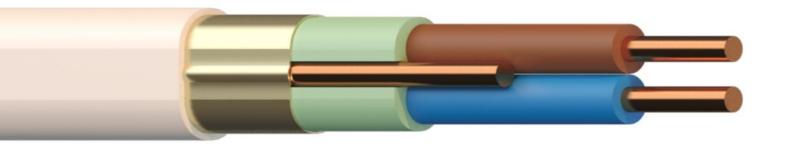


Environmental product declaration

In accordance with ISO 14025 and EN 15804 +A2

PRSuper 500V 2x1,5/1,5mm² ER



Draka

A Brand of Prysmian Group

Prysmian Group **Owner of the declaration:** Prysmian Group Norge AS

Declared unit: 1 m PRSuper 500V 2x1,5/1,5mm² ER

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

The Norwegian EPD Foundation

Program operator: The Norwegian EPD Foundation

Declaration number: NEPD-3912-2878-EN

Registration number: NEPD-3912-2878-EN

Issue date: 17.11.2022

Valid to: 17.11.2027

EPD Software: LCA.no EPD generator

System ID: 54597



General information

Product PRSuper 500V 2x1,5/1,5mm² ER

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-3912-2878-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 PRSuper 500V 2x1,5/1,5mm² ER

Declared unit with option:

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

Functional unit:

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 process 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 Norge AS Kjerraten 16 , 3013 Drammen Norway

Management system:

ISO 9001, ISO 14001, ISO 45001

Organisation no:

814 780 422

Issue date: 17.11.2022

Valid to: 17.11.2027

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

Reviewer of company-specific input data and EPD:

Anders Nymark

Approved:

Håkon Hauan Managing Director of EPD-Norway



Product

Product description:

Installation cable for fixed open installations. Allowed indoors and outdoors. The outer sheet must be protected against direct UV light which can occur in, for example, lighting fixtures and lighting signs.

N05VA5VH2-U (oval) N

Product specification

Conductor material Copper Core insulation material Polyvinyl chloride (PVC) Drain wire Yes Longitudinal water blocking cable No Radial water blocking cable No Core identification (acc. HD 308 S2) Yes Twisted cores No Armouring No Screen construction Metalized foil Screen Yes Screen material Other Material inner sheath Polyvinyl chloride (PVC) Material outer sheath Polyvinyl chloride (PVC) Cable shape Other

Materials

Metal - Aluminium	0,01	8,09
Metal - Copper	0,04	41,95
Plastic - Polyvinyl chloride (PVC)	0,05	49,96
Total	0,09	

Technical data:

PRSuper 500V 2x1,5/1,5mm² ER SAP code 20075573 El no. 1034845 (T&K)

IEC 60228 Class 1 conductors Flame retardant properties.

Market:

Nordic

Transport to delivery point (A4), and average waste treatment in end-of-life stage (C2) is considering the Norwegian market. Calculations for other destinations, may be done on request.

Reference service life, product

Highly dependent on the conditions of use, estimated to be 30+ years.

Reference service life, building or construction works

Standard average service life of buildings and infrastructure 60-100 years, as suggested by NPCR 027.

ka %

LCA: Calculation rules

Declared unit:

1 m PRSuper 500V 2x1,5/1,5mm² ER

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.

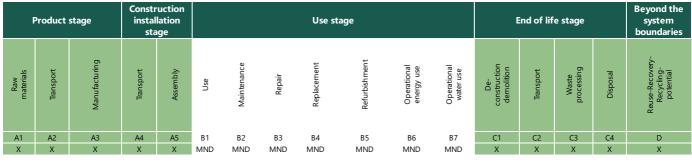
Data quality:

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 - Aluminium	ecoinvent 3.6	Database	2019
Metal - Copper	ecoinvent 3.6	Database	2019
Plastic - Polyvinyl chloride (PVC)	ecoinvent 3.6	Database	2019

