epd-norge
Global program operatør

Environmental product declaration

In accordance with 14025 and EN15804+A2

Halovolt 320N

PIPELIFE

The Norwegian EPD Foundation

Owner of the declaration:
Pipelife Sverige AB

Product:
Halovolt 320N

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. 1.0. March 2021

Program operator:
The Norwegian EPD Foundation

Declaration number:
NEPD-4436-3696-EN

Registration number:
NEPD-4436-3696-EN

Issue date:
05.05.2023

Valid to:
05.05.2028

EPD Software:
LCA.no EPD generator ID: 58341

General information

Product

Halovolt 320N

Owner of the declaration:

Pipelife Sverige AB
Contact person:
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e-mail: yvette.lennartsson@pipelife.com

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
Phone: +47 23 08 80 00
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Manufacturer:

Pipelife Sverige AB

Declaration number:

NEPD-4436-3696-EN

Place of production:

Pipelife Sverige AB
Box 50
SE-524 02 Ljung , Sweden

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. 1.0. March 2021

Management system:

EN ISO 9001:2015 and EN ISO 14001:2015

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.

Organisation no:

SE556087042901

Declared unit:

1 kg Halovolt 320N

Issue date:

05.05.2023

Declared unit (cradle to gate) with option:

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

Valid to:

05.05.2028

Year of study:

2022

Functional unit:

Comparability:

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

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Individual third party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the proccess is reviewed annualy. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

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: Yvette Lennartsson

Reviewer of company-specific input data and EPD: Bjørn Svensson

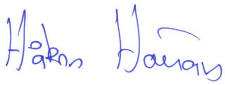
Verification of EPD tool:

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)

Approved:



Håkon Hauan, CEO EPD-Norge

Product

Product description:

Smooth PP cable protection pipes for indoor installation.
Halogen free products with low friction inner layer.
Ring stiffness class 320 N.

Product specification

70000738, 70000739, 70000740, 70005347, 70005348, 70005349, 70005394, 70005395, 70005396, 70005397,70005398, 70005399, 70005400, 70005401, 70005402, 70005403, 70005404, 70005405

Product related data to be found at Pipelife Sverige AB product catalogue https://catalog.pipelife.com/se

Materials	kg	%
Pigments	0,02	2,00
Plastic	0,03	3,00
Polypropylene (PP)	0,88	88,00
PP compound - flame retardant	0,07	7,00
Total	1,00	

Technical data:

Produced according EN 61 386-1, -22.

Market:

Europe, with scenario made for the Swedish market.

Reference service life, product

Lifetime on product calculated more than 100 years.

Reference service life, building

LCA: Calculation rules

Declared unit:

