

EPD-samling for Powerline ferdigtrekte el-rør

MILJØDOKUMENTASJON

PIPELIFE 

Powerline

Miljødeklarasjoner i
henhold til ISO 14025 og
EN 15804+A2

PIPELIFE 

Powerline

EPD-samling for Powerline ferdigtrekte korrugerte el-rør med installasjonskabel

Om dokumentet

Dette dokumentet er en samling EPD-er som er aktuell for Powerline ferdigtrekte korrugerte el-rør med installasjonskabel. Samtlige EPD-er i denne samlingen er godkjent og publisert av programoperatør EPD-Norge.

Pipelife har valgt å lage samlinger med EPD-er for produktgrupper, i stedet for enkeltprodukter. De aller fleste av våre produkter tilhører en enkelt EPD, og samme EPD kan brukes for en hel produktgruppe. Dette fordi vi benytter deklart enhet på 1 kg.

For noen av våre mer sammensatte produkter, slik som Powerline ferdigtrekte korrugerte el-rør med installasjonskabel, trengs det mer enn en enkelt EPD for å dekke en produktgruppe. Dette fordi mengde rør og kabel ikke skalerer lineært.

I vår produktkatalog, samt bransjeløsninger for produktinformasjon, finner du utvalgte EPD-data ferdig utregnet til enhver salgsartikkel. I Cobuilder Supply finnes komplette maskinlesbare EPD-data etter NS EN-ISO 22057. Utregningene er gjort slik illustrert på figuren under.

Prinsipp for utregning:



EPD-er i denne samlingen:

#	Beskrivelse	EPD navn	EPD reg.nr
1	Korrugerte PVC elrør	Extruded PVC electro pipes	NEPD-4615-3872-EN
2	Installasjonskabel PR 2x1,5/1,5	Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x1,5/1,5	NEPD-8141-7805-EN
3	Installasjonskabel PR 2x2,5/2,5	Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x2,5/2,5	NEPD-8140-7806-EN
4	Installasjonskabel H07V-R (FK, PN) PN 1,5	Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 1,5	NEPD-8139-7808-EN
5	Installasjonskabel H07V-R (FK, PN) PN 2,5	Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 2,5	NEPD-8136-7811-EN
6	Installasjonskabel H07V-R (FK, PN) PN 6	Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 6	NEPD-8135-7812-EN

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Extruded PVC electro pipes



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The Norwegian EPD Foundation

Owner of the declaration:

Pipelife Norge AS

Product:

Extruded PVC electro pipes

Declared unit:

1 kg

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR

NPCR Part A: Construction products and services

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-4615-3872-EN

Registration number:

NEPD-4615-3872-EN

Issue date: 26.06.2023

Valid to: 26.06.2028

EPD Software:

LCA.no EPD generator ID: 64181

General information

Product

Extruded PVC electro pipes

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-4615-3872-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services

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 kg Extruded PVC electro pipes

Declared unit (cradle to gate) with option:

A1-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. 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 EPD Norway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Michael M. Jenssen, Asplan Viak AS
(no signature required)

Owner of the declaration:

Pipelife Norge AS
Contact person: Bård Moen
Phone: +47 71 65 88 00
e-mail: bar.d.moen@pipelife.com

Manufacturer:

Pipelife Norge AS

Place of production:

Pipelife Norge AS
Hamnesvegen 97
6650 Surnadal, Norway

Management system:

NS-EN ISO 9001:2015 NS-EN ISO 14001:2015

Organisation no:

980 457 575

Issue date: 26.06.2023

Valid to: 26.06.2028

Year of study:

2021

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804+A2 and seen in a construction 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.

Developer of EPD: John Øye

Reviewer of company-specific input data and EPD: Irene Leiknes

Approved:



Håkon Hauan, CEO EPD-Norge

Product

Product description:

Electro pipes used for hidden electrical installations inside walls.
More information is found on www.pipelife.no

Product specification

The products covered by this EPD have small variations in composition and are manufactured with the same type of equipment. The composition below represents an average for these products manufactured in 2021.

Materials	kg	%
Polyvinyl chloride (PVC)	0,67	86,85
Additives	0,07	9,00
Tape	0,00	0,04
Filler	0,03	4,11
Total	0,78	

Packaging	kg	%
Packaging - Wood	0,21	94,91
Packaging - Plastic	0,01	5,09
Total incl. packaging	1,00	

Technical data:

See our website: <https://catalog.pipelife.com/no/el-ror-1576/korrugerte-el-r0r-180379> or <https://catalog.pipelife.com/no/articlelist/glatte-el-ror-pvc-206714/177699/pvc-ss-1w-white-4m-ns>

Market:

Mainly Norway, Sweden, Finland

Reference service life, product

When installed according to the relevant installation manual and having normal operations, the service lifetime is at least 100 years.

Reference service life, building

The normal reference service life for buildings is normally assumed to be 60 years.

LCA: Calculation rules

Declared unit:

1 kg Extruded PVC electro pipes

Cut-off criteria:

All raw materials and all the essential energy are included.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming electricity and water are allocated according to measured electricity consumption for the actual production department. Water is used for cooling and it is assumed that the amount of water for cooling corresponds to the amount of energy used. Diesel and waste production in-house are allocated equally among all products through mass allocation.

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.

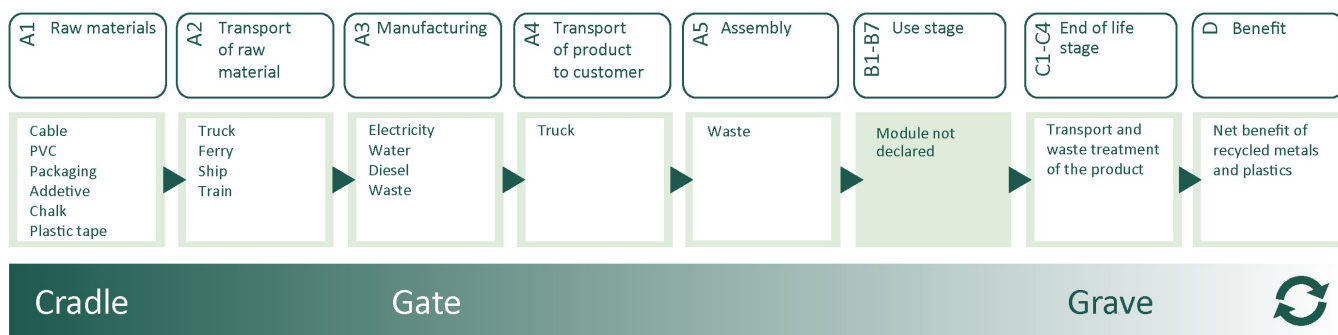
Materials	Source	Data quality	Year
Additives	ecoinvent 3.6	Database	2019
Filler	ecoinvent 3.6	Database	2019
Packaging - Plastic	ecoinvent 3.6	Database	2019
Packaging - Wood	ecoinvent 3.6	Database	2019
Polyvinyl chloride (PVC)	ecoinvent 3.6	Database	2019
Tape	ecoinvent 3.6	Database	2019

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 analysis is a cradle-to-gate (A1 - A3) study, with option A4 transport to market. It includes the extraction and production of raw materials, transportation to the production site, the production process itself and transport to the market. A5, installation, is included for the transport of packaging waste from the construction site and the treatment of this waste - not the installation of the products.



Additional technical information:

Professionally executed design, storage, handling, installation and operations are a precondition for a long service life. The installation instructions must be followed.

Pipelife Norway AS is certified according to EN ISO 14001:2015

See www.pipelife.no for more information on how we are working on environmental issues.

