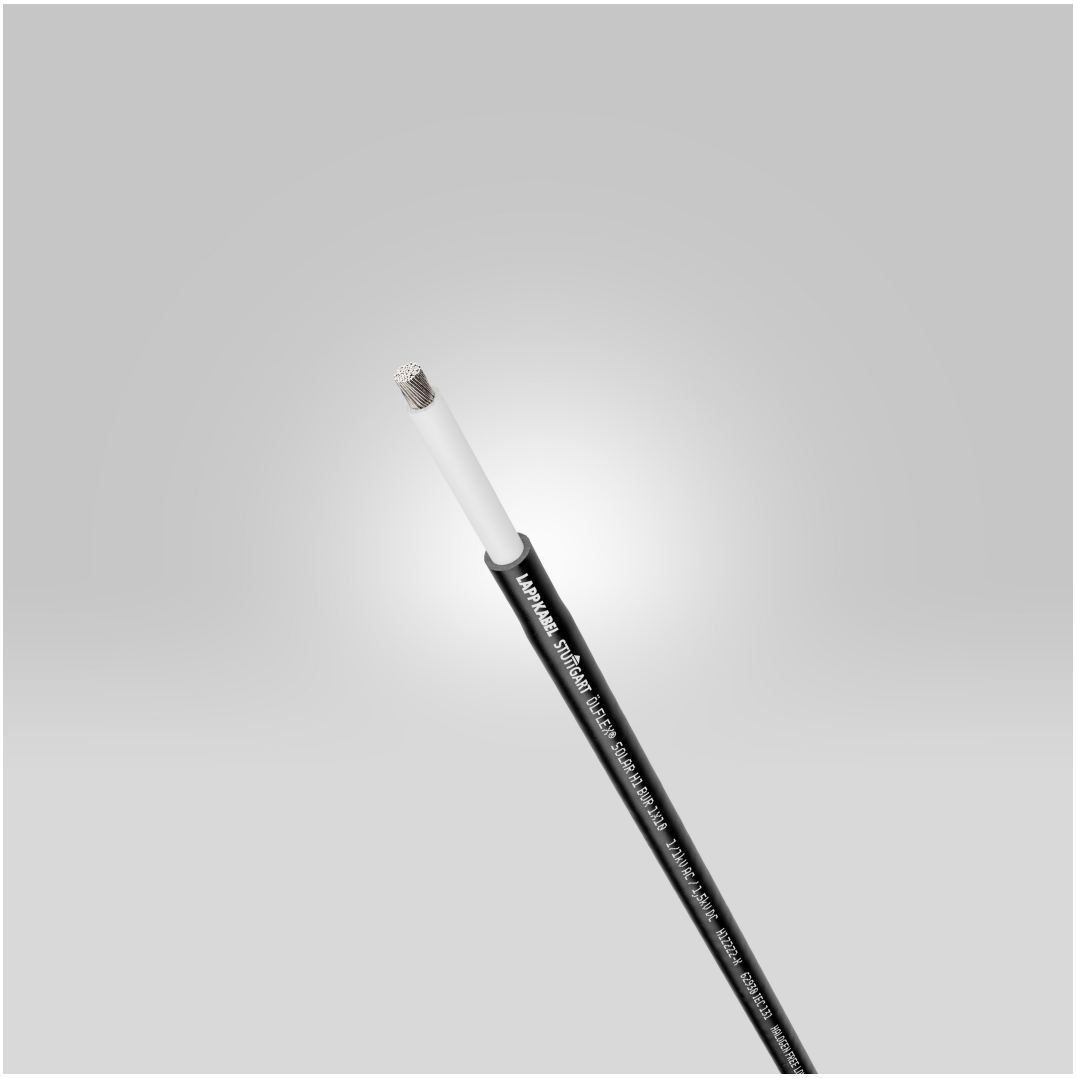
epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

LAPP ÖLFLEX SOLAR H1 BUR 4mm2 El.nr: 1036102 and 1036103



The Norwegian EPD Foundation

Owner of the declaration:
Lapp Norway AS

Product:
LAPP ÖLFLEX SOLAR H1 BUR 4mm2 El.nr: 1036102 and 1036103

Declared unit:
1 m

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 027:2020 Part B for Electrical cables and wires