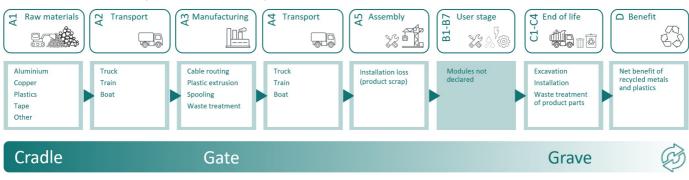
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System boundaries (X=included, MND=module not declared, MNR=module not relevant)



System boundary:

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

Nominal voltage U0 [V] 300 Nominal voltage U [V] 500 Test voltage [kV] 2.7 Flame retardant In accordance with EN/IEC 60332-1-2 Reaction-to-fire class (acc. EN 13501-6) Eca Max. conductor temperature [°C] 70 Outdoor installation Yes Suitable as installation cable Yes



LCA: Scenarios and additional technical information

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

In A4, a transport distance of 1445 km from the Prysmian Group production site in Oulu to Prysmian Group's warehouse in Loesmoen was included. A distance of 300 km was also added as additional transport to market.

Installation in trenches (A5) and removal (C1) is assumed to be done with other products such as piping systems and should be assessed at a construction works level. For B1-B7 the default environmental impact and resource indicators in the EPD are assumed to be zero. In C2, a distance of 300 km has been added as average transport to the Norwegian waste treatment facilities. In C3, datasets are developed for the recycling of metals and plastics and for the incinerations of plastic fractions (including energy recovery and fly ash extraction). All other minor raw materials in the product are assumed to be incinerated. Net benefit of material recycling and energy recovery are given in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 5 (km)	36,7 %	1745	0,044	l/tkm	76,78
Assembly (A5)	Unit	Value			
Material loss during installation A1-A4 (percentage of cable)	Units/DU	0,02			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 5 (km)	36,7 %	300	0,044	l/tkm	13,20
Waste processing (C3)	Unit	Value			
Aluminium to recycling (kg)	kg	0,01			
Copper to recycling (kg)	kg	0,02			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,02			
Disposal (C4)	Unit	Value			
Landfilling of aluminium (kg)	kg	0,00			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,00			
Landfilling of copper (kg)	kg	0,02			
Landfilling of plastic mixture (kg)	kg	0,02			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary aluminium with net scrap (kg)	kg	0,00			
Substitution of primary copper with net scrap (kg)	kg	0,01			
Substitution of electricity, in Norway (MJ)	MJ	0,04			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	0,53			

LCA: Results

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

Envir	onmental imp	act										
	Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
P	GWP-total	kg CO ₂ - eq	5,56E-01	3,19E-02	1,77E-02	2,65E-02	1,28E-02	0	4,56E-03	5,40E-02	2,86E-03	-4,53E-02
P	GWP-fossil	kg CO ₂ - eq	5,49E-01	3,19E-02	1,65E-02	2,65E-02	1,26E-02	0	4,56E-03	5,40E-02	2,86E-03	-4,45E-02
P	GWP-biogenic	kg CO ₂ - eq	5,97E-03	1,33E-05	1,05E-03	1,08E-05	1,41E-04	0	1,86E-06	1,17E-06	2,33E-07	-1,98E-04
P	GWP-luluc	kg CO ₂ - eq	7,87E-04	1,09E-05	1,30E-04	9,27E-06	1,88E-05	0	1,59E-06	2,19E-07	1,49E-07	-5,68E-04
Ò	ODP	kg CFC11 - eq	6,64E-08	7,24E-09	1,71E-09	6,05E-09	1,66E-09	0	1,04E-09	1,17E-10	1,42E-10	-2,24E-04
Ê	AP	mol H+ -eq	2,34E-02	1,38E-04	5,56E-05	1,08E-04	4,75E-04	0	1,86E-05	1,18E-05	3,72E-06	-3,23E-03
÷	EP-FreshWater	kg P -eq	1,87E-04	2,56E-07	5,36E-07	2,08E-07	3,76E-06	0	3,58E-08	1,04E-08	6,93E-09	-2,17E-05
÷	EP-Marine	kg N -eq	1,34E-03	4,25E-05	1,12E-05	3,22E-05	2,87E-05	0	5,53E-06	5,65E-06	4,04E-06	-1,53E-04
÷	EP-Terrestial	mol N eq	1,92E-02	4,69E-04	1,18E-04	3,56E-04	4,04E-04	0	6,11E-05	5,80E-05	1,49E-05	-2,25E-03
	РОСР	kg NMVOC -eq	5,16E-03	1,43E-04	3,03E-05	1,09E-04	1,09E-04	0	1,87E-05	1,40E-05	4,79E-06	-6,26E-04
66 2	ADP- minerals&metals ¹	Kg Sb- eq	1,48E-03	7,71E-07	1,03E-07	7,19E-07	2,97E-05	0	1,24E-07	5,90E-09	3,65E-09	-1,71E-05
B	ADP-fossil ¹	MJ	7,59E+00	4,82E-01	3,64E-01	4,00E-01	1,78E-01	0	6,88E-02	7,42E-03	1,11E-02	-5,03E-01
6	WDP ¹	m ³	2,69E+01	4,37E-01	1,99E+01	3,82E-01	9,55E-01	0	6,56E-02	5,35E-02	1,95E-01	-1,29E+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