LCA: Scenarios and additional technical information

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

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 6 (km)	36,7 %	100	0,043	l/tkm	4,30
Assembly (A5)	Unit	Value			
Waste, packaging, plastic film (LDPE), to average treatment - A5 including transport (kg)	kg	0,01			
Waste, packaging, wood to average treatment - A5 including transp. (kg)	kg	0,21			
Waste processing (C3)	Unit	Value			
Waste treatment of hazardous waste, incineration with energy recovery and fly ash extraction (kg)	kg	0,03			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,02			
Waste treatment of polyvinylchloride (PVC), incineration with energy recovery and fly ash extraction (kg)	kg	0,34			
Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of 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	0,00			
Landfilling of ashes from incineration of Polyvinylchloride (PVC), process per kg ashes and residues (kg)	kg	0,05			
Landfilling of hazardous waste (kg)	kg	0,03			
Landfilling of plastic mixture (kg)	kg	0,35			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity, in Norway (MJ)	MJ	0,37			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	5,59			

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-A3	A4	A5	C1	C2	C3	C4	D	
GWP-total	kg CO ₂ -eq	1,30E+00	1,63E-02	3,32E-01	0	0	7,91E-01	6,34E-02	-3,36E-02	
GWP-fossil	kg CO ₂ -eq	1,62E+00	1,63E-02	6,63E-03	0	0	7,90E-01	6,34E-02	-3,24E-02	
GWP-biogenic	kg CO ₂ -eq	-3,19E-01	6,76E-06	3,25E-01	0	0	4,70E-04	1,74E-05	-6,69E-05	
GWP-luluc	kg CO ₂ -eq	2,14E-03	5,81E-06	1,54E-06	0	0	7,24E-05	6,84E-05	-1,12E-03	
ODP	kg CFC11 -eq	8,17E-07	3,70E-09	9,68E-10	0	0	3,11E-08	2,44E-09	-2,36E-03	
AP	mol H ⁺ -eq	7,34E-03	4,69E-05	4,71E-05	0	0	5,12E-04	1,03E-04	-2,67E-04	
EP-FreshWater	kg P -eq	7,18E-05	1,31E-07	7,05E-08	0	0	3,85E-06	5,78E-07	-2,88E-06	
EP-Marine	kg N -eq	1,26E-03	9,29E-06	2,08E-05	0	0	1,23E-04	7,04E-05	-8,72E-05	
EP-Terrestrial	mol N -eq	1,36E-02	1,04E-04	2,16E-04	0	0	1,33E-03	3,19E-04	-9,43E-04	
POCP	kg NMVOC -eq	5,08E-03	3,98E-05	5,57E-05	0	0	3,73E-04	1,13E-04	-2,60E-04	
ADP-minerals&metals ¹	kg Sb -eq	3,81E-05	4,51E-07	9,76E-08	0	0	1,70E-06	1,14E-07	-3,22E-07	
ADP-fossil ¹	MJ	4,14E+01	2,47E-01	7,10E-02	0	0	1,22E+00	2,55E-01	-4,63E-01	
WDP ¹	m ³	1,85E+02	2,39E-01	1,17E-01	0	0	1,94E+01	2,42E+00	-5,77E+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

Mechanical recycling of PVC is very sustainable and in line with the circular economy. Scrap and used products should be collected for recycling.

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
 PM	Disease incidence	5,42E-08	1,00E-09	5,83E-10	0	0	4,32E-09	1,55E-09	-1,62E-08
 IRP ²	kgBq U235 -eq	8,97E-02	1,08E-03	2,61E-04	0	0	5,81E-03	1,00E-03	-2,96E-03
 ETP-fw ¹	CTUe	2,59E+01	1,83E-01	8,01E-02	0	0	4,42E+01	5,69E-01	-2,52E+00
 HTP-c ¹	CTUh	1,19E-09	0,00E+00	9,00E-12	0	0	1,71E-10	4,90E-11	-4,70E-11
 HTP-nc ¹	CTUh	3,05E-08	2,00E-10	4,12E-10	0	0	1,06E-08	8,14E-10	-2,41E-09
 SQP ¹	dimensionless	1,95E+01	1,73E-01	4,42E-02	0	0	4,52E-01	8,09E-01	-3,10E+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 = $9,0 \cdot 10^{-3} = 0,009$

*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-A3	A4	A5	C1	C2	C3	C4	D
	PERE	MJ	9,97E+00	3,54E-03	1,48E-03	0	0	1,72E-01	4,12E-02	-2,86E+00
	PERM	MJ	2,98E+00	0,00E+00	-2,98E+00	0	0	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	1,29E+01	3,54E-03	-2,97E+00	0	0	1,72E-01	4,12E-02	-2,86E+00
	PENRE	MJ	2,42E+01	2,47E-01	7,10E-02	0	0	1,22E+00	2,55E-01	-4,63E-01
	PENRM	MJ	1,76E+01	0,00E+00	-4,84E-01	0	0	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	4,15E+01	2,47E-01	-4,13E-01	0	0	1,22E+00	2,55E-01	-4,63E-01
	SM	kg	8,38E-03	0,00E+00	0,00E+00	0	0	0,00E+00	7,92E-04	0,00E+00
	RSF	MJ	1,19E-01	1,26E-04	4,28E-05	0	0	3,35E-03	3,42E-04	-5,01E-04
	NRSF	MJ	2,29E-02	4,52E-04	4,66E-04	0	0	0,00E+00	8,09E-03	-1,70E-01
	FW	m ³	6,24E-02	2,64E-05	5,09E-05	0	0	2,16E-02	2,42E-04	-3,45E-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-A3	A4	A5	C1	C2	C3	C4	D
 HWD	kg	4,18E-03	1,27E-05	0,00E+00	0	0	0,00E+00	3,98E-02	-2,18E-05
 NHWD	kg	2,34E-01	1,20E-02	2,24E-01	0	0	3,49E-02	4,09E-01	-1,09E-02
 RWD	kg	7,95E-05	1,68E-06	0,00E+00	0	0	0,00E+00	7,17E-07	-2,42E-06

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

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
 CRU	kg	0,00E+00	0,00E+00	0,00E+00	0	0	0,00E+00	0,00E+00	0,00E+00
 MFR	kg	9,01E-03	0,00E+00	5,82E-03	0	0	0,00E+00	3,17E-05	0,00E+00
 MER	kg	4,99E-03	0,00E+00	2,13E-01	0	0	3,88E-01	7,74E-07	0,00E+00
 EEE	MJ	6,57E-03	0,00E+00	1,48E-01	0	0	3,69E-01	5,02E-05	0,00E+00
 EET	MJ	9,94E-02	0,00E+00	2,24E+00	0	0	5,59E+00	7,60E-04	0,00E+00

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 = $9,0 \cdot 10^{-3}$ = 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	8,86E-02

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	Data source	Amount	Unit
Electricity, Norway (kWh)	ecoinvent 3.6	24,33	g CO ₂ -eq/kWh

Dangerous substances

No substances given by the REACH Candidate list or the Norwegian priority list are intentionally added to the product.

Indoor environment

The products meets the requirements for low emissions.

Additional Environmental Information






Additional environmental impact indicators required in NPCR Part A for construction products									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	1,62E+00	1,63E-02	3,31E-01	0	0	7,92E-01	1,63E-02	-3,31E-02

GWPI-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.

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
 ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
 EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
 ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
 ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.
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 Vold, et al., (2019) EPD generator for Pipelife - Background information for customer application and LCA data. report number 08.19
 NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge.

Product standard: EN 61386

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Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x1,5/1,5



PIPELIFE 

The Norwegian EPD Foundation

Owner of the declaration:

Pipelife Norge AS

Product:

Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x1,5/1,5

Declared unit:

1 kg

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0
March 2021

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-8141-7805-EN

Registration number:

NEPD-8141-7805-EN

Issue date: 18.11.2024

Valid to: 18.11.2029

EPD software:

LCAno EPD generator ID: 675619

General information

Product

Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x1,5/1,5

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-8141-7805-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0 March 2021

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 kg Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x1,5/1,5

Declared unit (cradle to gate) with option:

A1-A3,A4,C1,C2,C3,C4,D

Functional unit:

Not applicable

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.