Program operator:
The Norwegian EPD Foundation

Declaration number:
NEPD-8213-7878-EN

Registration number:
NEPD-8213-7878-EN

Issue date:
22.11.2024

Valid to:
22.11.2029

EPD software:
LCAno EPD generator ID: 667684

General information

Product

LAPP ÖLFLEX SOLAR H1 BUR 4mm2 El.nr: 1036102 and 1036103

Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-norge.no

Declaration number:

NEPD-8213-7878-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 027:2020 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 LAPP ÖLFLEX SOLAR H1 BUR 4mm2 El.nr: 1036102 and 1036103

Declared unit with option:

A1,A2,A3,A4,A5,B6,C1,C2,C3,C4,D

Functional unit:

1 meter of ÖLFLEX SOLAR H1 BUR 4mm2 from cradle to grave

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. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are 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 by an independent third party verifier. 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:

Lapp Norway AS
Contact person: Petter Dahl
Phone: 91597046
e-mail: petter.dahl@lapp.com

Manufacturer:

Lapp Norway AS
Eikringen 11
3036 Drammen, Norway

Place of production:

Cableries Lapp S.a.r.l.
Technopole Sud Forbach
F - 57600 FORBACH, France

Management system:

ISO 14001, ISO 9001

Organisation no:

919 398 876

Issue date:

22.11.2024

Valid to:

22.11.2029

Year of study:

2023

Comparability:

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

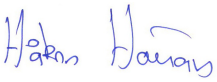
Development and verification of EPD:

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: NEPDT133

Developer of EPD: Petter Dahl

Reviewer of company-specific input data and EPD: Lars Nilsen

Approved:



Håkon Hauan, CEO EPD-Norge

Product

Product description:

ÖLFLEX SOLAR H1 BUR cables are weather- and UV-resistant photovoltaic cables.

These cross-linked, halogen-free and double-insulated solar cables are suitable for permanent outdoor use and especially for the interconnection of grounded and ungrounded photovoltaic power systems. They are applicable for the connection of solar panels among themselves and as extension cable between the individual module strings or the DC/AC inverter.

Recommended use of cables for PV systems acc. to IEC 62930 and EN 50618:
Intended for use in PV installations e.g. acc. to IEC 60364-7-712 resp. HD 60364-7-712.
They are intended for permanent use outdoor and indoor, for free movable, free hanging and fixed installation.
It is also permitted to install the cables in conduit or trunking systems.

CPR classification: Dca-s2,d2,a1

Product specification

Product Make-up

Conductor: Fine wire strands of tinned copper acc. to IEC 60228 resp. EN IEC 60228, class 5
Core insulation: Cross-linked polyolefin co-polymer acc. to IEC 62930 and
EN 50618, halogen free
Colour: White

Outer sheath: cross-linked polyolefin co-polymer acc. to IEC 62930 and EN 50618, halogen free
Colour: black or blue or red

Materials	kg	%
Metal - Copper	0,03	50,00
Plastic - Polyethylene	0,03	50,00
Total	0,06	100,00

Packaging	kg	%
Packaging - Wood	0,01	100,00
Total incl. packaging	0,07	100,00

Technical data:

Mechanical and thermal properties

Minimum ambient temperature fixed installation -40 °C

Conductor temperature, fixed installation up to +90 °C maximum conductor temperature during normal continuous operation acc. to IEC 62930 and EN 50618, up to +120 °C (maximum conductor temperature limited to 20.000 hours acc. to IEC 60216-2) acc. to IEC 62930 and EN 50618

Minimum temperature, during installation and handling
-25 °C acc. to IEC 62930 and EN 50618

Max. storage temperature +45 °C acc. to IEC 62930, +40 °C acc. to EN 50618

Max. short circuit temperature +250 °C (5s) acc. to IEC 62930 and EN 50618

Minimum bending radius, occasional flexing:15 x outer diameter

Minimum bending radius, stationary use
4 x outer diameter for outer diameter = 8 mm
5 x outer diameter for outer diameter > 8 mm

