	1,13E+00	0	0	0
	PENRM	MJ	1,22E+01	0,00E+00	0,00E+00	0,00E+00	2,65E-02	0	0	0
	PENRT	MJ	6,23E+01	2,14E+00	1,20E+00	1,30E+00	1,15E+00	0	0	0
	SM	kg	9,48E-02	0,00E+00	3,47E-03	0,00E+00	1,99E-03	0	0	0
	RSF	MJ	2,45E-01	9,45E-04	1,17E-02	6,55E-04	5,19E-03	0	0	0
	NRSF	MJ	-1,87E-03	3,23E-03	2,10E-02	2,34E-03	5,34E-04	0	0	0
	FW	m^3	6,33E-02	2,40E-04	1,45E-01	1,37E-04	4,20E-03	0	0	0

Parameter		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	PERE	MJ	0	0	3,28E+00	0	0	1,83E-02	4,48E-03	1,19E-02	-5,09E+00
	PERM	MJ	0	0	0,00E+00	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	0	0	3,28E+00	0	0	1,83E-02	4,48E-03	1,19E-02	-5,09E+00
	PENRE	MJ	0	0	1,70E+01	0	0	1,30E+00	8,45E-02	1,27E-01	-5,00E+00
	PENRM	MJ	0	0	0,00E+00	0	0	0,00E+00	-1,09E+01	0,00E+00	0,00E+00
	PENRT	MJ	0	0	1,70E+01	0	0	1,30E+00	-1,08E+01	1,27E-01	-7,31E+00
	SM	kg	0	0	6,11E-03	0	0	0,00E+00	-2,64E-05	1,06E-03	1,46E-01
	RSF	MJ	0	0	2,39E-01	0	0	6,55E-04	9,77E-05	2,46E-04	1,33E-02
	NRSF	MJ	0	0	5,68E-02	0	0	2,34E-03	-5,01E-04	1,78E-04	-1,66E-01
	FW	m^3	0	0	1,44E-02	0	0	1,37E-04	6,65E-04	1,62E-04	-1,62E-02

PERE Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM Use of renewable primary energy resources used as raw materials; PERT Total use of renewable primary energy resources; PENRE Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM Use of non renewable primary energy resources used as raw materials; PENRT 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; FW 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	A2	A3	A4	A5	B1	B2	B3
	HWD	kg	2,89E-02	1,16E-04	3,33E-02	6,62E-05	1,44E-03	0	0	0
	NHWD	kg	1,13E+00	1,77E-01	8,43E-02	6,20E-02	3,97E-02	0	0	0
	RWD	kg	2,29E-04	1,46E-05	8,79E-06	8,84E-06	5,42E-06	0	0	0

Parameter		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	HWD	kg	0	0	2,55E-03	0	0	6,62E-05	3,46E-05	9,36E-03	-5,69E-03
	NHWD	kg	0	0	5,73E-02	0	0	6,20E-02	1,72E-03	4,65E-01	-2,53E-01
	RWD	kg	0	0	1,21E-04	0	0	8,84E-06	2,37E-07	8,60E-07	-7,82E-06

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = 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	A2	A3	A4	A5	B1	B2	B3
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0
	MFR	kg	0,00E+00	0,00E+00	3,64E-03	0,00E+00	5,89E-03	0	0	0
	MER	kg	0,00E+00	0,00E+00	5,57E-05	0,00E+00	1,73E-06	0	0	0
	EEE	MJ	0,00E+00	0,00E+00	8,74E-02	0,00E+00	1,05E-02	0	0	0
	EET	MJ	0,00E+00	0,00E+00	1,32E+00	0,00E+00	1,59E-01	0	0	0

Parameter		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	CRU	kg	0	0	0,00E+00	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0	0	1,65E-03	0	0	0,00E+00	2,91E-01	2,60E-05	-5,72E-03
	MER	kg	0	0	2,35E-03	0	0	0,00E+00	5,78E-06	2,51E-05	-7,53E-04
	EEE	MJ	0	0	6,10E-04	0	0	0,00E+00	4,37E-01	2,55E-04	-1,85E-03
	EET	MJ	0	0	9,23E-03	0	0	0,00E+00	6,61E+00	3,86E-03	-2,79E-02

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported energy Thermal

"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	0,00E+00

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, Norway (kWh)	ecoinvent 3.6	24,33	g CO2-eq/kWh

Dangerous substances

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

Indoor environment

Not relevant.

