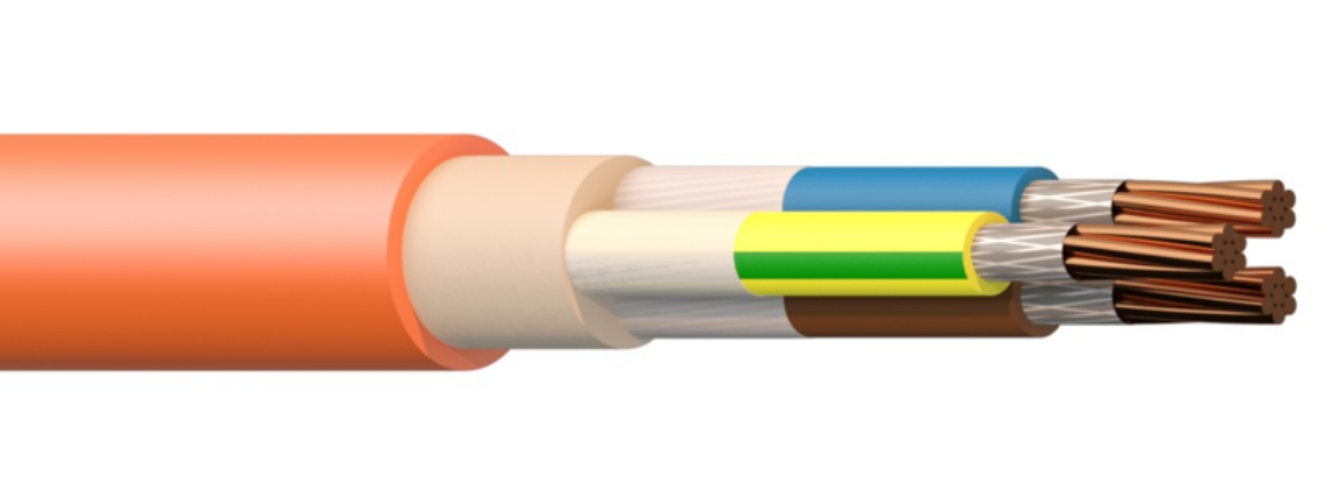


# Environmental product declaration

In accordance with 14025 and EN15804+A2

BFXI 1kV 5G16mm<sup>2</sup> FR Orange



# Draka

A Brand of Prysmian Group

Image may not be identical to the product declared, but represents an article from the same family.

**Prysmian**  
Group

The Norwegian EPD Foundation

**Owner of the declaration:**

Prysmian Group Norge AS

**Product:**

BFXI 1kV 5G16mm<sup>2</sup> FR Orange

**Declared unit:**

1 m

**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:**

**Registration number:**

**Issue date:**

**Valid to:**

**EPD Software:**

LCA.no EPD generator ID: 59501

## **General information**

### **Product**

BFXI 1kV 5G16mm<sup>2</sup> FR Orange

### **Program operator:**

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

### **Declaration number:**

### **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 BFXI 1kV 5G16mm<sup>2</sup> FR Orange

### **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 BFXI 1kV 5G16 mm<sup>2</sup>, used to transmit a reference energy throughput of 1A over a period of 40 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. 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 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 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](mailto: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:**

### **Valid to:**

### **Year of study:**

2022

### **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:**

## **Product**

### **Product description:**

BFXI 1KV

Installations with up to 1kV operating voltage, in places where the electrical function is to maintain during fire. Allowed indoors, outdoors with extra protection against UV radiation / sunlight and in soil if given extra protection. Halogen-free cable is recommended used when it is important to avoid the formation of dense smoke and corrosive gases in the event of an overheating or fire.

