

Environmental product declaration

In accordance with ISO 14025 and EN 15804 +A2

PN 2,5 FR G/G



Draka

A Brand of Prysmian Group

Prysmian
Group

The Norwegian EPD Foundation

Owner of the declaration:
Prysmian Group Norge AS

Declared unit:
1 m PN 2,5 FR G/G

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-3973-3007-EN

Registration number:
NEPD-3973-3007-EN

Issue date: 02.12.2022

Valid to: 02.12.2027

EPD Software:
LCA.no EPD generator

System ID:
50448

General information

Product

PN 2,5 FR G/G

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-3973-3007-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 PN 2,5 FR G/G

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 EPD Norway, and iii) the process is reviewed annually. 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 EPD Norway'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 Oulu (Finland)
Johdintie 5, 90630 Oulu
Finland

Management system:

ISO 9001, ISO 14001, ISO 45001

Organisation no:

814 780 422

Issue date: 02.12.2022

Valid to: 02.12.2027

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:

Cable for open or hidden pipe installation and as a connecting cable. Yellow / red color is allowed for signal reference earth, tele and data (SRJ). H07V-R

Product specification

Conductor material Copper
Core insulation material Polyvinyl chloride (PVC)
Material outer sheath Polyvinyl chloride (PVC)
Cable shape Round

Materials	kg	%
Metal - Copper	0,02	64,62
Plastic - Polyvinyl chloride (PVC)	0,01	35,38
Total	0,03	

Technical data:

PN 2,5 G/G
Art.nr. 20075376
El.nummer 1060710
Cenelec HD 21

Nominal voltage U0 [V] 450
Nominal voltage U [V] 750
Flame retardant Other
Reaction-to-fire class (acc. EN 13501-6) Eca
Max. conductor temperature [°C] 70
Bending radius (rule) 3xD

Market:

Norway

Reference service life, product

The reference service life of the product is highly dependent on the conditions of use. Expected lifetime at least 30 years, provided proper installation, load and ambient temperature.

Reference service life, building or construction works

60 years, standard service life for building constructions according to NPCR 027.

LCA: Calculation rules

Declared unit:

1 m PN 2,5 FR G/G

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.

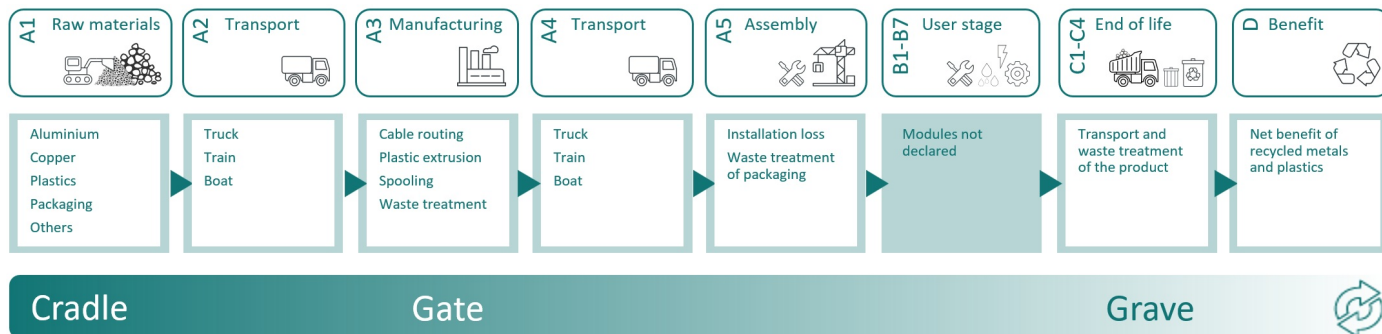
Materials	Source	Data quality	Year
Metal - Copper	ecoinvent 3.6	Database	2019
Plastic - Polyvinyl chloride (PVC)	ecoinvent 3.6	Database	2019

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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

This article represents a group of products of identical cross section, but with different colors. Expenditure of raw materials and energy consumption during manufacturing is the same for all articles listed below.

- El no. 1060709 PN 2,5mm2 BLUE, SAP 20075846
- El no. 1060711 PN 2,5mm2 BROWN, SAP 20075841
- El no. 1060708 PN 2,5mm2 GREY, SAP 20075378
- El no. 1060707 PN 2,5mm2 BLACK, SAP 20075847

All articles are delivered on 100 % recycled plastic bobbins, with a standard length of 100m.