Third party verifier:

Michael M. Jenssen, Asplan Viak AS

(no signature required)

Owner of the declaration:

Pipelife Norge AS
Contact person: Are Lyubråten
Phone: +47 71 65 88 00
e-mail: are.lyubraten@pipelife.com

Manufacturer:

Pipelife Norge AS

Place of production:

Pipelife Norge AS
Hamnesvegen 97
6650 Surnadal, Norway

Management system:

NS-EN ISO 9001:2015 NS-EN ISO 14001:2015

Organisation no:

980 457 575

Issue date:

18.11.2024

Valid to:

18.11.2029

Year of study:

2021

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804+A2 and seen in a construction context.

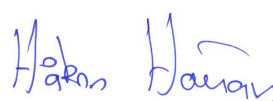
Development and verification of EPD:

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. NEPDT15

Developer of EPD: Are Lyubråten

Reviewer of company-specific input data and EPD: Knut Jøssang

Approved:



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

PR 2x1,5/1,5 is a PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors. The insulation of the conductor shall be protected against UV light. Used by Pipelife Norway in Powerline prewired electro pipes for hidden electrical installations inside walls. More information is found on <https://www.pipelife.no/>

Product specification

Materials	kg	%
Electronic - Cable	1,00	100,00
Total	1,00	100,00

Technical data:

Product standard: EN 61386. See our product catalogue on our website: <https://www.pipelife.no/>

Market:

Norway, Sweden, Finland

Reference service life, product

When installed according to the relevant installation manual and having normal operations, the service lifetime is at least 100 years.

Reference service life, building

The normal reference service life for buildings is normally assumed to be 60 years.

LCA: Calculation rules

Declared unit:

1 kg Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x1,5/1,5

Cut-off criteria:

All raw materials and all the essential energy are included.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is not allocated among internally or externally purchased, components which are not further processed, only handled and assembled, before leaving Pipelife Norge AS, Surnadal.

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.

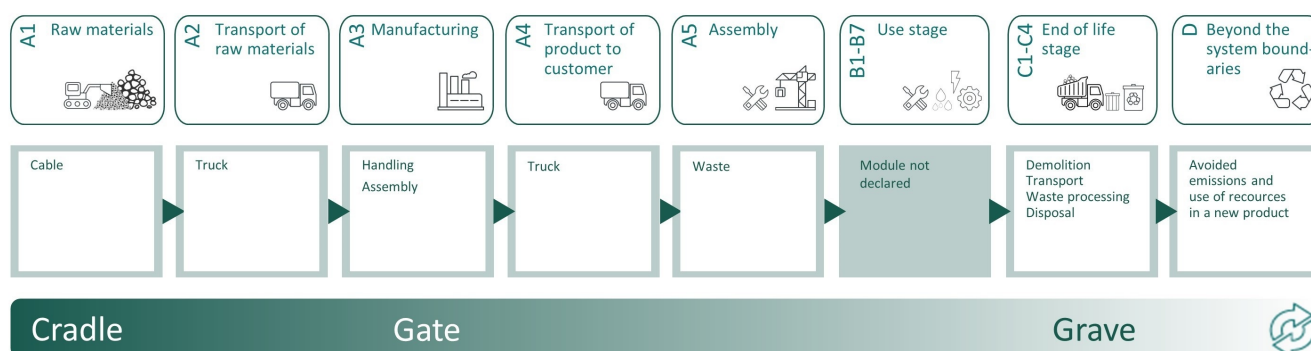
Materials	Source	Data quality	Year
Electronic - Cable	S-P-05121	EPD	2021

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

System boundary:

The analysis is a cradle-to-gate (A1 - A3) study, with option A4 transport to market. It includes the extraction and production of raw materials, transportation to the production site, the production process itself and transport to the market. A5, installation, is included for the transport of packaging waste from the construction site and the treatment of this waste - not the installation of the products. The material data set used in A1 is generated from the cradle to gate part (A1-A3) of a published EPD from Amo Installationskabel AB. Transport in A2 is the specific transport of the material from Amo Installationskabel AB to Pipelife Norge AS, Surnadal.



Additional technical information:

Professionally executed design, storage, handling, installation and operations are a precondition for a long service life. The installation instructions must be followed.

Pipelife Norway AS is certified according to EN ISO 14001:2015

See <https://www.pipelife.no/> for more information on how we are working on environmental issues.














LCA: Scenarios and additional technical information

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

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 6 (km)	36,7 %	100	0,043	l/tkm	4,30

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-A3	A4	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	3,91E+00	1,63E-02	0	0	0	0	0	
 GWP-fossil	kg CO ₂ -eq	3,88E+00	1,63E-02	0	0	0	0	0	
 GWP-biogenic	kg CO ₂ -eq	2,10E-02	6,76E-06	0	0	0	0	0	
 GWP-luluc	kg CO ₂ -eq	1,10E-02	5,81E-06	0	0	0	0	0	
 ODP	kg CFC11 -eq	3,71E-08	3,70E-09	0	0	0	0	0	
 AP	mol H ⁺ -eq	3,73E-02	4,69E-05	0	0	0	0	0	
 EP-FreshWater	kg P -eq	9,58E-06	1,31E-07	0	0	0	0	0	
 EP-Marine	kg N -eq	2,95E-03	9,29E-06	0	0	0	0	0	
 EP-Terrestrial	mol N -eq	3,11E-02	1,04E-04	0	0	0	0	0	
 POCP	kg NMVOC -eq	1,11E-02	3,98E-05	0	0	0	0	0	
 ADP-minerals&metals ¹	kg Sb-eq	1,40E-03	4,51E-07	0	0	0	0	0	
 ADP-fossil ¹	MJ	6,48E+01	2,47E-01	0	0	0	0	0	
 WDP ¹	m ³	3,51E+00	2,39E-01	0	0	0	0	0	

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-A3	A4	C1	C2	C3	C4	D
 PM	Disease incidence	1,00E-08	1,00E-09	0	0	0	0	0
 IRP ²	kgBq U235 -eq	1,08E-02	1,08E-03	0	0	0	0	0
 ETP-fw ¹	CTUe	1,83E+00	1,83E-01	0	0	0	0	0
 HTP-c ¹	CTUh	0,00E+00	0,00E+00	0	0	0	0	0
 HTP-nc ¹	CTUh	2,00E-09	2,00E-10	0	0	0	0	0
 SQP ¹	dimensionless	1,73E+00	1,73E-01	0	0	0	0	0











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 = $9,0 \cdot 10^{-3}$ = 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-A3	A4	C1	C2	C3	C4	D	
 PERE	MJ	1,14E+01	3,54E-03	0	0	0	0	0	
 PERM	MJ	0,00E+00	0,00E+00	0	0	0	0	0	
 PERT	MJ	1,14E+01	3,54E-03	0	0	0	0	0	
 PENRE	MJ	5,30E+01	2,47E-01	0	0	0	0	0	
 PENRM	MJ	1,15E+01	0,00E+00	0	0	0	0	0	
 PENRT	MJ	6,45E+01	2,47E-01	0	0	0	0	0	
 SM	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 RSF	MJ	1,27E-03	1,26E-04	0	0	0	0	0	
 NRSF	MJ	4,53E-03	4,52E-04	0	0	0	0	0	
 FW	m ³	3,60E-02	2,64E-05	0	0	0	0	0	

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 = $9,0 \cdot 10^{-3} = 0,009$






*INA Indicator Not Assessed

End of life - Waste									
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D	
 HWD	kg	1,28E-04	1,27E-05	0	0	0	0	0	
 NHWD	kg	1,41E-01	1,20E-02	0	0	0	0	0	
 RWD	kg	1,69E-05	1,68E-06	0	0	0	0	0	

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

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow									
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D	
 CRU	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 MFR	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 MER	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 EEE	MJ	0,00E+00	0,00E+00	0	0	0	0	0	
 EET	MJ	0,00E+00	0,00E+00	0	0	0	0	0	

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 = $9,0 \cdot 10^{-3}$ = 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	0,00E+00

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).

