

Environmental product declaration

In accordance with 14025 and EN15804+A2

PP Sewage pipe



PIPELIFE 

The Norwegian EPD Foundation

Owner of the declaration:

Pipelife Sverige AB

Product:

PP Sewage pipe

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-4323-3558-EN

Registration number:

NEPD-4323-3558-EN

Issue date:

03.04.2023

Valid to:

03.04.2028

EPD Software:

LCA.no EPD generator ID: 59698

General information

Product

PP Sewage pipe

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-4323-3558-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. 1.0. 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 PP Sewage pipe

Declared unit (cradle to gate) with option:

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

Functional unit:

The unit is with socket included.

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 process is reviewed annually. 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

Place of production:

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

Management system:

EN ISO 9001:2015 and EN ISO 14001:2015

Organisation no:

SE556087042901

Issue date:

03.04.2023

Valid to:

03.04.2028

Year of study:

2022

Comparability:

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

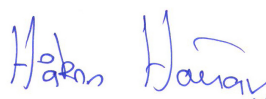
Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD: Yvette Lennartsson

Reviewer of company-specific input data and EPD: Mattias Petersson

Approved:



Håkon Hauan, CEO EPD-Norge

Product

Product description:

Conformity mark covered by certificate; Nordic Poly Mark

Product specification

70000916, 70000917, 70000918, 70000919, 70000920, 70000921, 70005127, 70005129, 70005130, 70005132, 70005133, 70005135, 70005136, 70005137, 70005138, 70005139, 70005140

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

| Materials | kg | % |
|--------------------|------|-------|
| Pigments | 0,01 | 1,01 |
| Polypropylene (PP) | 0,99 | 98,99 |
| Total | 1,00 | |

Technical data:

PP material with density 905 kg/m³.

Produced according SS EN 1852.

Sealing ring quality according EN 681-2.

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 PP Sewage pipe

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.

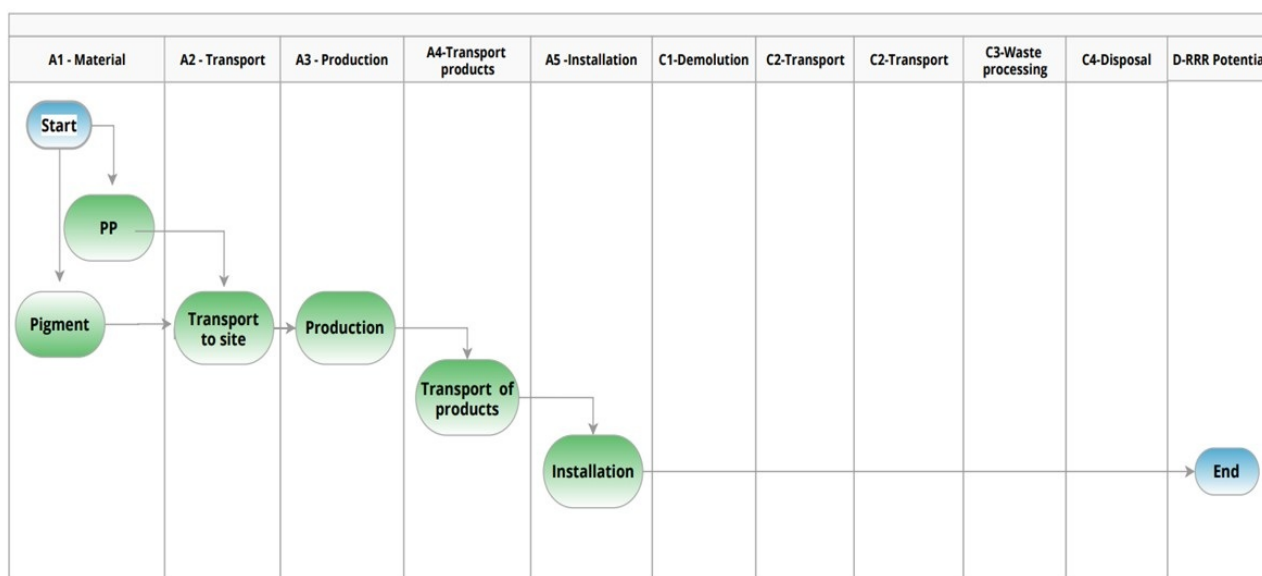
| Materials | Source | Data quality | Year |
|--------------------|---------------|--------------|------|
| Pigments | ecoinvent 3.6 | Database | 2019 |
| Polypropylene (PP) | ecoinvent 3.6 | Database | 2019 |

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 | MND | MND | MND | MND | MND | MND | MND | MND | X | X | X | X | X |

System boundary:

EPD Process PP Sewage Pipes



Additional technical information:

Conformity mark covered by certificate; Nordic Poly Mark

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 5 .