1 kg Halovolt 320N

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

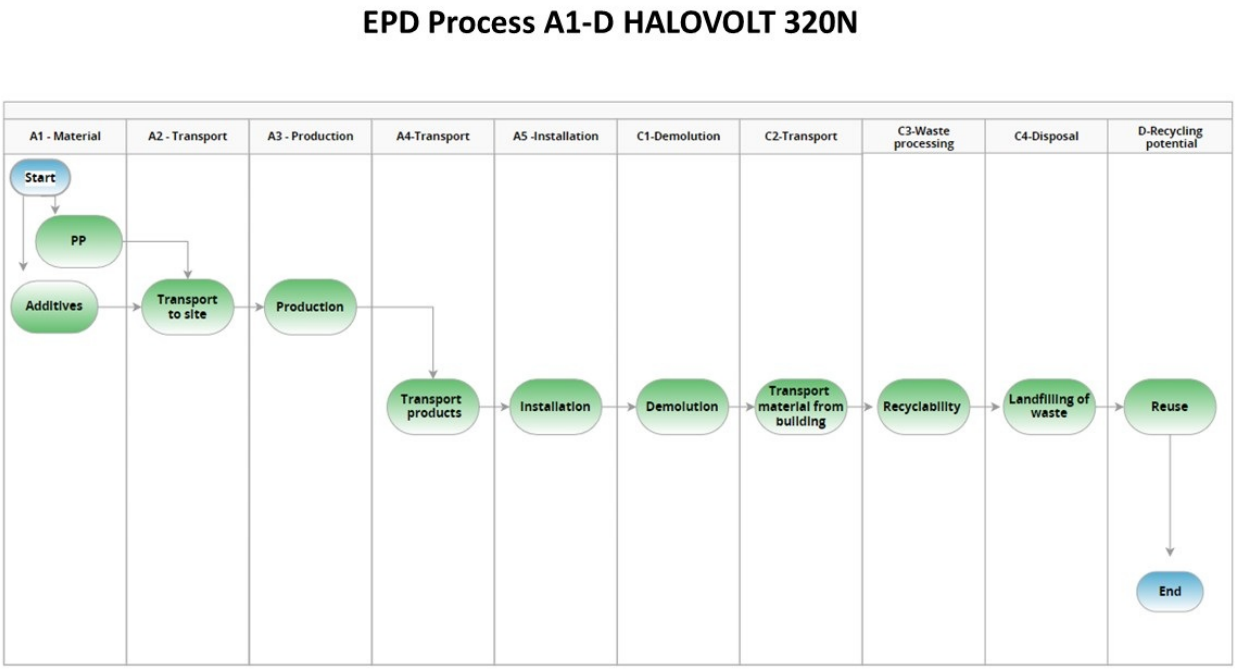
Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Pigments	ecoinvent 3.6	Database	2019
Plastic	ecoinvent 3.6	Database	2019
Polypropylene (PP)	ecoinvent 3.6	Database	2019
PP compound - flame retardant	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:



Additional technical information:

LCA: Scenarios and additional technical information

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

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

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

C3 and C4 = Waste treatment of the product follows the default values provided in EN 50693, Product Category Rules for life cycle assessments of electronic and electrical products and systems, table G.4. This table specified how different types of raw materials used in A1 will likely be treated during the end-of-life of the product. Waste treatments in C3 include material recycling and incineration with and without energy recovery and fly ash extraction. Disposal in C4 consist of landfilling of different waste fractions and of ashes.

D = The recyclability of metals and plastics allows the producers a credit for the net scrap that is produced at the end of a product's life. The benefits from recycling of net scrap are described in formula from EN 15804:2012+A2:2019. Substitution of heat and electricity generated by the incineration with energy recovery of plastics is also calculated in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	100	0,043	l/tkm	4,30

Assembly (A5)	Unit	Value			
Product loss during installation (percentage of cable pipe)	Units/DU	0,05			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	100	0,043	l/tkm	4,30

Waste processing (C3)	Unit	Value			
Waste treatment of hazardous waste, incineration with energy recovery and fly ash extraction (kg)	kg	0,05			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,01			
Waste treatment of polypropylene (PP), incineration with energy recovery and fly ash extraction (kg)	kg	0,44			

Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Hazardous waste, process per kg ashes and residues (kg)	kg	0,04			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,00			
Landfilling of ashes from incineration of Polypropylene (PP), process per kg ashes and residues (kg)	kg	0,01			
Landfilling of hazardous waste (kg)	kg	0,02			
Landfilling of plastic mixture (kg)	kg	0,45			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity (MJ)	MJ	0,73			
Substitution of thermal energy, district heating (MJ)	MJ	11,07			