Weather/UV resistance acc. to IEC 62930, Appendix E and EN 50618, Appendix E

Ozone resistance acc. to IEC 62930 and EN 50618

Halogen-free
acc. to IEC 62930 and EN 50618
acc. to IEC 60754-1 resp. EN 60754-1 and IEC 60754-2 resp. EN 60754-2

Smoke density
acc. to IEC 62930 and EN 50618
acc. to IEC 61034-2 resp. EN 61034-2

Flammability flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2

Acid and alkali resistance
acc. to IEC 62930 and EN 50618
acc. to IEC 60811-404 resp. EN 60811-404 (oxalic acid and sodium hydroxide solution)

Underground use
acc. to UL 854, Section 23 (Impact Resistance Test)
acc. to UL 854, Section 24 (Crushing Resistance Test)

Presence of water
Permanent submersion AD8 acc. to IEC 62440 and IEC 60364-5-51, tested acc. to EN-50525-2-21, appendix D and E

General requirements
These cables are conform to the EU Directive 2014/35/EU (Low Voltage Directive)
A part of these cables (see www.lappkabel.com/cpr) are classified acc. to the EU-Regulation no. 305/2011 (CPR).

Environmental information
These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS)

Market:

Norway

Reference service life, product

Expected lifetime 10 years, Standard lifetime for photovoltaic power plants applications, provided in appendix 1 of PSR for wires, cables and accessories of PEP Ecopassport.

Reference service life, building or construction works

10 years. Estimation made to match the product service life and keep the EPD environmental impact calculations at the product level

LCA: Calculation rules

Declared unit:

1 m LAPP ÖLFLEX SOLAR H1 BUR 4mm2 El.nr: 1036102 and 1036103

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
Packaging - Wood	ecoinvent 3.6	Database	2019
Plastic - Polyethylene	ecoinvent 3.6	Database	2019

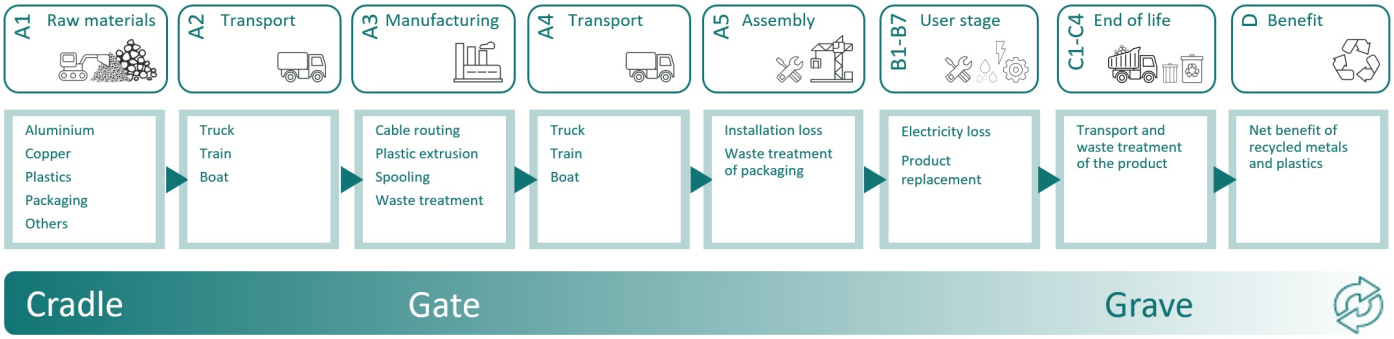
System boundaries (X=included, MND=module not declared, MNR=module not relevant)

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	X	MND	X	X	X	X	X

System boundary:

1m LAPP ÖLFLEX SOLAR H1 BUR 4mm2 El.nr: 1036102 and 1036103

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

This EPD includes only the spesific cables as named in the heading. For other cross sections EPD can be made on request.

LCA: Scenarios and additional technical information

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

Module A4 = In A4, a transport distance from the production site to LAPP Norways warehouse in Drammen was included. A distance of 300 km was also added as additional transport to market.