Dangerous substances

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

Indoor environment

Has no impact on the indoor climate.

Additional Environmental Information






Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	3,83E+00	1,63E-02	0	0	0	0	0

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.

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
 ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
 EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
 ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
 ecoinvent v3, 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 rapportnummer: : 07.21.
 Vold, et al., (2019) EPD generator for Pipelife - Background information for customer application and LCA data. report number 08.19
 NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge.

 Global program operator	Program operator and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway	Phone: +47 977 22 020 e-mail: post@epd-norge.no web: www.epd-norge.no
	Owner of the declaration: Pipelife Norge AS Hamnesvegen 97, 6650 Surnadal, Norway	Phone: +47 71 65 88 00 e-mail: are.lyubraten@pipelife.com web: www.pipelife.no
	Author of the Life Cycle Assessment LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	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

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x2,5/2,5



PIPELIFE 

The Norwegian EPD Foundation

Owner of the declaration:

Pipelife Norge AS

Product:

Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x2,5/2,5

Declared unit:

1 kg

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0
March 2021

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-8140-7806-EN

Registration number:

NEPD-8140-7806-EN

Issue date: 18.11.2024

Valid to: 18.11.2029

EPD software:

LCAno EPD generator ID: 675647

General information

Product

Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x2,5/2,5

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-8140-7806-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0 March 2021

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 kg Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x2,5/2,5

Declared unit (cradle to gate) with option:

A1-A3,A4,C1,C2,C3,C4,D

Functional unit:

Not applicable

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.

Third party verifier:

Michael M. Jenssen, Asplan Viak AS

(no signature required)

Owner of the declaration:

Pipelife Norge AS
Contact person: Are Lyubråten
Phone: +47 71 65 88 00
e-mail: are.lyubraten@pipelife.com

Manufacturer:

Pipelife Norge AS

Place of production:

Pipelife Norge AS
Hamnesvegen 97
6650 Surnadal, Norway

Management system:

NS-EN ISO 9001:2015 NS-EN ISO 14001:2015

Organisation no:

980 457 575

Issue date:

18.11.2024

Valid to:

18.11.2029

Year of study:

2021

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804+A2 and seen in a construction context.

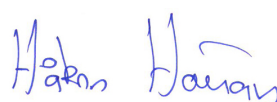
Development and verification of EPD:

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. NEPDT15

Developer of EPD: Are Lyubråten

Reviewer of company-specific input data and EPD: Knut Jøssang

Approved:



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

PR 2x2,5/2,5 is a PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors. The insulation of the conductor shall be protected against UV light. Used by Pipelife Norway in Powerline prewired electro pipes for hidden electrical installations inside walls. More information is found on <https://www.pipelife.no/>

Product specification

Materials	kg	%
Electronic - Cable	1,00	100,00
Total	1,00	100,00

Technical data:

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Reference service life, product

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Reference service life, building

The normal reference service life for buildings is normally assumed to be 60 years.

LCA: Calculation rules

Declared unit:

1 kg Component EPD Surnadal: PVC insulated and PVC sheathed house wiring cable for open, fixed installation indoors and outdoors PR 2x2,5/2,5

Cut-off criteria:

All raw materials and all the essential energy are included.

Allocation:

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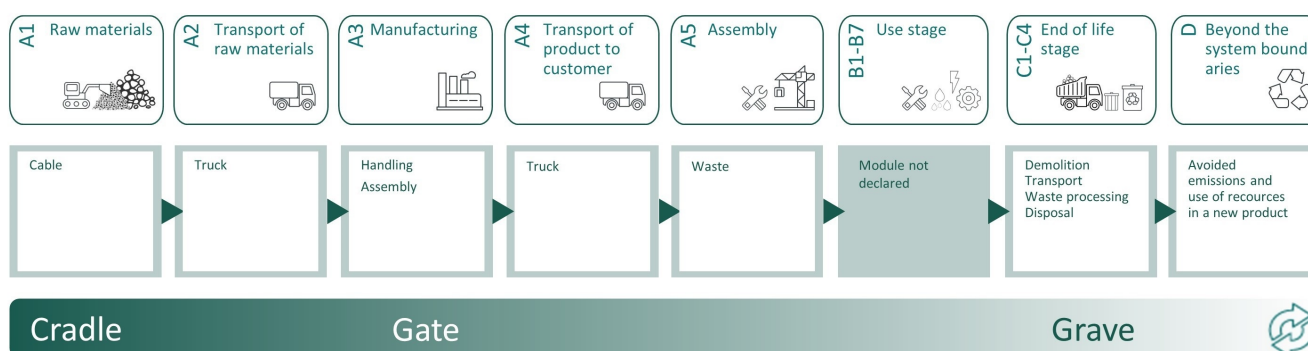
Materials	Source	Data quality	Year
Electronic - Cable	S-P-05121	EPD	2021

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

System boundary:

The analysis is a cradle-to-gate (A1 - A3) study, with option A4 transport to market. It includes the extraction and production of raw materials, transportation to the production site, the production process itself and transport to the market. A5, installation, is included for the transport of packaging waste from the construction site and the treatment of this waste - not the installation of the products. The material data set used in A1 is generated from the cradle to gate part (A1-A3) of a published EPD from Amo Installationskabel AB. Transport in A2 is the specific transport of the material from Amo Installationskabel AB to Pipelife Norge AS, Surnadal.



Additional technical information:

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Pipelife Norway AS is certified according to EN ISO 14001:2015

See <https://www.pipelife.no/> for more information on how we are working on environmental issues.














LCA: Scenarios and additional technical information

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

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 6 (km)	36,7 %	100	0,043	l/tkm	4,30

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-A3	A4	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	3,94E+00	1,63E-02	0	0	0	0	0	
 GWP-fossil	kg CO ₂ -eq	3,91E+00	1,63E-02	0	0	0	0	0	
 GWP-biogenic	kg CO ₂ -eq	1,88E-02	6,76E-06	0	0	0	0	0	
 GWP-luluc	kg CO ₂ -eq	1,21E-02	5,81E-06	0	0	0	0	0	
 ODP	kg CFC11 -eq	3,71E-08	3,70E-09	0	0	0	0	0	
 AP	mol H ⁺ -eq	4,06E-02	4,69E-05	0	0	0	0	0	
 EP-FreshWater	kg P -eq	9,15E-06	1,31E-07	0	0	0	0	0	
 EP-Marine	kg N -eq	3,04E-03	9,29E-06	0	0	0	0	0	
 EP-Terrestrial	mol N -eq	3,19E-02	1,04E-04	0	0	0	0	0	
 POCP	kg NMVOC -eq	1,14E-02	3,98E-05	0	0	0	0	0	
 ADP-minerals&metals ¹	kg Sb-eq	1,58E-03	4,51E-07	0	0	0	0	0	
 ADP-fossil ¹	MJ	6,29E+01	2,47E-01	0	0	0	0	0	
 WDP ¹	m ³	3,69E+00	2,39E-01	0	0	0	0	0	

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-A3	A4	C1	C2	C3	C4	D
 PM	Disease incidence	1,00E-08	1,00E-09	0	0	0	0	0
 IRP ²	kgBq U235 -eq	1,08E-02	1,08E-03	0	0	0	0	0
 ETP-fw ¹	CTUe	1,83E+00	1,83E-01	0	0	0	0	0
 HTP-c ¹	CTUh	0,00E+00	0,00E+00	0	0	0	0	0
 HTP-nc ¹	CTUh	2,00E-09	2,00E-10	0	0	0	0	0
 SQP ¹	dimensionless	1,73E+00	1,73E-01	0	0	0	0	0