Remarks to environmental impacts



Addi	tional e	nvironmental i	mpact indi	cators								
Para	meter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	PM	Disease incidence	6,88E-08	2,45E-09	2,69E-10	1,91E-09	1,48E-09	0	3,28E-10	5,10E-11	7,00E-11	-9,25E-09
	IRP ²	kgBq U235 eq.	2,21E-02	2,11E-03	8,82E-03	1,75E-03	7,03E-04	0	3,01E-04	1,87E-05	6,43E-05	-1,77E-03
	ETP-fw ¹	CTUe	2,32E+02	3,58E-01	2,78E-01	2,95E-01	4,67E+00	0	5,06E-02	1,14E-01	1,09E+01	-2,86E+01
40.* ****	HTP-c ¹	CTUh	3,43E-09	0,00E+00	7,00E-12	0,00E+00	6,90E-11	0	0,00E+00	3,00E-12	0,00E+00	-4,57E-10
48° @	HTP-nc ¹	CTUh	2,68E-07	3,82E-10	2,12E-10	3,18E-10	5,38E-09	0	5,50E-11	1,42E-10	1,20E-11	-3,48E-08
6	SQP ¹	Pt	3,91E+00	3,82E-01	2,23E-01	2,76E-01	9,61E-02	0	4,74E-02	1,35E-03	2,99E-02	-6,52E-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.

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Resource	e use											
Para	ameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
ir S	PERE	MJ	1,04E+00	6,83E-03	1,12E-01	5,64E-03	2,34E-02	0	9,70E-04	4,13E-04	1,05E-03	-4,44E-01
A	PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
°F.	PERT	MJ	1,04E+00	6,83E-03	1,12E-01	5,64E-03	2,34E-02	0	9,70E-04	4,13E-04	1,05E-03	-4,44E-01
Ð	PENRE	MJ	6,57E+00	4,82E-01	3,77E-01	4,00E-01	1,58E-01	0	6,88E-02	7,42E-03	1,11E-02	-5,02E-01
Å.	PENRM	MJ	1,02E+00	0,00E+00	0,00E+00	0,00E+00	2,04E-02	0	0,00E+00	-9,54E-01	0,00E+00	0,00E+00
IA	PENRT	MJ	7,59E+00	4,82E-01	3,77E-01	4,00E-01	1,79E-01	0	6,88E-02	-9,47E-01	1,11E-02	-6,92E-01
	SM	kg	1,99E-02	0,00E+00	1,54E-04	0,00E+00	4,01E-04	0	0,00E+00	0,00E+00	9,65E-05	8,37E-03
P	RSF	MJ	1,87E-02	2,38E-04	1,31E-03	2,02E-04	4,10E-04	0	3,47E-05	8,87E-06	2,19E-05	4,13E-04
	NRSF	MJ	3,07E-03	8,83E-04	4,18E-03	7,21E-04	1,81E-04	0	1,24E-04	-4,08E-05	3,17E-06	-1,48E-02
\$	FW	m ³	7,05E-03	5,28E-05	5,09E-04	4,21E-05	1,53E-04	0	7,24E-06	6,27E-05	1,41E-05	-1,36E-03

