epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Inflex/Inflex UV

PIPELIFE

The Norwegian EPD Foundation

Owner of the declaration:
Pipelife Sverige AB

Product:
Inflex/Inflex UV

Declared unit:
1 kg

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 028:2020 Part B for Cable pipes

Program operator:
The Norwegian EPD Foundation

Declaration number:

NEPD-8617-8281

Registration number:

NEPD-8617-8281

Issue date: 31.12.2024

Valid to: 31.12.2029

ver-060225

EPD software:
LCAno EPD generator ID: 690863

General information

Product

Inflex/Inflex UV

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-8617-8281

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 028:2020 Part B for Cable pipes

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 Inflex/Inflex UV

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 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 Sverige AB
Contact person:
Phone: +46 513 22114
e-mail: yvette.lennartsson@pipelife.com

Manufacturer:

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

Place of production:

Pipelife - Preflexibel NV

Ninove, Belgium

Management system:

EN ISO 9001:2015 and EN ISO 14001:2015

Organisation no:

SE556087042901

Issue date:

31.12.2024

Valid to:

31.12.2029

Year of study:

2023

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: Mattias Petersson

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

Approved:

Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

Corrugated PP cable protection pipes for indoor and/or outdoor installation.
Halogen free products with low friction inner layer.
Some variants with UV-stabilization for outdoor applications.

Product specification

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

Materials	kg	%
Plastic products	1,00	100,00
Total	1,00	100,00

Technical data:

Produced according to EN 61 386-1, -22.
Ring stiffness 750N.

Market:

Europe, with scenario for the Swedish and Danish market.

Reference service life, product

Reference service life, building

More than 100 year.

LCA: Calculation rules

Declared unit:

1 kg Inflex/Inflex UV

Cut-off criteria:

Allocation:

Data quality:

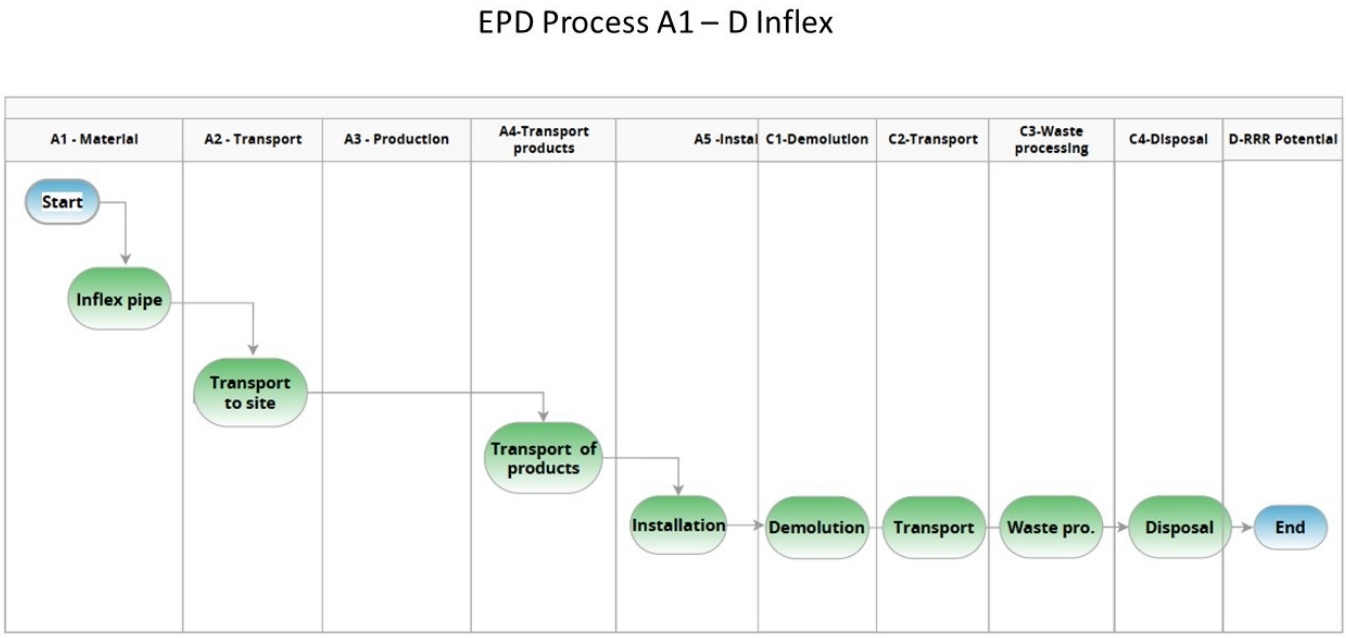
Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the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