Modules A5 = 5 % product losses during installation are estimated by the company. No energy use has been quantified since installation in buildings is often done by manual labour. Use of portable electrical devices (e.g., drill) usually have low energy requirements falling under the cut off criterion of 1%. Cable drums are reused and also assumed under the cut-off criterion of 1%.

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:
- Reference service life = 10 years (according to appendix 1 of the PSR)
- Number of conductors = 1 unit
- Use rate = 50% percent (according to appendix 1 of the PSR)
Linear conductor resistivity = 0,0045 Ohm per meter
- Current intensity = 1 Ampere

Module C1 = de-construction in buildings is often done by manual labour. Use of portable electrical devices (e.g., drill) usually have low energy requirements falling under the cut-off criterion of 1%.

Module C2 = 85 km is added as an average distance to the waste facility

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 6 (km)	53,3 %	1956	0,023	l/tkm	44,99
Truck, over 32 tonnes, EURO 6 (km)	53,3 %	300	0,023	l/tkm	6,90

Assembly (A5)	Unit	Value			
Product loss during installation (percentage of cable)	Units/DU	0,02			
Waste, packaging, pallet, EUR wooden pallet, single use, to average treatment (kg) - A5, inkl. 85 km transp.	kg	0,01			

Operational energy (B6)	Unit	Value			
Electricity, France (kWh)	kWh	0,17			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	85	0,043	l/tkm	3,66

Waste processing (C3)	Unit	Value			
Waste treatment of polyvinylchloride (PVC), incineration with energy recovery and fly ash extraction (kg)	kg	0,01			
Waste treatment of polyethylene (PE), incineration with energy recovery and fly ash extraction (kg)	kg	0,02			
Copper to recycling (kg)	kg	0,02			

Disposal (C4)	Unit	Value			
Landfilling of plastic mixture (kg)	kg	0,03			
Landfilling of ashes from incineration of Polyvinylchloride (PVC), process per kg ashes and residues (kg)	kg	0,00			
Landfilling of ashes from incineration of Polyethylene (PE), process per kg ashes and residues (kg)	kg	0,00			
Landfilling of copper (kg)	kg	0,01			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity, in Norway (MJ)	MJ	0,04			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	0,65			
Substitution of primary copper with net scrap (kg)	kg	0,03			

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
	GWP-total	kg CO_2 -eq	1,99E-01	7,90E-03	2,51E-02	1,18E-02	7,71E-03
	GWP-fossil	kg CO_2 -eq	2,03E-01	7,90E-03	2,35E-02	1,18E-02	1,35E-04
	GWP-biogenic	kg CO_2 -eq	-4,16E-03	3,27E-06	1,57E-03	5,05E-06	7,58E-03
	GWP-luluc	kg CO_2 -eq	1,91E-04	2,81E-06	1,44E-05	3,59E-06	3,45E-08
	ODP	kg CFC11 -eq	1,34E-08	1,79E-09	7,58E-09	2,84E-09	2,10E-11
	AP	mol H+ -eq	7,05E-03	2,27E-05	8,09E-05	3,80E-05	1,08E-06
	EP-FreshWater	kg P -eq	5,75E-05	6,31E-08	5,80E-07	9,38E-08	1,61E-09
	EP-Marine	kg N -eq	5,05E-04	4,49E-06	1,77E-05	8,31E-06	4,64E-07
	EP-Terrestial	mol N -eq	7,31E-03	5,02E-05	1,68E-04	9,27E-05	4,97E-06
	POCP	kg NMVOC -eq	1,97E-03	1,92E-05	4,67E-05	3,64E-05	1,28E-06
	ADP-minerals&metals[1]	kg Sb-eq	8,69E-05	2,18E-07	3,71E-07	2,10E-07	2,18E-09
	ADP-fossil[1]	MJ	4,08E+00	1,19E-01	1,65E+00	1,92E-01	1,58E-03
	WDP[1]	m^3	1,41E+01	1,16E-01	2,50E+01	1,47E-01	2,43E-03

