ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Pipelife Sverige AB
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	
Registration number:	NA
ECO Platform reference number:	NA
Issue date:	21.02.2022
Valid to:	21.02.2027

PE Optimal Cable Protection Pipes 6m / 12m

Pipelife Sverige AB

PIPELIFE

www.epd-norge.no

General information

Product:

PE Optimal Cable Protection Pipes 6m / 12m

Owner of the declaration:

Pipelife Sverige AB
Contact person:
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Program operator:

The Norwegian EPD Foundation
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Manufacturer:

Pipelife Sverige AB

Declaration number:

Place of production:

Pipelife Sverige AB
Box 50 SE-524 02 Ljung
Sweden

ECO Platform reference number:

Management system:

EN ISO 9001:2015 and EN ISO 14001:2015

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR

NPCR 019:2018 Part B for Piping systems use in sewage and storm water systems (under gravity)

Organisation no:

SE556087042901

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.

Issue date:

21.02.2022

Valid to:

21.02.2027

Declared unit:

1 kg PE Optimal Cable Protection Pipes 6m / 12m

Year of study:

2022

Declared unit with option:

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

Comparability:

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

Functional unit:

Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

Developer of EPD:

Yvette Lennartsson

Reviewer of company-specific input data and EPD:

Bjørn Svensson

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.

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.

Michael M. Jenssen, Asplan Viak AS

(no signature required)

Approved:

Sign

Håkon Hauan, CEO EPD-Norge

Product

Product description:

Smooth PE cable protection pipes in 6m and 12m lengths.
Optimum for installation in urban environment.

Product specification

Products are UV stable and have low friction inner layer.
Product are classified as SRS or SRE-P.

Materials	kg	%
Polyethylene	0,49	48,50
Polyethylene (HDPE) recycled	0,52	51,50
Total:	1,00	

Technical data:

PE material with density 960 kg/m3.
Produced according Verksnorm 5200.

Market:

Europe, with scenario made for the Swedish market.

Reference service life, product

Lifetime on product calculated more than 100 years.

Reference service life, construcion

LCA: Calculation rules

Declared unit:

1 kg PE Optimal Cable Protection Pipes 6m / 12m

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:

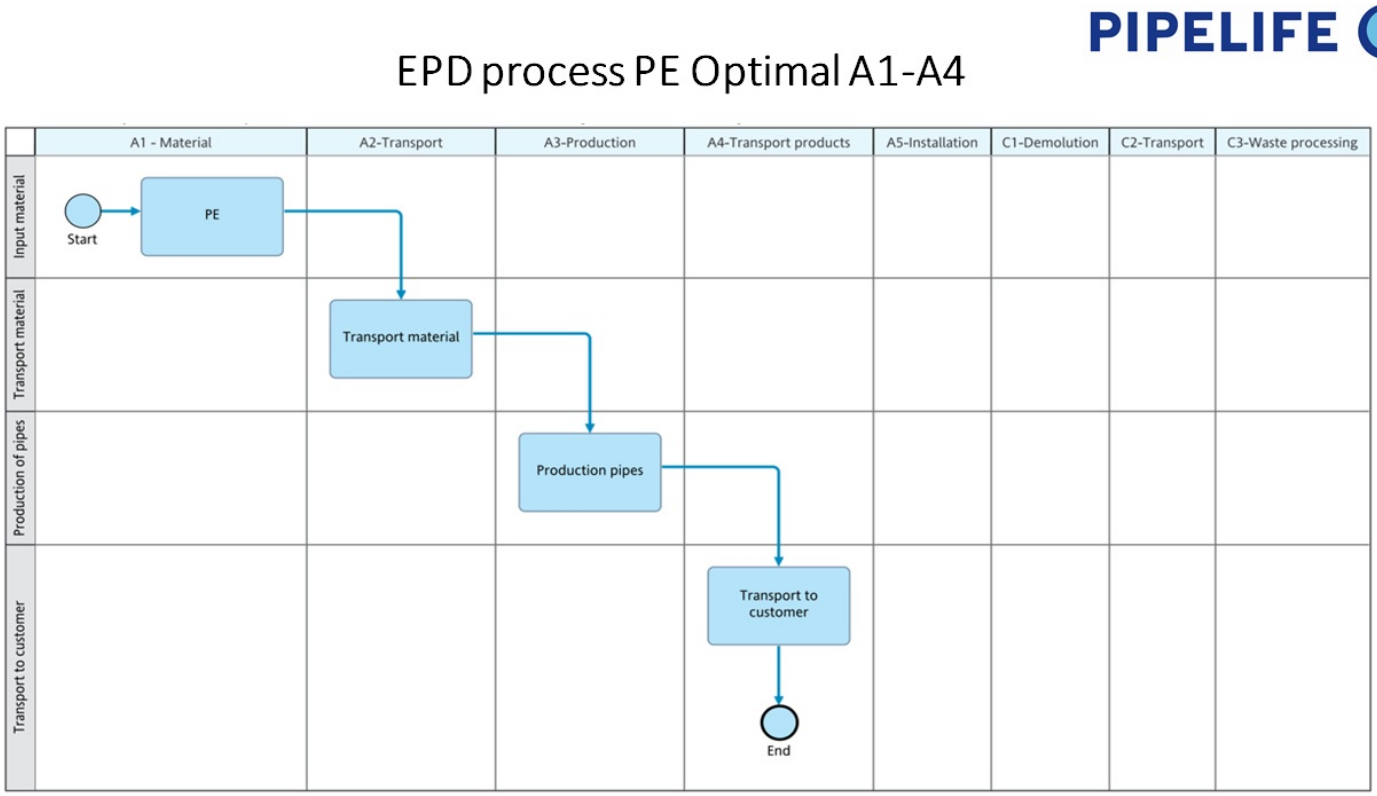
The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was 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
Polyethylene	ecoinvent 3.6	Database	2019
Polyethylene (HDPE) recycled	ecoinvent 3.6	Database	2019