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 = $9,0 \cdot 10^{-3}$ = 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-A3	A4	C1	C2	C3	C4	D	
 PERE	MJ	1,09E+01	3,54E-03	0	0	0	0	0	
 PERM	MJ	0,00E+00	0,00E+00	0	0	0	0	0	
 PERT	MJ	1,09E+01	3,54E-03	0	0	0	0	0	
 PENRE	MJ	5,25E+01	2,47E-01	0	0	0	0	0	
 PENRM	MJ	1,03E+01	0,00E+00	0	0	0	0	0	
 PENRT	MJ	6,28E+01	2,47E-01	0	0	0	0	0	
 SM	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 RSF	MJ	1,27E-03	1,26E-04	0	0	0	0	0	
 NRSF	MJ	4,53E-03	4,52E-04	0	0	0	0	0	
 FW	m ³	3,60E-02	2,64E-05	0	0	0	0	0	

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 = $9,0 \cdot 10^{-3} = 0,009$






*INA Indicator Not Assessed

End of life - Waste									
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D	
 HWD	kg	1,28E-04	1,27E-05	0	0	0	0	0	
 NHWD	kg	1,41E-01	1,20E-02	0	0	0	0	0	
 RWD	kg	1,69E-05	1,68E-06	0	0	0	0	0	

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

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow									
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D	
 CRU	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 MFR	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 MER	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 EEE	MJ	0,00E+00	0,00E+00	0	0	0	0	0	
 EET	MJ	0,00E+00	0,00E+00	0	0	0	0	0	

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 = $9,0 \cdot 10^{-3}$ = 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	0,00E+00

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).

Dangerous substances

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

Indoor environment

Has no impact on the indoor climate.

Additional Environmental Information






Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	3,88E+00	1,63E-02	0	0	0	0	0

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.

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
 ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
 EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
 ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
 ecoinvent v3, 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 rapportnummer: : 07.21.
 Vold, et al., (2019) EPD generator for Pipelife - Background information for customer application and LCA data. report number 08.19
 NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge.

 Global program operator	Program operator and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway	Phone: +47 977 22 020 e-mail: post@epd-norge.no web: www.epd-norge.no
	Owner of the declaration: Pipelife Norge AS Hamnesvegen 97, 6650 Surnadal, Norway	Phone: +47 71 65 88 00 e-mail: are.lyubraten@pipelife.com web: www.pipelife.no
	Author of the Life Cycle Assessment LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	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

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 1,5



PIPELIFE 

Owner of the declaration:

Pipelife Norge AS

Product:

Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 1,5

Declared unit:

1 kg

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0
March 2021

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-8139-7808-EN

Registration number:

NEPD-8139-7808-EN

Issue date: 18.11.2024

Valid to: 18.11.2029

EPD software:

LCAno EPD generator ID: 661289

The Norwegian EPD Foundation

General information

Product

Component EPD Surnadal: PVC insulated stranded conductor
Building Cable H07V-R (FK, PN) PN 1,5

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-8139-7808-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0 March 2021

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 kg Component EPD Surnadal: PVC insulated stranded conductor
Building Cable H07V-R (FK, PN) PN 1,5

Declared unit (cradle to gate) with option:

A1-A3,A4,C1,C2,C3,C4,D

Functional unit:

Not applicable

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.

Third party verifier:

Michael M. Jenssen, Asplan Viak AS

(no signature required)

Owner of the declaration:

Pipelife Norge AS
Contact person: Are Lyubråten
Phone: +47 71 65 88 00
e-mail: are.lyubraten@pipelife.com

Manufacturer:

Pipelife Norge AS

Place of production:

Pipelife Norge AS
Hamnesvegen 97
6650 Surnadal, Norway

Management system:

NS-EN ISO 9001:2015 NS-EN ISO 14001:2015

Organisation no:

980 457 575

Issue date:

18.11.2024

Valid to:

18.11.2029

Year of study:

2021

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804+A2 and seen in a construction context.

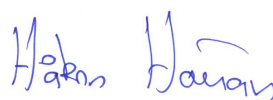
Development and verification of EPD:

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. NEPDT15

Developer of EPD: Are Lyubråten

Reviewer of company-specific input data and EPD: Knut Jøssang

Approved:



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

H07V-R PN 1,5 is a 70°C PVC insulated stranded conductor. Suitable for fixed installation. To be installed in conduit or duct systems, or as connection wire to be used in switch cabinets and similar applications. Used by Pipelife Norway in Powerline prewired electro pipes for hidden electrical installations inside walls. More information is found on <https://www.pipelife.no/>

Product specification

Materials	kg	%
Electronic - Cable	1,00	100,00
Total	1,00	100,00

Technical data:

Product standard: EN 61386. See our product catalogue on our website: <https://www.pipelife.no/>

Market:

Norway, Sweden, Finland

Reference service life, product

When installed according to the relevant installation manual and having normal operations, the service lifetime is at least 100 years.

Reference service life, building

The normal reference service life for buildings is normally assumed to be 60 years.

LCA: Calculation rules

Declared unit:

1 kg Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 1,5

Cut-off criteria:

All raw materials and all the essential energy are included.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is not allocated among internally or externally purchased, components which are not further processed, only handled and assembled, before leaving Pipelife Norge AS, Surnadal.

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.

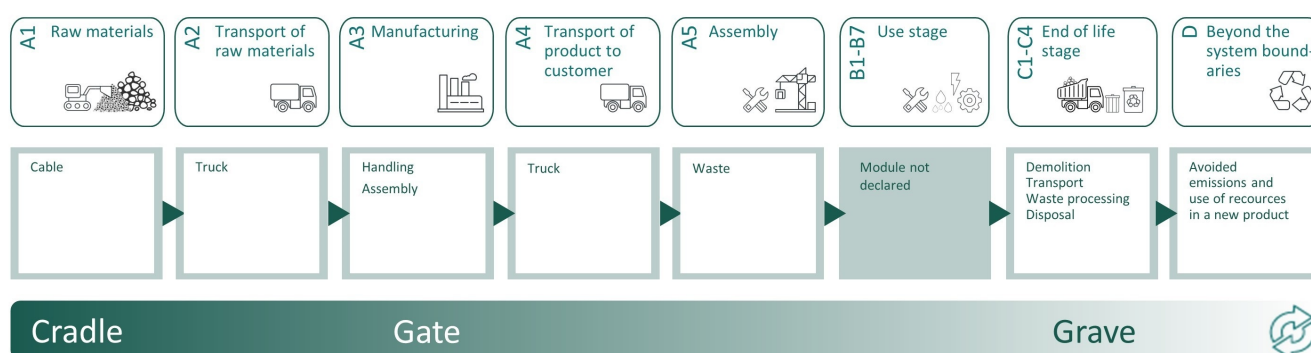
Materials	Source	Data quality	Year
Electronic - Cable	S-P-05122	EPD	2021

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

System boundary:

The analysis is a cradle-to-gate (A1 - A3) study, with option A4 transport to market. It includes the extraction and production of raw materials, transportation to the production site, the production process itself and transport to the market. A5, installation, is included for the transport of packaging waste from the construction site and the treatment of this waste - not the installation of the products. The material data set used in A1 is generated from the cradle to gate part (A1-A3) of a published EPD from Amo Installationskabel AB. Transport in A2 is the specific transport of the material from Amo Installationskabel AB to Pipelife Norge AS, Surnadal.



Additional technical information:

Professionally executed design, storage, handling, installation and operations are a precondition for a long service life. The installation instructions must be followed.

Pipelife Norway AS is certified according to EN ISO 14001:2015

See <https://www.pipelife.no/> for more information on how we are working on environmental issues.