Indicator		**Unit**	B6	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	1,60E-02	0	8,34E-04	6,63E-02	3,51E-03	-6,77E-02
	GWP-fossil	kg CO_2 -eq	1,60E-02	0	8,33E-04	6,63E-02	3,51E-03	-6,72E-02
	GWP-biogenic	kg CO_2 -eq	6,12E-05	0	3,45E-07	8,93E-06	4,67E-07	-3,03E-04
	GWP-luluc	kg CO_2 -eq	1,31E-05	0	2,97E-07	1,70E-06	1,77E-07	-1,98E-04
	ODP	kg CFC11 -eq	9,16E-09	0	1,89E-10	7,26E-10	1,57E-10	-2,77E-04
	AP	mol H+ -eq	8,28E-05	0	2,39E-06	1,78E-05	4,51E-06	-1,07E-02
	EP-FreshWater	kg P -eq	6,38E-07	0	6,66E-09	6,54E-08	1,18E-08	-7,21E-05
	EP-Marine	kg N -eq	1,35E-05	0	4,74E-07	5,69E-06	4,56E-06	-4,48E-04
	EP-Terrestial	mol N -eq	1,47E-04	0	5,30E-06	6,13E-05	1,73E-05	-6,89E-03
	POCP	kg NMVOC -eq	4,06E-05	0	2,03E-06	1,61E-05	5,47E-06	-1,87E-03
	ADP-minerals&metals[1]	kg Sb-eq	3,88E-07	0	2,30E-08	4,59E-08	4,65E-09	-5,97E-05
	ADP-fossil[1]	MJ	2,09E+00	0	1,26E-02	3,06E-02	1,25E-02	-6,21E-01
	WDP[1]	m^3	3,03E+01	0	1,22E-02	5,72E-01	1,97E-01	2,80E+00

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 and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"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

Indicator		Unit	A1	A2	A3	A4	A5
	PM	Disease incidence	2,11E-08	4,83E-10	4,91E-10	1,08E-09	1,30E-11
	IRP[2]	kgBq U235 -eq	1,16E-02	5,22E-04	1,63E-02	8,37E-04	5,73E-06
	ETP-fw[1]	CTUe	8,52E+01	8,85E-02	5,94E-01	1,40E-01	1,80E-03
	HTP-c[1]	CTUh	1,49E-09	0,00E+00	1,80E-11	0,00E+00	0,00E+00
	HTP-nc[1]	CTUh	1,13E-07	9,60E-11	4,46E-10	1,35E-10	1,00E-11
	SQP[1]	dimensionless	2,49E+00	8,35E-02	9,68E-02	2,20E-01	8,86E-04

Indicator		Unit	B6	C1	C2	C3	C4	D
	PM	Disease incidence	3,70E-10	0	5,10E-11	1,01E-10	7,30E-11	-2,32E-08
	IRP[2]	kgBq U235 -eq	2,10E-02	0	5,51E-05	1,39E-04	6,92E-05	-1,05E-03
	ETP-fw[1]	CTUe	6,43E-01	0	9,34E-03	1,34E+00	7,44E+00	-9,82E+01
	HTP-c[1]	CTUh	1,70E-11	0	0,00E+00	4,00E-12	0,00E+00	-1,39E-09
	HTP-nc[1]	CTUh	4,00E-10	0	1,00E-11	3,50E-10	2,60E-11	-1,19E-07
	SQP[1]	dimensionless	1,03E-01	0	8,81E-03	1,04E-02	3,77E-02	-1,61E+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 = Potential Soil Quality Index (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

Indicator		Unit	A1	A2	A3	A4	A5
	PERE	MJ	5,40E-01	1,71E-03	2,51E-01	2,41E-03	3,25E-05
	PERM	MJ	6,94E-02	0,00E+00	0,00E+00	0,00E+00	-6,94E-02
	PERT	MJ	6,10E-01	1,71E-03	2,51E-01	2,41E-03	-6,94E-02
	PENRE	MJ	2,90E+00	1,19E-01	1,65E+00	1,92E-01	1,58E-03
	PENRM	MJ	1,29E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	4,19E+00	1,19E-01	1,65E+00	1,92E-01	1,58E-03
	SM	kg	5,10E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	1,54E-02	6,12E-05	1,81E-03	8,43E-05	9,48E-07
	NRSF	MJ	8,82E-04	2,19E-04	4,63E-03	2,82E-04	1,08E-05
	FW	m^3	3,70E-03	1,28E-05	1,53E-03	2,18E-05	1,15E-06