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	2,47E+00	1,63E-02	1,92E-01	0	1,63E-02	1,26E+00	7,48E-02	-6,65E-02
	GWP-fossil	kg CO_2 -eq	2,46E+00	1,63E-02	1,91E-01	0	1,63E-02	1,26E+00	7,47E-02	-6,42E-02
	GWP-biogenic	kg CO_2 -eq	1,01E-02	6,76E-06	5,18E-04	0	6,76E-06	2,88E-04	1,55E-05	-1,32E-04
	GWP-luluc	kg CO_2 -eq	3,43E-03	5,81E-06	1,75E-04	0	5,81E-06	2,95E-05	3,12E-05	-2,21E-03
	ODP	kg CFC11 -eq	1,24E-07	3,70E-09	7,39E-09	0	3,70E-09	1,36E-08	2,58E-09	-4,68E-03
	AP	mol H+ -eq	1,01E-02	4,69E-05	5,29E-04	0	4,69E-05	3,09E-04	9,08E-05	-5,29E-04
	EP-FreshWater	kg P -eq	5,18E-05	1,31E-07	2,76E-06	0	1,31E-07	2,76E-06	3,87E-07	-5,70E-06
	EP-Marine	kg N -eq	1,71E-03	9,29E-06	9,54E-05	0	9,29E-06	1,04E-04	7,97E-05	-1,73E-04
	EP-Terrestial	mol N -eq	1,91E-02	1,04E-04	1,04E-03	0	1,04E-04	1,14E-03	2,97E-04	-1,87E-03
	POCP	kg NMVOC -eq	8,00E-03	3,98E-05	4,23E-04	0	3,98E-05	2,88E-04	1,01E-04	-5,15E-04
	ADP-minerals&metals[1]	kg Sb -eq	1,96E-03	4,51E-07	9,81E-05	0	4,51E-07	4,31E-07	8,93E-08	-6,38E-07
	ADP-fossil[1]	MJ	8,04E+01	2,47E-01	4,09E+00	0	2,47E-01	5,44E-01	2,35E-01	-9,18E-01
	WDP[1]	m^3	5,83E+02	2,39E-01	2,95E+01	0	2,39E-01	1,92E+00	3,29E+00	-1,14E+01

GWP total = Global Warming Potential total; GWP fossil = Global Warming Potential fossil fuels ; GWP biogenic = Global Warming Potential biogenic; GWP luluc = Global W Potential land use change; ODP = Ozone Depletion; AP = Acidification; EP freshwater = Eutrophication aquatic freshwater; EP = marine Eutrophication aquatic marine; EP = terrestrial Eutrophication terrestrial ;POCP = Photochemical zone formation; ADPE = Abiotic Depletion Potential minerals and metals; ADPF = Abiotic Depletion Potential fossil fuels;

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

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

Additional environmental impact indicators										
Indicator		**Unit**	A1-A3	A4	A5	C1	C2	C3	C4	D
	PM	Disease incidence	9,79E-08	1,00E-09	5,22E-09	0	1,00E-09	3,19E-09	1,27E-09	-3,20E-08
	IRP[2]	kgBq U235 -eq	2,30E-01	1,08E-03	1,18E-02	0	1,08E-03	2,26E-03	1,09E-03	-5,86E-03
	ETP-fw[1]	CTUe	3,07E+01	1,83E-01	1,71E+00	0	1,83E-01	2,53E+00	4,90E-01	-4,99E+00
	HTP-c[1]	CTUh	6,51E-10	0,00E+00	4,10E-11	0	0,00E+00	1,34E-10	3,20E-11	-9,20E-11
	HTP-nc[1]	CTUh	2,26E-08	2,00E-10	1,27E-09	0	2,00E-10	1,67E-09	7,19E-10	-4,78E-09
	SQP[1]	dimensionless	6,56E+00	1,73E-01	3,93E-01	0	1,73E-01	1,94E-01	7,56E-01	-6,14E+00