LCA: Scenarios and additional technical information

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

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 6 (km)	36,7 %	100	0,043	l/tkm	4,30

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-A3	A4	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	3,90E+00	1,63E-02	0	0	0	0	0	
 GWP-fossil	kg CO ₂ -eq	3,87E+00	1,63E-02	0	0	0	0	0	
 GWP-biogenic	kg CO ₂ -eq	1,85E-02	6,76E-06	0	0	0	0	0	
 GWP-luluc	kg CO ₂ -eq	1,55E-02	5,81E-06	0	0	0	0	0	
 ODP	kg CFC11 -eq	3,71E-08	3,70E-09	0	0	0	0	0	
 AP	mol H ⁺ -eq	4,94E-02	4,69E-05	0	0	0	0	0	
 EP-FreshWater	kg P -eq	9,18E-06	1,31E-07	0	0	0	0	0	
 EP-Marine	kg N -eq	3,22E-03	9,29E-06	0	0	0	0	0	
 EP-Terrestrial	mol N -eq	3,35E-02	1,04E-04	0	0	0	0	0	
 POCP	kg NMVOC -eq	1,21E-02	3,98E-05	0	0	0	0	0	
 ADP-minerals&metals ¹	kg Sb-eq	2,12E-03	4,51E-07	0	0	0	0	0	
 ADP-fossil ¹	MJ	5,53E+01	2,47E-01	0	0	0	0	0	
 WDP ¹	m ³	4,09E+00	2,39E-01	0	0	0	0	0	

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-A3	A4	C1	C2	C3	C4	D
 PM	Disease incidence	1,00E-08	1,00E-09	0	0	0	0	0
 IRP ²	kgBq U235 -eq	1,08E-02	1,08E-03	0	0	0	0	0
 ETP-fw ¹	CTUe	1,83E+00	1,83E-01	0	0	0	0	0
 HTP-c ¹	CTUh	0,00E+00	0,00E+00	0	0	0	0	0
 HTP-nc ¹	CTUh	2,00E-09	2,00E-10	0	0	0	0	0
 SQP ¹	dimensionless	1,73E+00	1,73E-01	0	0	0	0	0











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 = $9,0 \cdot 10^{-3}$ = 0,009"

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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-A3	A4	C1	C2	C3	C4	D	
 PERE	MJ	8,94E+00	3,54E-03	0	0	0	0	0	
 PERM	MJ	0,00E+00	0,00E+00	0	0	0	0	0	
 PERT	MJ	8,94E+00	3,54E-03	0	0	0	0	0	
 PENRE	MJ	4,93E+01	2,47E-01	0	0	0	0	0	
 PENRM	MJ	5,97E+00	0,00E+00	0	0	0	0	0	
 PENRT	MJ	5,53E+01	2,47E-01	0	0	0	0	0	
 SM	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 RSF	MJ	1,27E-03	1,26E-04	0	0	0	0	0	
 NRSF	MJ	4,53E-03	4,52E-04	0	0	0	0	0	
 FW	m ³	3,47E-02	2,64E-05	0	0	0	0	0	

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 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

End of life - Waste






Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
 HWD	kg	1,28E-04	1,27E-05	0	0	0	0	0
 NHWD	kg	1,35E-01	1,20E-02	0	0	0	0	0
 RWD	kg	1,69E-05	1,68E-06	0	0	0	0	0

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

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
 CRU	kg	0,00E+00	0,00E+00	0	0	0	0	0
 MFR	kg	0,00E+00	0,00E+00	0	0	0	0	0
 MER	kg	0,00E+00	0,00E+00	0	0	0	0	0
 EEE	MJ	0,00E+00	0,00E+00	0	0	0	0	0
 EET	MJ	0,00E+00	0,00E+00	0	0	0	0	0

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 = $9,0 \cdot 10^{-3}$ = 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	0,00E+00

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).

Dangerous substances

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

Indoor environment

Has no impact on the indoor climate.

Additional Environmental Information






Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	3,82E+00	1,63E-02	0	0	0	0	0

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.

Bibliography

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 ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
 EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
 ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
 ecoinvent v3, 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 rapportnummer: : 07.21.
 Vold, et al., (2019) EPD generator for Pipelife - Background information for customer application and LCA data. report number 08.19
 NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge.

 Global program operator	Program operator and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway	Phone: +47 977 22 020 e-mail: post@epd-norge.no web: www.epd-norge.no
	Owner of the declaration: Pipelife Norge AS Hamnesvegen 97, 6650 Surnadal, Norway	Phone: +47 71 65 88 00 e-mail: are.lyubraten@pipelife.com web: www.pipelife.no
	Author of the Life Cycle Assessment LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	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

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 2,5



PIPELIFE 

The Norwegian EPD Foundation

Owner of the declaration:

Pipelife Norge AS

Product:

Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 2,5

Declared unit:

1 kg

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0
March 2021

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-8136-7811-EN

Registration number:

NEPD-8136-7811-EN

Issue date: 18.11.2024

Valid to: 18.11.2029

EPD software:

LCAno EPD generator ID: 674512

General information

Product

Component EPD Surnadal: PVC insulated stranded conductor
Building Cable H07V-R (FK, PN) PN 2,5

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-8136-7811-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0 March 2021

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 kg Component EPD Surnadal: PVC insulated stranded conductor
Building Cable H07V-R (FK, PN) PN 2,5

Declared unit (cradle to gate) with option:

A1-A3,A4,C1,C2,C3,C4,D

Functional unit:

Not applicable

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.

Third party verifier:

Michael M. Jenssen, Asplan Viak AS

(no signature required)

Owner of the declaration:

Pipelife Norge AS
Contact person: Are Lyubråten
Phone: +47 71 65 88 00
e-mail: are.lyubraten@pipelife.com

Manufacturer:

Pipelife Norge AS

Place of production:

Pipelife Norge AS
Hamnesvegen 97
6650 Surnadal, Norway

Management system:

NS-EN ISO 9001:2015 NS-EN ISO 14001:2015

Organisation no:

980 457 575

Issue date:

18.11.2024

Valid to:

18.11.2029

Year of study:

2021

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804+A2 and seen in a construction context.

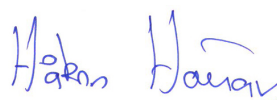
Development and verification of EPD:

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. NEPDT15

Developer of EPD: Are Lyubråten

Reviewer of company-specific input data and EPD: Knut Jøssang

Approved:



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

H07V-R PN 2,5 is a 70°C PVC insulated stranded conductor. Suitable for fixed installation. To be installed in conduit or duct systems, or as connection wire to be used in switch cabinets and similar applications. Used by Pipelife Norway in Powerline prewired electro pipes for hidden electrical installations inside walls. More information is found on <https://www.pipelife.no/>

Product specification

Materials	kg	%
Electronic - Cable	1,00	100,00
Total	1,00	100,00

Technical data:

Product standard: EN 61386. See our product catalogue on our website: <https://www.pipelife.no/>

Market:

Norway, Sweden, Finland

Reference service life, product

When installed according to the relevant installation manual and having normal operations, the service lifetime is at least 100 years.

Reference service life, building

The normal reference service life for buildings is normally assumed to be 60 years.

LCA: Calculation rules

Declared unit:

1 kg Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 2,5

Cut-off criteria:

All raw materials and all the essential energy are included.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is not allocated among internally or externally purchased, components which are not further processed, only handled and assembled, before leaving Pipelife Norge AS, Surnadal.

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.