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 (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
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			
Copper to recycling (kg)	kg	0,01			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,01			
Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,00			
Landfilling of copper (kg)	kg	0,01			
Landfilling of plastic mixture (kg)	kg	0,01			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary copper with net scrap (kg)	kg	0,00			
Substitution of electricity, in Norway (MJ)	MJ	0,01			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	0,13			

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	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	2,04E-01	6,93E-03	6,36E-03	9,52E-03	3,51E-03	0	1,64E-03	1,37E-02	7,85E-04	-5,00E-03	
 GWP-fossil	kg CO ₂ -eq	2,01E-01	6,93E-03	5,93E-03	9,51E-03	3,46E-03	0	1,64E-03	1,37E-02	7,85E-04	-4,95E-03	
 GWP-biogenic	kg CO ₂ -eq	3,31E-03	2,98E-06	3,78E-04	3,88E-06	4,40E-05	0	6,67E-07	2,98E-07	5,93E-08	-2,10E-05	
 GWP-luluc	kg CO ₂ -eq	1,97E-04	2,17E-06	4,65E-05	3,32E-06	3,58E-06	0	5,72E-07	5,57E-08	6,04E-08	-3,13E-05	
 ODP	kg CFC11-eq	2,07E-08	1,57E-09	6,13E-10	2,17E-09	4,64E-10	0	3,73E-10	3,00E-11	5,20E-11	-5,69E-05	
 AP	mol H ⁺ -eq	1,50E-02	3,32E-05	1,99E-05	3,89E-05	1,05E-04	0	6,68E-06	3,01E-06	1,40E-06	-7,06E-04	
 EP-FreshWater	kg P -eq	1,20E-04	5,70E-08	1,92E-07	7,47E-08	8,49E-07	0	1,28E-08	2,65E-09	2,81E-09	-4,78E-06	
 EP-Marine	kg N -eq	7,38E-04	1,08E-05	4,02E-06	1,15E-05	7,60E-06	0	1,98E-06	1,44E-06	1,19E-06	-3,08E-05	
 EP-Terrestrial	mol N eq	1,09E-02	1,19E-04	4,23E-05	1,28E-04	1,09E-04	0	2,19E-05	1,47E-05	5,61E-06	-4,68E-04	
 POCP	kg NMVOC-eq	2,93E-03	3,67E-05	1,09E-05	3,90E-05	2,78E-05	0	6,71E-06	3,56E-06	1,73E-06	-1,27E-04	
 ADP-minerals&metals ¹	Kg Sb-eq	4,07E-04	1,12E-07	3,69E-08	2,58E-07	7,36E-06	0	4,43E-08	1,50E-09	1,37E-09	-3,93E-06	
 ADP-fossil ¹	MJ	2,59E+00	1,06E-01	1,30E-01	1,43E-01	5,00E-02	0	2,47E-02	1,89E-03	4,14E-03	-4,84E-02	
 WDP ¹	m ³	3,50E+00	8,18E-02	7,13E+00	1,37E-01	3,41E-01	0	2,35E-02	1,36E-02	8,40E-02	8,89E-02	

GWP total Global Warming Potential total; GWP fossil Global Warming Potential fossil fuels ; GWP biogenic Global Warming Potential biogenic; GWP luluc Global Warming 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

Additional environmental impact indicators











Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
 PM	Disease incidence	3,53E-08	6,22E-10	9,60E-11	6,85E-10	3,45E-10	0	1,18E-10	1,30E-11	2,50E-11	-1,79E-09
 IRP ²	kgBq U235 eq.	7,87E-03	4,63E-04	3,16E-03	6,27E-04	2,57E-04	0	1,08E-04	4,75E-06	2,53E-05	-1,18E-04
 ETP-fw ¹	CTUe	1,47E+02	7,97E-02	9,96E-02	1,06E-01	1,35E+00	0	1,82E-02	2,90E-02	5,25E+00	-6,50E+00
 HTP-c ¹	CTUh	2,03E-09	0,00E+00	2,00E-12	0,00E+00	2,20E-11	0	0,00E+00	1,00E-12	0,00E+00	-9,20E-11
 HTP-nc ¹	CTUh	1,69E-07	8,00E-11	7,60E-11	1,14E-10	1,64E-09	0	2,00E-11	3,60E-11	5,00E-12	-7,84E-09
 SQP ¹	Pt	2,12E+00	1,18E-01	7,98E-02	9,89E-02	3,11E-02	0	1,70E-02	3,45E-04	9,92E-03	-1,56E-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	C1	C2	C3	C4	D	
 PERE	MJ	4,83E-01	1,47E-03	4,00E-02	2,02E-03	7,74E-03	0	3,48E-04	1,05E-04	4,55E-04	-8,40E-02	
 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	
 PERT	MJ	4,83E-01	1,47E-03	4,00E-02	2,02E-03	7,74E-03	0	3,48E-04	1,05E-04	4,55E-04	-8,40E-02	
 PENRE	MJ	2,35E+00	1,06E-01	1,35E-01	1,43E-01	4,53E-02	0	2,47E-02	1,89E-03	4,14E-03	-4,84E-02	
 PENRM	MJ	2,44E-01	0,00E+00	0,00E+00	0,00E+00	2,38E-05	0	0,00E+00	-2,43E-01	0,00E+00	0,00E+00	
 PENRT	MJ	2,59E+00	1,06E-01	1,35E-01	1,43E-01	4,53E-02	0	2,47E-02	-2,41E-01	4,14E-03	-9,67E-02	
 SM	kg	1,13E-02	0,00E+00	5,50E-05	0,00E+00	7,79E-05	0	0,00E+00	0,00E+00	4,46E-05	1,22E-03	
 RSF	MJ	5,34E-03	4,80E-05	4,70E-04	7,24E-05	2,20E-04	0	1,25E-05	2,26E-06	9,42E-06	1,04E-04	
 NRSF	MJ	3,23E-03	1,89E-04	1,50E-03	2,59E-04	3,78E-05	0	4,45E-05	-1,04E-05	-9,92E-07	-3,84E-03	
 FW	m ³	3,24E-03	1,26E-05	1,83E-04	1,51E-05	4,77E-05	0	2,60E-06	1,60E-05	5,35E-06	-1,85E-04	