System boundary:



Material	Material Description	Pipe Length	Weight per meter	Outer dimension	Global warming potential for A1-A3 stages, kg CO2e	Acidifaction total for A1-A3 stages kg So2e
70013535	Optimal Cable Protection SRS	6	2,10	110	1,384	0,004
70013536	Optimal Cable Protection SRS	6	2,63	125	1,384	0,004
70013537	Optimal Cable Protection SRS	6	4,50	160	1,384	0,004
70013538	Optimal Cable Protection SRS	12	2,10	110	1,384	0,004
70013539	Optimal Cable Protection SRS	12	2,63	125	1,384	0,004
70013540	Optimal Cable Protection SRS	12	4,50	160	1,384	0,004
70013541	Optimal Cable Protection SRE-P	6	3,20	110	1,384	0,004
70013542	Optimal Cable Protection SRE-P	6	4,10	125	1,384	0,004
70013543	Optimal Cable Protection SRE-P	6	6,80	160	1,384	0,004
70013544	Optimal Cable Protection SRE-P	12	3,20	110	1,384	0,004
70013545	Optimal Cable Protection SRE-P	12	4,10	125	1,384	0,004
70013546	Optimal Cable Protection SRE-P	12	6,80	160	1,384	0,004

Additional technical information:

LCA: Scenarios and additional technical information

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

A4 - "Transport" from plant to customer is calculated on distance of 100 km with truck EURO class 6 and 55% degree of filling. A5 - "Installation" Since the calculation is based on kilo it is not compatible. C - "End of life stage" We assume that the pipes will remain in the ground, therefore no data input to. D - "Beyond the system boundaries" We assume that the pipes will remain in the ground, therefore no data input to.

Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	55,0 %	Lastebil med henger, EURO 6, 55% Fyllingsgrad	100	0,022606	l/tkm	2,26
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

LCA: Results

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

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

Product stage			Construction installation stage		User stage							End of life stage				.	Beyond the system bondaries
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

Environmental impact

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	1,38E+00	8,28E-03	0	0	0	0	0	0
ODP	kg CFC11 -eq	9,86E-08	1,70E-09	0	0	0	0	0	0
POCP	kg C_2H_4-eq	3,80E-04	1,29E-06	0	0	0	0	0	0
AP	kg SO_2 -eq	4,42E-03	2,14E-05	0	0	0	0	0	0
EP	kg PO_4^{3-} -eq	5,29E-04	2,95E-06	0	0	0	0	0	0
ADPM	kg Sb -eq	6,32E-07	1,97E-08	0	0	0	0	0	0
ADPE	MJ	3,68E+01	1,36E-01	0	0	0	0	0	0

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

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

Resource use

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	3,32E+00	2,47E-03	0	0	0	0	0	0
RPEM	MJ	0,00E+00	0,00E+00	0	0	0	0	0	0
TPE	MJ	3,32E+00	2,47E-03	0	0	0	0	0	0
NRPE	MJ	-8,99E-01	1,40E-01	0	0	0	0	0	0
NRPM	MJ	4,63E+01	0,00E+00	0	0	0	0	0	0
TRPE	MJ	4,54E+01	1,40E-01	0	0	0	0	0	0
SM	kg	0,00E+00	0,00E+00	0	0	0	0	0	0
RSF	MJ	2,10E-03	0,00E+00	0	0	0	0	0	0
NRSF	MJ	0,00E+00	0,00E+00	0	0	0	0	0	0
W	m^3	6,52E-02	3,32E-05	0	0	0	0	0	0

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE 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; W Use of net fresh water

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

End of life - Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	1,22E-05	7,47E-08	0	0	0	0	0	0
NHW	kg	3,90E-01	1,28E-02	0	0	0	0	0	0
RW	kg	INA*	INA*	0	0	0	0	0	0

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

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

End of life - Output flow

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0	0	0	0	0	0
MR	kg	1,15E-02	0,00E+00	0	0	0	0	0	0
MER	kg	5,04E-06	0,00E+00	0	0	0	0	0	0
EEE	MJ	INA*	INA*	0	0	0	0	0	0
ETE	MJ	INA*	INA*	0	0	0	0	0	0

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

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

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
El-mix, Sweden (kWh)	ecoinvent 3.4 Alloc Rec	42,67	g CO2-ekv/kWh

Dangerous substances

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

Indoor environment

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+A1:2013 Environmental product declaration - Core rules for the product category of construction products.
ISO 21930:2017 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., (2018) eEPD v3.0 - Background information for EPD generator system. LCA.no report 04.18.
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. 1.0. April 2017, EPD-Norge.
NPCR 019 Part B for Piping systems for use in sewage and storm water systems (under gravity), Ver 2.0.

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