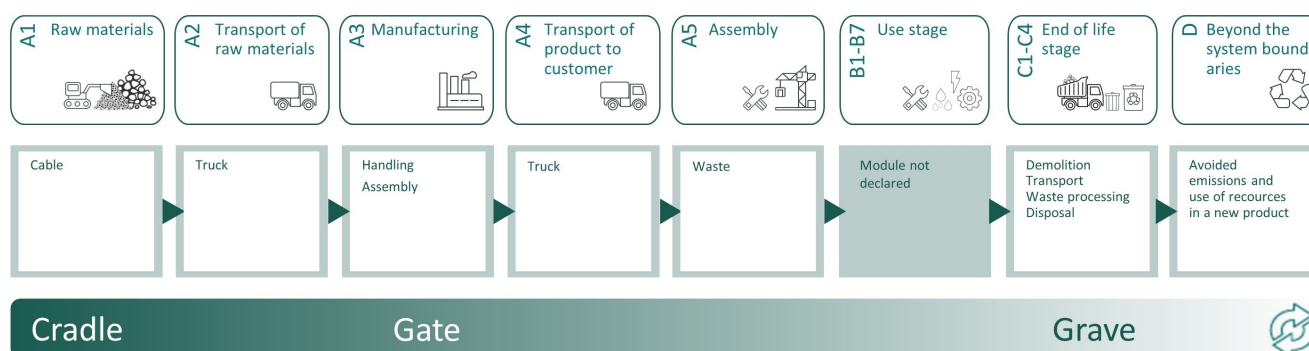
Materials	Source	Data quality	Year
Electronic - Cable	S-P-05122	EPD	2021

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

System boundary:

The analysis is a cradle-to-gate (A1 - A3) study, with option A4 transport to market. It includes the extraction and production of raw materials, transportation to the production site, the production process itself and transport to the market. A5, installation, is included for the transport of packaging waste from the construction site and the treatment of this waste - not the installation of the products. The material data set used in A1 is generated from the cradle to gate part (A1-A3) of a published EPD from Amo Installationskabel AB. Transport in A2 is the specific transport of the material from Amo Installationskabel AB to Pipelife Norge AS, Surnadal.



Additional technical information:

Professionally executed design, storage, handling, installation and operations are a precondition for a long service life. The installation instructions must be followed.

Pipelife Norway AS is certified according to EN ISO 14001:2015

See <https://www.pipelife.no/> for more information on how we are working on environmental issues.














LCA: Scenarios and additional technical information

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

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 6 (km)	36,7 %	100	0,043	l/tkm	4,30

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-A3	A4	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	3,95E+00	1,63E-02	0	0	0	0	0	
 GWP-fossil	kg CO ₂ -eq	3,92E+00	1,63E-02	0	0	0	0	0	
 GWP-biogenic	kg CO ₂ -eq	1,83E-02	6,76E-06	0	0	0	0	0	
 GWP-luluc	kg CO ₂ -eq	1,59E-02	5,81E-06	0	0	0	0	0	
 ODP	kg CFC11 -eq	3,71E-08	3,70E-09	0	0	0	0	0	
 AP	mol H ⁺ -eq	5,09E-02	4,69E-05	0	0	0	0	0	
 EP-FreshWater	kg P -eq	8,97E-06	1,31E-07	0	0	0	0	0	
 EP-Marine	kg N -eq	3,28E-03	9,29E-06	0	0	0	0	0	
 EP-Terrestrial	mol N -eq	3,42E-02	1,04E-04	0	0	0	0	0	
 POCP	kg NMVOC -eq	1,23E-02	3,98E-05	0	0	0	0	0	
 ADP-minerals&metals ¹	kg Sb-eq	2,18E-03	4,51E-07	0	0	0	0	0	
 ADP-fossil ¹	MJ	5,55E+01	2,47E-01	0	0	0	0	0	
 WDP ¹	m ³	4,16E+00	2,39E-01	0	0	0	0	0	

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-A3	A4	C1	C2	C3	C4	D
 PM	Disease incidence	1,00E-08	1,00E-09	0	0	0	0	0
 IRP ²	kgBq U235 -eq	1,08E-02	1,08E-03	0	0	0	0	0
 ETP-fw ¹	CTUe	1,83E+00	1,83E-01	0	0	0	0	0
 HTP-c ¹	CTUh	0,00E+00	0,00E+00	0	0	0	0	0
 HTP-nc ¹	CTUh	2,00E-09	2,00E-10	0	0	0	0	0
 SQP ¹	dimensionless	1,73E+00	1,73E-01	0	0	0	0	0











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 = $9,0 \cdot 10^{-3}$ = 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-A3	A4	C1	C2	C3	C4	D	
 PERE	MJ	8,99E+00	3,54E-03	0	0	0	0	0	
 PERM	MJ	0,00E+00	0,00E+00	0	0	0	0	0	
 PERT	MJ	8,99E+00	3,54E-03	0	0	0	0	0	
 PENRE	MJ	4,95E+01	2,47E-01	0	0	0	0	0	
 PENRM	MJ	5,62E+00	0,00E+00	0	0	0	0	0	
 PENRT	MJ	5,51E+01	2,47E-01	0	0	0	0	0	
 SM	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 RSF	MJ	1,27E-03	1,26E-04	0	0	0	0	0	
 NRSF	MJ	4,53E-03	4,52E-04	0	0	0	0	0	
 FW	m ³	3,53E-02	2,64E-05	0	0	0	0	0	

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 = $9,0 \cdot 10^{-3} = 0,009$






*INA Indicator Not Assessed

End of life - Waste									
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D	
 HWD	kg	1,28E-04	1,27E-05	0	0	0	0	0	
 NHWD	kg	1,36E-01	1,20E-02	0	0	0	0	0	
 RWD	kg	1,69E-05	1,68E-06	0	0	0	0	0	

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

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow									
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D	
 CRU	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 MFR	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 MER	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 EEE	MJ	0,00E+00	0,00E+00	0	0	0	0	0	
 EET	MJ	0,00E+00	0,00E+00	0	0	0	0	0	

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 = $9,0 \cdot 10^{-3}$ = 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	0,00E+00

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).

Dangerous substances

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

Indoor environment

Has no impact on the indoor climate.

Additional Environmental Information






Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	3,89E+00	1,63E-02	0	0	0	0	0

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.

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
 ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
 EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
 ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
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 Global program operator	Program operator and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway	Phone: +47 977 22 020 e-mail: post@epd-norge.no web: www.epd-norge.no
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	Author of the Life Cycle Assessment LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	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

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 6



PIPELIFE 

The Norwegian EPD Foundation

Owner of the declaration:

Pipelife Norge AS

Product:

Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 6

Declared unit:

1 kg

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0
March 2021

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-8135-7812-EN

Registration number:

NEPD-8135-7812-EN

Issue date: 18.11.2024

Valid to: 18.11.2029

EPD software:

LCAno EPD generator ID: 674581

General information

Product

Component EPD Surnadal: PVC insulated stranded conductor
Building Cable H07V-R (FK, PN) PN 6

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-8135-7812-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR Part A: Construction products and services. Ver. 2.0 March 2021

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 kg Component EPD Surnadal: PVC insulated stranded conductor
Building Cable H07V-R (FK, PN) PN 6

Declared unit (cradle to gate) with option:

A1-A3,A4,C1,C2,C3,C4,D

Functional unit:

Not applicable

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.

Third party verifier:

Michael M. Jenssen, Asplan Viak AS

(no signature required)

Owner of the declaration:

Pipelife Norge AS
Contact person: Are Lyubråten
Phone: +47 71 65 88 00
e-mail: are.lyubraten@pipelife.com

Manufacturer:

Pipelife Norge AS

Place of production:

Pipelife Norge AS
Hamnesvegen 97
6650 Surnadal, Norway

Management system:

NS-EN ISO 9001:2015 NS-EN ISO 14001:2015

Organisation no:

980 457 575

Issue date:

18.11.2024

Valid to:

18.11.2029

Year of study:

2021

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804+A2 and seen in a construction context.