Materials	Source	Data quality	Year
Plastic products	EPD-IES-0017063	EPD	2023

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. According to NPCR 028, other activities such as excavating/backfilling trenches and other additional materials are not included, these are expected to be included at construction level assessments.
C1 = According to NPCR 028, other activities such as excavating/backfilling trenches and other additional materials are not included, these are expected to be included at construction level assessments. This module can therefore be included with zero impact.
C2 = Estimated transport of product 100 km.
C3= Waste treatment of polypropylene (PP), incineration with energy recovery and fly ash extraction (kg)
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 5 (km)	36,7 %	100	0,044	l/tkm	4,40

Assembly (A5)	Unit	Value			
Product loss during installation (percentage of cable pipe)	Units	0,050			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 5 (km)	36,7 %	100	0,044	l/tkm	4,40

Waste processing (C3)	Unit	Value			
Waste treatment of polypropylene (PP), incineration with energy recovery and fly ash extraction (kg)	kg	0,50			

Disposal (C4)	Unit	Value			
Landfilling of plastic mixture (kg)	kg	0,50			
Landfilling of ashes from incineration of Polypropylene (PP), process per kg ashes and residues (kg)	kg	0,014			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity (MJ)	MJ	0,81			
Substitution of thermal energy, district heating (MJ)	MJ	12,31			

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	2,25E+00	1,67E-02	1,80E-01	0	1,67E-02	1,27E+00	5,79E-02	-7,40E-02
	GWP-fossil	kg CO_2 -eq	2,22E+00	1,67E-02	1,78E-01	0	1,67E-02	1,27E+00	5,79E-02	-7,14E-02
	GWP-biogenic	kg CO_2 -eq	3,41E-02	6,80E-06	1,71E-03	0	6,80E-06	1,05E-05	5,52E-06	-1,47E-04
	GWP-luluc	kg CO_2 -eq	4,45E-04	5,83E-06	2,27E-05	0	5,83E-06	1,61E-06	1,24E-06	-2,46E-03
	ODP	kg CFC11 -eq	3,72E-04	3,80E-09	1,86E-05	0	3,80E-09	1,00E-09	1,65E-09	-5,20E-03
	AP	mol H+ -eq	8,62E-03	6,81E-05	4,45E-04	0	6,81E-05	1,61E-04	4,16E-05	-5,88E-04
	EP-FreshWater	kg P -eq	6,66E-05	1,31E-07	3,35E-06	0	1,31E-07	1,07E-07	6,24E-08	-6,34E-06
	EP-Marine	kg N -eq	1,93E-03	2,02E-05	1,05E-04	0	2,02E-05	7,68E-05	7,41E-05	-1,92E-04
	EP-Terrestial	mol N -eq	2,26E-02	2,23E-04	1,19E-03	0	2,23E-04	8,31E-04	1,64E-04	-2,08E-03
	POCP	kg NMVOC -eq	9,42E-03	6,84E-05	4,87E-04	0	6,84E-05	2,00E-04	5,88E-05	-5,73E-04
	ADP-minerals&metals[1]	kg Sb-eq	3,12E-03	4,52E-07	1,56E-04	0	4,52E-07	4,67E-08	4,23E-08	-7,10E-07
	ADP-fossil[1]	MJ	8,73E+01	2,51E-01	4,39E+00	0	2,51E-01	8,63E-02	1,22E-01	-1,02E+00
	WDP[1]	m^3	4,74E+00	2,40E-01	3,12E-01	0	2,40E-01	2,01E-01	1,05E+00	-1,27E+01