### **Product specification**

Conductor material Copper

Conductor surface Bare

Core insulation material Mica + XLPE

Core identification (acc. HD 308 S2) Yes

Material outer sheath Halogen free polymer

Cable shape Round

Materials	kg	%
HFFR Polyolefin	0,24	18,56
Metal - Copper	0,70	53,54
Plastic compound - Halogen free polymer	0,21	15,95
Plastic - Polyethylene	0,10	7,49
Tape - Mica	0,06	4,46
Total	1,30	

### **Technical data:**

BFXI 1kV 5G16mm<sup>2</sup>

SAP code: 20159278

EL nr.: 1017017

### **STANDARDS APPLIED:**

HD 604-5D Construction

IEC 60502-1 Construction

IEC 60228 Class 1 or Class 2 Conductors

IEC 60331-1-2 Fire resistant properties (90min - 830°C)

IEC 60332-3-24 (Cat. C) Flame retardant

EN 60754-1 and EN 60754-2 Halogen free properties: EN 60754-1 (pH = 4,3, Conductivity = 10µS), EN

60754-2 ( < 0,5% Halogen)

IEC 61034-1, -2 Low smoke properties: IEC 61034-1, -2 (minimum 60% light transmittance)

### **Market:**

Norway

### **Reference service life, product**

40 years.

### **Reference service life, building or construction works**

40 years.

## **LCA: Calculation rules**

### **Declared unit:**

1 m BFXI 1kV 5G16mm<sup>2</sup> FR Orange

### **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.

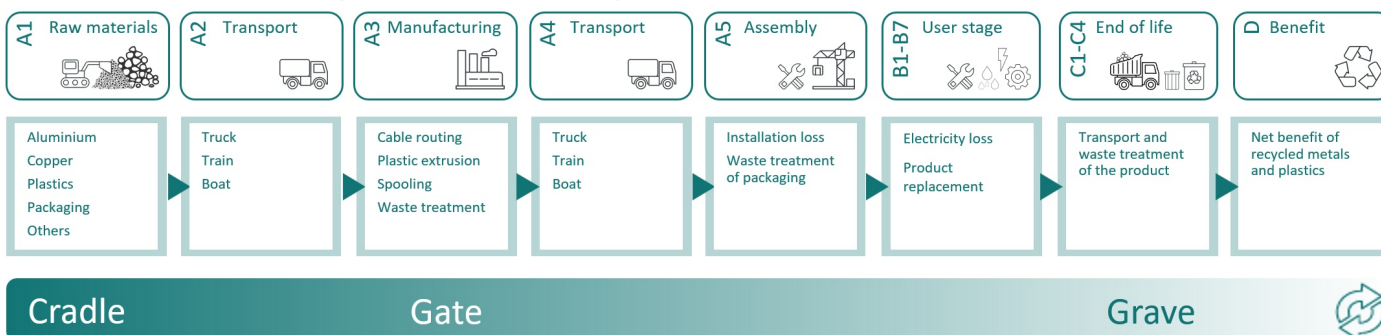
Materials	Source	Data quality	Year
HFFR Polyolefin	ecoinvent 3.6	Database	2019
Metal - Copper	ecoinvent 3.6	Database	2019
Plastic - Polyethylene	ecoinvent 3.6	Database	2019
Tape - Mica	ecoinvent 3.6	Database	2019
Plastic compound - Halogen free polymer	Product composition + ecoinvent 3.6	Supplier data + 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:**

The article 20159278 BFXI 1kV 5x16mm<sup>2</sup>FR represents the product with the highest expenditure of raw materials and energy consumption during manufacturing of all the following products from the same product family:

- 1017032 20380922 BFXI 1kV 2x6mm<sup>2</sup> FR Orange
- 1017033 20380921 BFXI 1kV 2x10mm<sup>2</sup> FR Orange
- 1017034 20380923 BFXI 1kV 2x16mm<sup>2</sup> FR Orange

- 1017000 20159279 BFXI 1kV 3G1,5mm<sup>2</sup> ER Orange
- 1017001 20159276 BFXI 1kV 3G2,5mm<sup>2</sup> ER Orange
- 1017002 20159275 BFXI 1kV 3G4mm<sup>2</sup> FR Orange
- 1017003 20159280 BFXI 1kV 3G6mm<sup>2</sup> FR Orange
- 1017004 20159291 BFXI 1kV 3G10mm<sup>2</sup> FR Orange
- 1017005 20159292 BFXI 1kV 3G16mm<sup>2</sup> FR Orange