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10-3 = 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	3,58E+00	3,54E-03	1,85E-01	0	3,54E-03	8,64E-02	2,87E-02	-5,67E+00
	PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	3,58E+00	3,54E-03	1,85E-01	0	3,54E-03	8,64E-02	2,87E-02	-5,67E+00
	PENRE	MJ	5,20E+01	2,47E-01	2,66E+00	0	2,47E-01	5,44E-01	2,36E-01	-9,18E-01
	PENRM	MJ	3,10E+01	0,00E+00	1,55E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	8,30E+01	2,47E-01	4,21E+00	0	2,47E-01	5,44E-01	2,36E-01	-9,18E-01
	SM	kg	1,39E-03	0,00E+00	8,81E-05	0	0,00E+00	0,00E+00	3,76E-04	0,00E+00
	RSF	MJ	7,55E-02	1,26E-04	3,90E-03	0	1,26E-04	1,92E-03	3,37E-04	-9,93E-04
	NRSF	MJ	4,36E-02	4,52E-04	2,55E-03	0	4,52E-04	-1,79E-05	6,53E-03	-3,36E-01
	FW	m^3	8,11E-02	2,64E-05	4,11E-03	0	2,64E-05	6,68E-04	3,15E-04	-6,83E-03

PERE Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM Use of renewable primary energy resources used as raw materials; PERT Total use of renewable primary energy resources; PENRE Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM Use of non renewable primary energy resources used as raw materials; PENRT Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; FW Use of net fresh water

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

End of life - Waste

Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	HWD	kg	4,60E-03	1,27E-05	1,54E-03	0	1,27E-05	1,29E-06	2,61E-02	-4,31E-05
	NHWD	kg	2,21E-01	1,20E-02	3,74E-02	0	1,20E-02	6,78E-05	5,02E-01	-2,17E-02
	RWD	kg	1,38E-04	1,68E-06	7,09E-06	0	1,68E-06	9,43E-09	7,79E-07	-4,80E-06

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

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

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	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	1,94E-04	0,00E+00	2,79E-05	0	0,00E+00	4,13E-06	3,61E-04	0,00E+00
	MER	kg	1,11E-03	0,00E+00	2,56E-03	0	0,00E+00	5,00E-02	1,35E-06	0,00E+00
	EEE	MJ	7,59E-03	0,00E+00	3,70E-02	0	0,00E+00	7,32E-01	6,61E-05	0,00E+00
	EET	MJ	1,15E-01	0,00E+00	5,59E-01	0	0,00E+00	1,11E+01	1,00E-03	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*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 Norwegian requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Data source	Amount	Unit
Electricity, Sweden (kWh)	ecoinvent 3.6	54,94	g CO2-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

Additional Environmental Information

Environmental impact indicators EN 15804+A2 and NPCR Part A v2.0									
Indicator	**Unit**	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	2,31E+00	1,62E-02	1,83E-01	0	1,62E-02	1,25E+00	6,15E-02	-6,53E-02
ODP	kg CFC11 -eq	1,29E-07	3,00E-09	7,47E-09	0	3,00E-09	1,27E-08	2,07E-09	-6,74E-09
POCP	kg C_2H_4 -eq	4,81E-04	1,97E-06	2,53E-05	0	1,97E-06	8,72E-06	1,19E-05	-7,71E-05
AP	kg SO_2 -eq	7,88E-03	3,23E-05	4,11E-04	0	3,23E-05	2,30E-04	5,09E-05	-3,90E-04
EP	kg PO_4^{3-} -eq	6,93E-04	3,43E-06	3,93E-05	0	3,43E-06	5,42E-05	3,13E-05	-1,12E-04
ADPM	kg Sb -eq	1,96E-03	4,51E-07	9,80E-05	0	4,51E-07	4,31E-07	8,95E-08	-6,39E-07
ADPE	MJ	7,48E+01	2,42E-01	3,80E+00	0	2,42E-01	5,09E-01	2,18E-01	-7,40E-01
GWPIOBC	kg CO_2 -eq	2,33E+00	1,63E-02	1,82E-01	0	1,63E-02	1,26E+00	2,02E-02	-6,55E-02

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources; GWP-IOBC/GHG Global warming potential calculated according to the principle of instantanious oxidation (except emissions and uptake of biogenic carbon)

Bibliography

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NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge.

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ECO PLATFORM EPD VERIFIED	ECO Platform ECO Portal	web: www.eco-platform.org web: ECO Portal