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	A5	C1	C2	C3	C4	D
	PM	Disease incidence	1,05E-07	1,20E-09	5,38E-09	0	1,20E-09	7,52E-10	8,18E-10	-3,56E-08
	IRP[2]	kgBq U235 -eq	1,66E-01	1,10E-03	8,38E-03	0	1,10E-03	1,50E-04	5,90E-04	-6,52E-03
	ETP-fw[1]	CTUe	2,32E+00	1,85E-01	1,46E-01	0	1,85E-01	2,55E-01	1,52E-01	-5,55E+00
	HTP-c[1]	CTUh	2,52E-09	0,00E+00	1,28E-10	0	0,00E+00	3,00E-11	4,00E-12	-1,01E-10
	HTP-nc[1]	CTUh	1,36E-07	2,00E-10	6,85E-09	0	2,00E-10	1,09E-09	1,14E-10	-5,32E-09
	SQP[1]	dimensionless	1,80E+01	1,73E-01	9,31E-01	0	1,73E-01	1,09E-02	4,55E-01	-6,83E+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	3,10E+00	3,55E-03	1,56E-01	0	3,55E-03	2,62E-03	5,75E-03	-6,31E+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	3,10E+00	3,55E-03	1,56E-01	0	3,55E-03	2,62E-03	5,75E-03	-6,31E+00
	PENRE	MJ	4,48E+01	2,51E-01	2,27E+00	0	2,51E-01	8,63E-02	1,22E-01	-1,02E+00
	PENRM	MJ	4,25E+01	0,00E+00	0,00E+00	0	0,00E+00	-4,25E+01	0,00E+00	0,00E+00
	PENRT	MJ	8,73E+01	2,51E-01	2,27E+00	0	2,51E-01	-4,24E+01	1,22E-01	-1,02E+00
	SM	kg	3,09E-02	0,00E+00	1,55E-03	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	1,59E-03	1,27E-04	9,55E-05	0	1,27E-04	7,21E-05	1,21E-04	-1,10E-03
	NRSF	MJ	5,68E-03	4,53E-04	4,05E-04	0	4,53E-04	0,00E+00	1,97E-03	-3,74E-01
	FW	m^3	4,13E-02	2,65E-05	2,09E-03	0	2,65E-05	2,38E-04	1,50E-04	-7,59E-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	2,20E-04	1,28E-05	6,42E-04	0	1,28E-05	0,00E+00	1,26E-02	-4,80E-05
	NHWD	kg	2,44E-01	1,20E-02	3,82E-02	0	1,20E-02	0,00E+00	5,07E-01	-2,41E-02
	RWD	kg	1,03E-04	1,71E-06	5,26E-06	0	1,71E-06	0,00E+00	8,02E-07	-5,34E-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	2,42E-04	0,00E+00	1,43E-05	0	0,00E+00	0,00E+00	4,48E-05	0,00E+00
	MER	kg	0,00E+00	0,00E+00	2,50E-02	0	0,00E+00	5,00E-01	1,10E-06	0,00E+00
	EEE	MJ	5,06E-03	0,00E+00	4,10E-02	0	0,00E+00	8,14E-01	7,12E-05	0,00E+00
	EET	MJ	2,53E-03	0,00E+00	6,16E-01	0	0,00E+00	1,23E+01	1,08E-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 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

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	2,22E+00	1,67E-02	1,78E-01	0	1,67E-02	1,27E+00	5,80E-02	-7,29E-02

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

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.
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