Indicator		Unit	B6	C1	C2	C3	C4	D
	PERE	MJ	1,53E-01	0	1,80E-04	3,62E-03	1,06E-03	-5,62E-01
	PERM	MJ	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	1,53E-01	0	1,80E-04	3,62E-03	1,06E-03	-5,62E-01
	PENRE	MJ	2,09E+00	0	1,26E-02	3,06E-02	1,25E-02	-6,21E-01
	PENRM	MJ	0,00E+00	0	0,00E+00	-1,73E+00	0,00E+00	0,00E+00
	PENRT	MJ	2,09E+00	0	1,26E-02	-1,70E+00	1,25E-02	-6,79E-01
	SM	kg	0,00E+00	0	0,00E+00	0,00E+00	1,15E-06	1,86E-02
	RSF	MJ	2,20E-03	0	6,45E-06	6,63E-05	2,29E-05	1,71E-03
	NRSF	MJ	5,54E-03	0	2,31E-05	-1,73E-05	9,87E-05	-1,61E-02
	FW	m^3	6,00E-04	0	1,35E-06	6,71E-04	1,50E-05	-1,95E-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 = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1	A2	A3	A4	A5
	HWD	kg	1,71E-03	6,16E-06	3,33E-03	1,05E-05	0,00E+00
	NHWD	kg	6,29E-02	5,81E-03	1,60E-02	1,66E-02	5,00E-03
	RWD	kg	1,04E-05	8,14E-07	2,10E-05	1,31E-06	0,00E+00

Indicator		Unit	B6	C1	C2	C3	C4	D
	HWD	kg	5,18E-05	0	6,50E-07	9,40E-06	1,28E-03	-7,21E-04
	NHWD	kg	2,80E-03	0	6,13E-04	1,07E-03	4,18E-02	-3,18E-02
	RWD	kg	2,72E-05	0	8,58E-08	1,47E-07	8,25E-08	-9,21E-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

Indicator		Unit	A1	A2	A3	A4	A5
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0,00E+00	1,21E-02	0,00E+00	1,17E-07
	MER	kg	0,00E+00	0,00E+00	1,43E-02	0,00E+00	4,96E-03
	EEE	MJ	0,00E+00	0,00E+00	8,73E-03	0,00E+00	3,45E-03
	EET	MJ	0,00E+00	0,00E+00	1,32E-01	0,00E+00	5,22E-02

Indicator		Unit	B6	C1	C2	C3	C4	D
	CRU	kg	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0	0,00E+00	1,80E-02	2,81E-06	-7,26E-04
	MER	kg	0,00E+00	0	0,00E+00	1,50E-02	1,12E-07	-9,56E-05
	EEE	MJ	0,00E+00	0	0,00E+00	3,98E-02	3,78E-06	-2,34E-04
	EET	MJ	0,00E+00	0	0,00E+00	6,03E-01	5,71E-05	-3,54E-03

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

"Reading example: 9,0 E-03 = 9,0*10-3 = 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	2,07E-03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional 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	Source	Amount	Unit
Electricity, Norway (kWh)	ecoinvent 3.6	24,33	g CO2-eq/kWh
Electricity, France (kWh)	ecoinvent 3.6	94,37	g CO2-eq/kWh

Dangerous substances

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

Indoor environment

No effect on indoor environment.

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products							
Indicator	**Unit**	A1	A2	A3	A4	A5	
GWPIOBC	kg CO_2 -eq	2,03E-01	7,90E-03	2,48E-02	1,18E-02	1,35E-04	

Indicator	**Unit**	B6	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	1,60E-02	0	8,34E-04	6,63E-02	2,37E-03	-3,40E-02

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

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