- 1017006 20159293 BFXI 1kV 4G1,5mm<sup>2</sup> ER Orange
- 1017007 20159294 BFXI 1kV 4G2,5mm<sup>2</sup> ER Orange
- 1017008 20159295 BFXI 1kV 4G4mm<sup>2</sup> FR Orange
- 1017009 20159296 BFXI 1kV 4G6mm<sup>2</sup> FR Orange
- 1017010 20159297 BFXI 1kV 4G10mm<sup>2</sup> FR Orange
- 1017011 20159298 BFXI 1kV 4G16mm<sup>2</sup> FR Orange

- 1017035 20379192 BFXI 1kV 4G25mm<sup>2</sup> FR Orange
- 1017036 20379193 BFXI 1kV 4G35mm<sup>2</sup> FR Orange
- 1017037 20379130 BFXI 1kV 4G50mm<sup>2</sup> FR Orange
- 1017038 20379191 BFXI 1kV 4G70mm<sup>2</sup> FR Orange
- 1017039 20379194 BFXI 1kV 4G95mm<sup>2</sup> FR Orange

- 1017012 20159299 BFXI 1kV 5G1,5mm<sup>2</sup> ER Orange
- 1017013 20159300 BFXI 1kV 5G2,5mm<sup>2</sup> ER Orange
- 1017014 20159274 BFXI 1kV 5G4mm<sup>2</sup> FR Orange
- 1017015 20159273 BFXI 1kV 5G6mm<sup>2</sup> FR Orange
- 1017016 20159277 BFXI 1kV 5G10mm<sup>2</sup> FR Orange
- 1017017 20159278 BFXI 1kV 5G16mm<sup>2</sup> FR Orange

## 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 40 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 = 40 years
- Number of conductors = 5 units
- Use rate = 100 percent (according to appendix 1 of the PSR)
- Linear conductor resistivity = 0,001125 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 heavier 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/tonne)
Truck, over 32 tonnes, EURO 5 (km)	53,3 %	1745	0,023	l/tkm	40,14
Assembly (A5)		Unit	Value		
Product loss during installation (percentage of cable)	Units/DU	0,02			
Operational energy (B6)		Unit	Value		
Electricity, Norway (kWh)	kWh/DU	1,97			
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	0,42			
Waste treatment of non-hazardous waste, incineration with fly ash extraction (kg)	kg	0,06			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,22			
Waste treatment of polyethylene (PE), incineration with energy recovery and fly ash extraction (kg)	kg	0,05			
Disposal (C4)		Unit	Value		
Landfilling of ashes from incineration of Non-hazardous waste, process per kg ashes and residues (kg)	kg	0,01			
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	0,28			
Landfilling of plastic mixture (kg)	kg	0,27			














Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity, in Norway (MJ)	MJ	0,44			
Substitution of primary copper with net scrap (kg)	kg	0,06			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	6,66			

## LCA: Results

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

Environmental impact										
Indicator		Unit	A1	A2	A3	A4	A5	B1	B2	B3
	GWP-total	kg CO <sub>2</sub> -eq	6,70E+00	3,29E-01	4,42E-01	2,07E-01	1,71E-01	0	0	0
	GWP-fossil	kg CO <sub>2</sub> -eq	6,58E+00	3,28E-01	4,21E-01	2,07E-01	1,66E-01	0	0	0
	GWP-biogenic	kg CO <sub>2</sub> -eq	1,15E-01	1,32E-04	1,69E-02	8,50E-05	4,47E-03	0	0	0
	GWP-luluc	kg CO <sub>2</sub> -eq	6,90E-03	1,03E-04	3,82E-03	6,05E-05	2,18E-04	0	0	0
	ODP	kg CFC11 -eq	4,34E-07	7,53E-08	4,94E-08	4,79E-08	1,25E-08	0	0	0
	AP	mol H+ -eq	5,05E-01	1,85E-03	1,58E-03	8,71E-04	1,02E-02	0	0	0
	EP-FreshWater	kg P -eq	4,08E-03	2,45E-06	1,55E-05	1,58E-06	8,19E-05	0	0	0
	EP-Marine	kg N -eq	2,47E-02	5,27E-04	2,88E-04	2,62E-04	5,20E-04	0	0	0
	EP-Terrestrial	mol N -eq	3,66E-01	5,84E-03	3,26E-03	2,90E-03	7,60E-03	0	0	0
	POCP	kg NMVOC -eq	9,89E-02	1,78E-03	8,36E-04	9,31E-04	2,06E-03	0	0	0
	ADP-minerals&metals <sup>1</sup>	kg Sb -eq	2,87E-03	5,70E-06	2,91E-06	3,54E-06	5,77E-05	0	0	0
	ADP-fossil <sup>1</sup>	MJ	8,65E+01	5,05E+00	1,06E+01	3,22E+00	2,13E+00	0	0	0
	WDP <sup>1</sup>	m <sup>3</sup>	8,06E+01	3,83E+00	5,85E+02	2,47E+00	1,35E+01	0	0	0

Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	GWP-total	kg CO <sub>2</sub> -eq	0	0	4,80E-02	0	0	6,54E-02	7,73E-01	3,54E-02	-1,78E-01
	GWP-fossil	kg CO <sub>2</sub> -eq	0	0	4,65E-02	0	0	6,53E-02	6,81E-01	3,54E-02	-1,76E-01
	GWP-biogenic	kg CO <sub>2</sub> -eq	0	0	1,28E-03	0	0	2,66E-05	9,18E-02	2,85E-06	-7,18E-04
	GWP-luluc	kg CO <sub>2</sub> -eq	0	0	1,92E-04	0	0	2,28E-05	2,65E-06	2,20E-06	-1,48E-03
	ODP	kg CFC11 -eq	0	0	3,19E-09	0	0	1,49E-08	1,43E-09	2,00E-09	-2,81E-03
	AP	mol H+ -eq	0	0	3,63E-04	0	0	2,67E-04	1,50E-04	5,30E-05	-2,34E-02
	EP-FreshWater	kg P -eq	0	0	3,34E-06	0	0	5,13E-07	1,31E-07	1,03E-07	-1,59E-04
	EP-Marine	kg N -eq	0	0	3,99E-05	0	0	7,92E-05	7,14E-05	5,15E-05	-1,05E-03
	EP-Terrestrial	mol N -eq	0	0	5,20E-04	0	0	8,76E-04	7,37E-04	2,13E-04	-1,58E-02
	POCP	kg NMVOC -eq	0	0	1,40E-04	0	0	2,68E-04	1,78E-04	6,69E-05	-4,30E-03
	ADP-minerals&metals <sup>1</sup>	kg Sb -eq	0	0	3,47E-06	0	0	1,77E-06	7,13E-08	5,25E-08	-1,30E-04
	ADP-fossil <sup>1</sup>	MJ	0	0	6,34E-01	0	0	9,85E-01	9,28E-02	1,57E-01	-1,78E+00
	WDP <sup>1</sup>	m <sup>3</sup>	0	0	1,11E+02	0	0	9,40E-01	4,89E-01	2,94E+00	6,38E-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<sup>-3</sup> = 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										
Indicator		Unit	A1	A2	A3	A4	A5	B1	B2	B3
	PM	Disease incidence	1,15E-06	2,75E-08	7,48E-09	1,82E-08	2,42E-08	0	0	0
	IRP <sup>2</sup>	kgBq U235 -eq	2,38E-01	2,21E-02	2,59E-01	1,41E-02	1,08E-02	0	0	0
	ETP-fw <sup>1</sup>	CTUe	4,93E+03	3,66E+00	7,85E+00	2,36E+00	1,02E+02	0	0	0
	HTP-c <sup>1</sup>	CTUh	6,98E-08	0,00E+00	2,11E-10	0,00E+00	1,40E-09	0	0	0
	HTP-nc <sup>1</sup>	CTUh	5,73E-06	3,61E-09	5,52E-09	2,28E-09	1,15E-07	0	0	0
	SQP <sup>1</sup>	dimensionless	7,07E+01	5,40E+00	6,50E+00	3,70E+00	1,75E+00	0	0	0











Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	PM	Disease incidence	0	0	2,60E-09	0	0	4,70E-09	7,00E-10	9,75E-10	-6,54E-08
	IRP <sup>2</sup>	kgBq U235 -eq	0	0	1,15E-02	0	0	4,31E-03	2,26E-04	9,33E-04	-5,05E-03
	ETP-fw <sup>1</sup>	CTUe	0	0	2,89E+00	0	0	7,26E-01	1,27E+00	1,73E+02	-2,15E+02
	HTP-c <sup>1</sup>	CTUh	0	0	1,38E-10	0	0	0,00E+00	3,80E-11	1,00E-11	-3,05E-09
	HTP-nc <sup>1</sup>	CTUh	0	0	3,25E-09	0	0	7,84E-10	1,69E-09	1,93E-10	-2,59E-07
	SQP <sup>1</sup>	dimensionless	0	0	3,20E-01	0	0	6,79E-01	1,64E-02	4,03E-01	-6,38E+00

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<sup>-3</sup> = 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										
Indicator	Unit	A1	A2	A3	A4	A5	B1	B2	B3	
 PERE	MJ	1,67E+01	6,28E-02	3,28E+00	4,06E-02	4,03E-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	1,67E+01	6,28E-02	3,28E+00	4,06E-02	4,03E-01	0	0	0	
 PENRE	MJ	7,57E+01	5,05E+00	1,10E+01	3,22E+00	1,92E+00	0	0	0	
 PENRM	MJ	1,12E+01	0,00E+00	0,00E+00	0,00E+00	1,34E-02	0	0	0	
 PENRT	MJ	8,69E+01	5,05E+00	1,10E+01	3,22E+00	1,94E+00	0	0	0	
 SM	kg	3,81E-01	0,00E+00	1,48E-03	0,00E+00	7,67E-03	0	0	0	
 RSF	MJ	1,59E-01	2,19E-03	3,83E-02	1,42E-03	4,03E-03	0	0	0	
 NRSF	MJ	1,25E-01	6,90E-03	1,23E-01	4,76E-03	5,23E-03	0	0	0	
 FW	m <sup>3</sup>	1,73E-01	5,58E-04	1,08E-02	3,67E-04	3,72E-03	0	0	0	




  

Indicator	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
 PERE	MJ	0	0	8,22E+00	0	0	1,39E-02	4,91E-03	1,59E-02	-3,90E+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	8,22E+00	0	0	1,39E-02	4,91E-03	1,59E-02	-3,90E+00
 PENRE	MJ	0	0	6,35E-01	0	0	9,85E-01	9,43E-02	1,57E-01	-1,78E+00
 PENRM	MJ	0	0	0,00E+00	0	0	0,00E+00	-1,06E+01	0,00E+00	0,00E+00
 PENRT	MJ	0	0	6,35E-01	0	0	9,85E-01	-1,05E+01	1,57E-01	-3,30E+00
 SM	kg	0	0	0,00E+00	0	0	0,00E+00	-1,19E-04	1,46E-03	4,02E-02
 RSF	MJ	0	0	6,45E-03	0	0	4,98E-04	1,08E-04	3,30E-04	3,22E-03
 NRSF	MJ	0	0	1,61E-02	0	0	1,78E-03	-4,07E-04	1,76E-04	-1,94E-01
 FW	m <sup>3</sup>	0	0	6,14E-02	0	0	1,04E-04	7,16E-04	2,01E-04	-7,47E-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; 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<sup>-3</sup> = 0,009"

\*INA Indicator Not Assessed

End of life - Waste										
Indicator	Unit	A1	A2	A3	A4	A5	B1	B2	B3	
	HWD	kg	4,96E-02	2,72E-04	3,23E-02	1,76E-04	2,13E-03	0	0	0
	NHWD	kg	1,92E+00	4,06E-01	5,89E-02	2,80E-01	6,54E-02	0	0	0
	RWD	kg	2,19E-04	3,45E-05	1,19E-04	2,20E-05	8,05E-06	0	0	0






  

Indicator	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D	
	HWD	kg	0	0	4,07E-04	0	0	5,02E-05	2,65E-05	2,43E-02	-1,58E-03
	NHWD	kg	0	0	4,89E-02	0	0	4,71E-02	1,22E-03	5,60E-01	-7,92E-02
	RWD	kg	0	0	5,68E-06	0	0	6,72E-06	1,63E-07	1,09E-06	-4,27E-06






HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed;

\*Reading example: 9,0 E-03 = 9,0\*10<sup>-3</sup> = 0,009"

\*INA Indicator Not Assessed

End of life - Output flow										
Indicator	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	1,32E-04	0,00E+00	2,66E-03	0,00E+00	8,43E-03	0	0	0
	MER	kg	3,09E-04	0,00E+00	1,29E-06	0,00E+00	2,09E-03	0	0	0
	EEE	MJ	5,75E-04	0,00E+00	7,75E-02	0,00E+00	1,13E-02	0	0	0
	EET	MJ	8,70E-03	0,00E+00	1,17E+00	0,00E+00	1,71E-01	0	0	0

Indicator	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	0,00E+00	0	0	0,00E+00	4,19E-01	2,74E-05	-1,57E-03
	MER	kg	0	0	0,00E+00	0	0	0,00E+00	1,04E-01	3,59E-05	-2,07E-04
	EEE	MJ	0	0	0,00E+00	0	0	0,00E+00	4,88E-01	3,52E-04	-5,07E-04
	EET	MJ	0	0	0,00E+00	0	0	0,00E+00	7,38E+00	5,33E-03	-7,67E-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<sup>-3</sup> = 0,009"

\*INA Indicator Not Assessed

Biogenic Carbon Content		
Indicator	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 CO<sub>2</sub>

## 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 CO <sub>2</sub> -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									
Indicator	Unit	A1	A2	A3	A4	A5	B1	B2	B3
GWP	kg CO <sub>2</sub> -eq	6,17E+00	3,25E-01	5,47E-01	2,05E-01	1,62E-01	0	0	0
ODP	kg CFC11 -eq	3,70E-07	6,09E-08	7,29E-08	3,88E-08	1,11E-08	0	0	0
POCP	kg C <sub>2</sub> H <sub>4</sub> -eq	1,70E-02	5,14E-05	6,02E-05	2,67E-05	3,43E-04	0	0	0
AP	kg SO <sub>2</sub> -eq	4,28E-01	1,05E-03	1,26E-03	4,14E-04	8,62E-03	0	0	0
EP	kg PO <sub>4</sub> <sup>3-</sup> -eq	2,15E-02	1,15E-04	1,74E-04	4,51E-05	4,37E-04	0	0	0
ADPM	kg Sb -eq	2,87E-03	5,70E-06	2,91E-06	3,54E-06	5,76E-05	0	0	0
ADPE	MJ	7,17E+01	4,96E+00	1,11E+01	3,16E+00	1,84E+00	0	0	0
GWPIOBC	kg CO <sub>2</sub> -eq	6,68E+00	3,29E-01	4,63E-01	2,07E-01	1,70E-01	0	0	0

Indicator	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP	kg CO <sub>2</sub> -eq	0	0	4,59E-02	0	0	6,47E-02	7,53E-01	2,91E-02	-1,72E-01
ODP	kg CFC11 -eq	0	0	4,05E-09	0	0	1,18E-08	1,33E-09	1,74E-09	-9,76E-09
POCP	kg C <sub>2</sub> H <sub>4</sub> -eq	0	0	1,37E-05	0	0	8,64E-06	2,21E-06	5,61E-06	-8,12E-04
AP	kg SO <sub>2</sub> -eq	0	0	2,87E-04	0	0	1,28E-04	1,05E-04	2,26E-05	-1,99E-02
EP	kg PO <sub>4</sub> <sup>3-</sup> -eq	0	0	2,69E-05	0	0	1,37E-05	3,54E-05	1,82E-05	-8,92E-04
ADPM	kg Sb -eq	0	0	3,47E-06	0	0	1,77E-06	7,60E-08	5,75E-08	-1,30E-04
ADPE	MJ	0	0	3,13E-01	0	0	9,65E-01	9,58E-02	1,48E-01	-1,70E+00
GWPIOBC	kg CO <sub>2</sub> -eq	0	0	4,79E-02	0	0	6,54E-02	7,53E-01	5,74E-03	-1,05E-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 instantaneous oxidation (except emissions and uptake of biogenic carbon)

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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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