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	C1	C2	C3	C4	D
	HWD	kg	1,45E-03	6,14E-06	6,98E-04	7,31E-06	3,14E-05	0	1,26E-06	7,51E-07	3,23E-04	-4,77E-05
	NHWD	kg	5,50E-02	8,63E-03	1,04E-03	6,85E-03	1,53E-03	0	1,18E-03	3,93E-05	1,44E-02	-2,27E-03
	RWD	kg	7,70E-06	7,21E-07	1,45E-06	9,78E-07	2,31E-07	0	1,68E-07	5,47E-09	2,84E-08	-1,00E-07

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	C1	C2	C3	C4	D
	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	5,16E-05	0,00E+00	2,57E-04	0	0,00E+00	1,27E-02	6,00E-07	-4,77E-05
	MER	kg	0,00E+00	0,00E+00	4,68E-06	0,00E+00	1,15E-07	0	0,00E+00	2,36E-08	1,08E-06	-6,28E-06
	EEE	MJ	0,00E+00	0,00E+00	1,84E-03	0,00E+00	1,79E-04	0	0,00E+00	8,91E-03	1,03E-05	-1,54E-05
	EET	MJ	0,00E+00	0,00E+00	2,78E-02	0,00E+00	2,71E-03	0	0,00E+00	1,35E-01	1,56E-04	-2,33E-04

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 impact on indoor environment.

Additional Environmental Information

Environmental impact indicators EN 15804+A1 and NPCR Part A v2.0											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq	1,97E-01	6,85E-03	7,58E-03	9,41E-03	3,44E-03	0	1,62E-03	1,37E-02	6,59E-04	-4,82E-03
ODP	kg CFC11 -eq	1,92E-08	1,27E-09	8,98E-10	1,71E-09	4,40E-10	0	2,94E-10	2,80E-11	4,50E-11	-2,55E-10
POCP	kg C ₂ H ₄ -eq	5,01E-04	9,56E-07	7,77E-07	1,26E-06	3,41E-06	0	2,16E-07	4,35E-08	1,27E-07	-2,42E-05
AP	kg SO ₂ -eq	1,27E-02	1,73E-05	1,57E-05	1,87E-05	8,31E-05	0	3,21E-06	2,11E-06	5,97E-07	-6,02E-04
EP	kg PO ₄ ³⁻ -eq	6,44E-04	2,37E-06	2,36E-06	1,99E-06	4,70E-06	0	3,43E-07	7,11E-07	4,05E-07	-2,64E-05
ADPM	kg Sb -eq	4,07E-04	1,12E-07	3,69E-08	2,58E-07	7,36E-06	0	4,43E-08	1,50E-09	1,44E-09	-3,93E-06
ADPE	MJ	2,34E+00	1,04E-01	1,36E-01	1,40E-01	4,30E-02	0	2,42E-02	1,89E-03	3,77E-03	-4,72E-02
GWPIOBC	kg CO ₂ -eq	2,04E-01	6,93E-03	5,65E-03	9,52E-03	3,52E-03	0	1,64E-03	1,37E-02	1,63E-04	-2,78E-03

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 instantaneous oxidation (except emissions and uptake of biogenic carbon)

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 EPD Norway (2022). NPCR 027 Part B for electrical cables and wires. The Norwegian EPD foundation. Version 2.0 published 01.03.2022.

<p>Global Program Operator</p>	Program operator and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway	Phone: +47 23 08 80 00 e-mail: post@epd-norge.no web: www.epd-norge.no
	Owner of the declaration: Prysmian Group Norge AS Kjerraten 16, 3013 Drammen	Phone: +47 90066733 e-mail: anders.nymark@prysmiangroup.com web: www.prysmiangroup.no
	Author of the Life Cycle Assessment LCA.no AS Dokka 6B, 1671	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 6B, 1671 Kråkerøy	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	ECO Platform ECO Portal	Web: www.eco-platform.org Web: ECO Portal

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