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; PERT Total use of non renewable primary energy resources used as raw materials; PENRT Total 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

Prysmian Group

End of lif	fe - Waste											
Para	meter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
A	HWD	kg	3,60E-03	2,56E-05	1,95E-03	2,04E-05	1,12E-04	0	3,51E-06	2,95E-06	6,78E-04	-1,09E-04
Ū	NHWD	kg	1,24E-01	2,69E-02	2,91E-03	1,91E-02	3,45E-03	0	3,29E-03	1,55E-04	4,06E-02	-1,66E-02
2	RWD	kg	2,24E-05	3,28E-06	4,05E-06	2,73E-06	6,61E-07	0	4,69E-07	2,15E-08	7,52E-08	-1,62E-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

Er	nd of life	- Outpu	t flow										
	Param	eter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	\otimes	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	\$	MFR	kg	0,00E+00	0,00E+00	1,44E-04	0,00E+00	2,88E-06	0	0,00E+00	2,81E-02	2,21E-06	2,56E-03
	DF	MER	kg	0,00E+00	0,00E+00	1,31E-05	0,00E+00	2,61E-07	0	0,00E+00	9,27E-08	2,26E-06	-2,80E-05
	5D	EEE	MJ	0,00E+00	0,00E+00	5,12E-03	0,00E+00	1,02E-04	0	0,00E+00	3,50E-02	2,29E-05	1,02E-04
	Þ0	EET	MJ	0,00E+00	0,00E+00	7,75E-02	0,00E+00	1,55E-03	0	0,00E+00	5,30E-01	3,46E-04	1,55E-03

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, Finland (kWh)	ecoinvent 3.6	255,20	g CO2-eq/kWh

Dangerous substances

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

Indoor environment

No known impacts on indoor environment.

Additional Environmental Information

Environmen	tal impact indi	ators EN 1	5804+A1 a	nd NPCR F	Part A v2.0						
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq	5,35E-01	3,16E-02	2,11E-02	2,63E-02	1,24E-02	0	4,51E-03	5,40E-02	2,32E-03	-4,37E-02
ODP	kg CFC11 -eq	6,25E-08	5,75E-09	2,50E-09	4,77E-09	1,53E-09	0	8,21E-10	1,08E-10	1,23E-10	-2,94E-09
POCP	kg C ₂ H ₄ -eq	7,94E-04	4,29E-06	2,17E-06	3,51E-06	1,61E-05	0	6,03E-07	1,71E-07	4,45E-07	-1,16E-04
AP	kg SO ₂ -eq	1,96E-02	6,87E-05	4,38E-05	5,21E-05	3,96E-04	0	8,95E-06	8,28E-06	1,57E-06	-2,75E-03
EP	kg PO4 ³⁻ -eq	1,05E-03	8,19E-06	6,59E-06	5,56E-06	2,15E-05	0	9,56E-07	2,79E-06	1,47E-06	-1,24E-04
ADPM	kg Sb -eq	1,48E-03	7,71E-07	1,03E-07	7,19E-07	2,97E-05	0	1,24E-07	5,90E-09	3,93E-09	-1,71E-05
ADPE	MJ	6,82E+00	4,73E-01	3,80E-01	3,92E-01	1,63E-01	0	6,74E-02	7,42E-03	1,04E-02	-4,48E-01
GWPIOBC	kg CO ₂ -eq	5,55E-01	3,19E-02	1,58E-02	2,65E-02	1,27E-02	0	4,56E-03	5,40E-02	3,70E-04	-3,45E-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; GWP-IOBC/GHG Global warming potential calculated according to the principle of instantanious oxidation (except emissions and uptake of biogenic carbon)



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