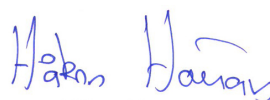
Development and verification of EPD:

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. NEPDT15

Developer of EPD: Are Lyubråten

Reviewer of company-specific input data and EPD: Knut Jøssang

Approved:



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

H07V-R PN 6 is a 70°C PVC insulated stranded conductor. Suitable for fixed installation. To be installed in conduit or duct systems, or as connection wire to be used in switch cabinets and similar applications. Used by Pipelife Norway in Powerline prewired electro pipes for hidden electrical installations inside walls. More information is found on <https://www.pipelife.no/>

Product specification

Materials	kg	%
Electronic - Cable	1,00	100,00
Total	1,00	100,00

Technical data:

Product standard: EN 61386. See our product catalogue on our website: <https://www.pipelife.no/>

Market:

Norway, Sweden, Finland

Reference service life, product

When installed according to the relevant installation manual and having normal operations, the service lifetime is at least 100 years.

Reference service life, building

The normal reference service life for buildings is normally assumed to be 60 years.

LCA: Calculation rules

Declared unit:

1 kg Component EPD Surnadal: PVC insulated stranded conductor Building Cable H07V-R (FK, PN) PN 6

Cut-off criteria:

All raw materials and all the essential energy are included.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is not allocated among internally or externally purchased, components which are not further processed, only handled and assembled, before leaving Pipelife Norge AS, Surnadal.

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.

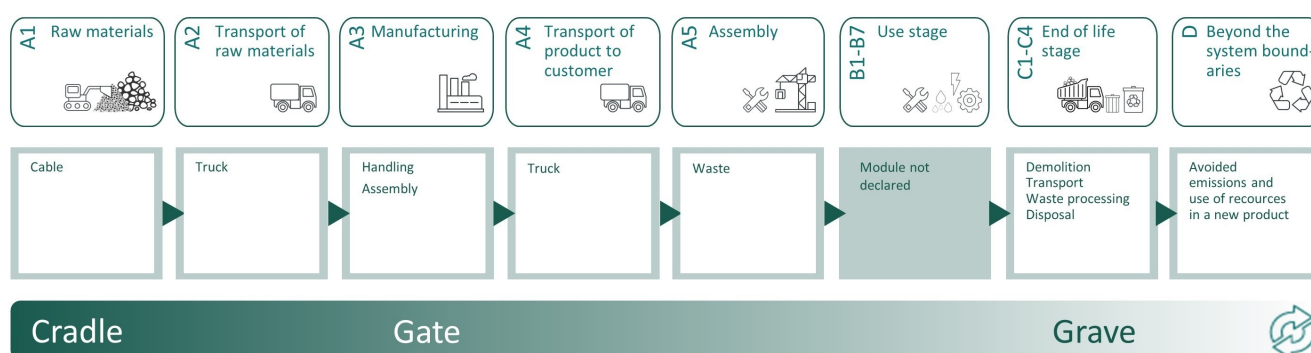
Materials	Source	Data quality	Year
Electronic - Cable	S-P-05122	EPD	2021

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

System boundary:

The analysis is a cradle-to-gate (A1 - A3) study, with option A4 transport to market. It includes the extraction and production of raw materials, transportation to the production site, the production process itself and transport to the market. A5, installation, is included for the transport of packaging waste from the construction site and the treatment of this waste - not the installation of the products. The material data set used in A1 is generated from the cradle to gate part (A1-A3) of a published EPD from Amo Installationskabel AB. Transport in A2 is the specific transport of the material from Amo Installationskabel AB to Pipelife Norge AS, Surnadal.



Additional technical information:

Professionally executed design, storage, handling, installation and operations are a precondition for a long service life. The installation instructions must be followed.

Pipelife Norway AS is certified according to EN ISO 14001:2015

See <https://www.pipelife.no/> for more information on how we are working on environmental issues.

LCA: Scenarios and additional technical information

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

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 6 (km)	36,7 %	100	0,043	l/tkm	4,30

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-A3	A4	C1	C2	C3	C4	D	
GWP-total	kg CO ₂ -eq	4,35E+00	1,63E-02	0	0	0	0	0	
GWP-fossil	kg CO ₂ -eq	4,31E+00	1,63E-02	0	0	0	0	0	
GWP-biogenic	kg CO ₂ -eq	1,79E-02	6,76E-06	0	0	0	0	0	
GWP-luluc	kg CO ₂ -eq	1,85E-02	5,81E-06	0	0	0	0	0	
ODP	kg CFC11 -eq	3,71E-08	3,70E-09	0	0	0	0	0	
AP	mol H ⁺ -eq	5,99E-02	4,69E-05	0	0	0	0	0	
EP-FreshWater	kg P -eq	9,39E-06	1,31E-07	0	0	0	0	0	
EP-Marine	kg N -eq	3,70E-03	9,29E-06	0	0	0	0	0	
EP-Terrestrial	mol N -eq	3,85E-02	1,04E-04	0	0	0	0	0	
POCP	kg NMVOC -eq	1,34E-02	3,98E-05	0	0	0	0	0	
ADP-minerals&metals ¹	kg Sb-eq	2,59E-03	4,51E-07	0	0	0	0	0	
ADP-fossil ¹	MJ	5,57E+01	2,47E-01	0	0	0	0	0	
WDP ¹	m ³	4,53E+00	2,39E-01	0	0	0	0	0	

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-A3	A4	C1	C2	C3	C4	D
 PM	Disease incidence	1,00E-08	1,00E-09	0	0	0	0	0
 IRP ²	kgBq U235 -eq	1,08E-02	1,08E-03	0	0	0	0	0
 ETP-fw ¹	CTUe	1,83E+00	1,83E-01	0	0	0	0	0
 HTP-c ¹	CTUh	0,00E+00	0,00E+00	0	0	0	0	0
 HTP-nc ¹	CTUh	2,00E-09	2,00E-10	0	0	0	0	0
 SQP ¹	dimensionless	1,73E+00	1,73E-01	0	0	0	0	0











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 = $9,0 \cdot 10^{-3}$ = 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-A3	A4	C1	C2	C3	C4	D	
 PERE	MJ	1,02E+01	3,54E-03	0	0	0	0	0	
 PERM	MJ	0,00E+00	0,00E+00	0	0	0	0	0	
 PERT	MJ	1,02E+01	3,54E-03	0	0	0	0	0	
 PENRE	MJ	5,20E+01	2,47E-01	0	0	0	0	0	
 PENRM	MJ	3,83E+00	0,00E+00	0	0	0	0	0	
 PENRT	MJ	5,58E+01	2,47E-01	0	0	0	0	0	
 SM	kg	0,00E+00	0,00E+00	0	0	0	0	0	
 RSF	MJ	1,27E-03	1,26E-04	0	0	0	0	0	
 NRSF	MJ	4,53E-03	4,52E-04	0	0	0	0	0	
 FW	m ³	4,05E-02	2,64E-05	0	0	0	0	0	

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 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Waste






Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
 HWD	kg	1,28E-04	1,27E-05	0	0	0	0	0
 NHWD	kg	1,42E-01	1,20E-02	0	0	0	0	0
 RWD	kg	1,69E-05	1,68E-06	0	0	0	0	0

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

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
 CRU	kg	0,00E+00	0,00E+00	0	0	0	0	0
 MFR	kg	0,00E+00	0,00E+00	0	0	0	0	0
 MER	kg	0,00E+00	0,00E+00	0	0	0	0	0
 EEE	MJ	0,00E+00	0,00E+00	0	0	0	0	0
 EET	MJ	0,00E+00	0,00E+00	0	0	0	0	0

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 = $9,0 \cdot 10^{-3}$ = 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	0,00E+00

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).

Dangerous substances

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

Indoor environment

Has no impact on the indoor climate.

Additional Environmental Information






Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	4,26E+00	1,63E-02	0	0	0	0	0

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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