Additional Environmental Information

Environmental impact indicators EN 15804+A1 and NPCR Part A v2.0

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3
GWP	kg CO_2 -eq	3,34E+00	1,37E-01	1,64E-01	8,51E-02	9,02E-02	0	0	0
ODP	kg CFC11 -eq	1,73E-06	2,58E-08	7,97E-09	1,55E-08	3,59E-08	0	0	0
POCP	kg C_2H_4-eq	3,89E-03	1,90E-05	2,66E-05	1,14E-05	7,94E-05	0	0	0
AP	kg SO_2 -eq	9,27E-02	3,26E-04	4,44E-04	1,69E-04	1,88E-03	0	0	0
EP	kg PO_4^{3-} -eq	5,30E-03	3,54E-05	6,56E-05	1,80E-05	1,10E-04	0	0	0
ADPM	kg Sb -eq	1,64E-03	2,45E-06	4,20E-06	2,33E-06	3,31E-05	0	0	0
ADPE	MJ	5,36E+01	2,10E+00	7,13E-01	1,27E+00	1,18E+00	0	0	0
GWPIOBC	kg CO_2 -eq	3,46E+00	1,38E-01	7,50E-02	8,61E-02	9,06E-02	0	0	0

Parameter	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	0	0	8,88E-01	0	0	8,51E-02	6,74E-01	2,70E-02	-5,21E-01
ODP	kg CFC11 -eq	0	0	9,18E-08	0	0	1,55E-08	1,20E-09	1,40E-09	-2,47E-08
POCP	kg C_2H_4-eq	0	0	1,60E-04	0	0	1,14E-05	1,93E-06	5,18E-06	-2,83E-03
AP	kg SO_2 -eq	0	0	3,97E-03	0	0	1,69E-04	9,55E-05	1,78E-05	-7,19E-02
EP	kg PO_4^{3-} -eq	0	0	5,03E-04	0	0	1,80E-05	3,20E-05	1,71E-05	-3,07E-03
ADPM	kg Sb -eq	0	0	6,01E-06	0	0	2,33E-06	6,59E-08	4,53E-08	-4,70E-04
ADPE	MJ	0	0	1,70E+01	0	0	1,27E+00	8,48E-02	1,19E-01	-5,01E+00
GWPIOBC	kg CO_2 -eq	0	0	8,88E-01	0	0	8,61E-02	6,74E-01	4,13E-03	-2,75E-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; GWP-IOBC/GHG Global warming potential calculated according to the principle of instantanious oxidation (except emissions and uptake of biogenic carbon)

Bibliography

ISO 14025:2010. Environmental labels and declarations - Type III environmental declarations - Principles and procedures. International Organization for Standardization.
ISO 14044:2006. Environmental management - Life cycle assessment - Requirements and guidelines. International Organization for Standardization.
EN 15804:2012+A2:2019. Environmental product declaration - Core rules for the product category of construction products. European Committee for Standardization.
ISO 21930:2017. Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products. International Organization for Standardization.
EN 50693:2019. Product category rules for life cycle assessments of electronic and electrical products and systems. European Committee for Standardization.
Ecoinvent v3, 2019. Allocation, cut-off by classification. Swiss Centre of Life Cycle Inventories.
Iversen et al., (2021). eEPD v2021.09, background information for EPD generator tool system verification, LCA.no. Report number: 07.21. System verification report.
Philis et al., (2022). EPD generator for NPCR 027 part B for electrical wires and cables, background information for EPD generator application and LCA data, LCA.no Report number: 03.22. PCR verification report.
EPD Norway (2022). NPCR Part A: Construction products and services. The Norwegian EPD foundation. Version 2.0 published 24.03.2021.
EPD Norway (2022). NPCR 027 Part B for electrical cables and wires. The Norwegian EPD foundation. Version 2.0 published 01.03.2022.

The operational energy use in module B6 is calculated based on the methodology described in PEP Ecopassport, Product Specific Rules (PSR) for wires, cables and accessories, reference PSR-0001-ed3-EN-2015 10 16.

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