A5 - "Assembly", refer to NPCR 019 Part B Piping systems A2.

C1 - C4 "End of life stage", we assume that the pipes will remain within the ground, therefore no data input.

D - "Beyond the system boundaries", we assume that the pipes will remain in the ground, therefore no data input.

| 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 | 2,24E+00 | 1,63E-02 | 0 | 0 | 0 | 0 | 0 | 0 |
| GWP-fossil | kg CO ₂ -eq | 2,23E+00 | 1,63E-02 | 0 | 0 | 0 | 0 | 0 | 0 |
| GWP-biogenic | kg CO ₂ -eq | 1,02E-02 | 6,76E-06 | 0 | 0 | 0 | 0 | 0 | 0 |
| GWP-luluc | kg CO ₂ -eq | 3,36E-03 | 5,81E-06 | 0 | 0 | 0 | 0 | 0 | 0 |
| ODP | kg CFC11 -eq | 9,90E-08 | 3,70E-09 | 0 | 0 | 0 | 0 | 0 | 0 |
| AP | mol H ⁺ -eq | 8,10E-03 | 4,69E-05 | 0 | 0 | 0 | 0 | 0 | 0 |
| EP-FreshWater | kg P -eq | 3,35E-05 | 1,31E-07 | 0 | 0 | 0 | 0 | 0 | 0 |
| EP-Marine | kg N -eq | 1,49E-03 | 9,29E-06 | 0 | 0 | 0 | 0 | 0 | 0 |
| EP-Terrestrial | mol N -eq | 1,66E-02 | 1,04E-04 | 0 | 0 | 0 | 0 | 0 | 0 |
| POCP | kg NMVOC -eq | 7,18E-03 | 3,98E-05 | 0 | 0 | 0 | 0 | 0 | 0 |
| ADP-minerals&metals ¹ | kg Sb -eq | 2,41E-05 | 4,51E-07 | 0 | 0 | 0 | 0 | 0 | 0 |
| ADP-fossil ¹ | MJ | 7,94E+01 | 2,47E-01 | 0 | 0 | 0 | 0 | 0 | 0 |
| WDP ¹ | m ³ | 5,77E+02 | 2,39E-01 | 0 | 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 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 | C1 | C2 | C3 | C4 | D | |
|  PM | Disease incidence | 7,92E-08 | 1,00E-09 | 0 | 0 | 0 | 0 | 0 | |
|  IRP ² | kgBq U235 -eq | 2,23E-01 | 1,08E-03 | 0 | 0 | 0 | 0 | 0 | |
|  ETP-fw ¹ | CTUe | 1,44E+01 | 1,83E-01 | 0 | 0 | 0 | 0 | 0 | |
|  HTP-c ¹ | CTUh | 5,32E-10 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 | |
|  HTP-nc ¹ | CTUh | 1,67E-08 | 2,00E-10 | 0 | 0 | 0 | 0 | 0 | |
|  SQP ¹ | dimensionless | 6,09E+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*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 | 3,49E+00 | 3,54E-03 | 0 | 0 | 0 | 0 | 0 | 0 |
|  PERM | MJ | 0,00E+00 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 | 0 |
|  PERT | MJ | 3,49E+00 | 3,54E-03 | 0 | 0 | 0 | 0 | 0 | 0 |
|  PENRE | MJ | 4,99E+01 | 2,47E-01 | 0 | 0 | 0 | 0 | 0 | 0 |
|  PENRM | MJ | 3,24E+01 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 | 0 |
|  PENRT | MJ | 8,23E+01 | 2,47E-01 | 0 | 0 | 0 | 0 | 0 | 0 |
|  SM | kg | 1,34E-03 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 | 0 |
|  RSF | MJ | 6,98E-02 | 1,26E-04 | 0 | 0 | 0 | 0 | 0 | 0 |
|  NRSF | MJ | 4,42E-02 | 4,52E-04 | 0 | 0 | 0 | 0 | 0 | 0 |
|  FW | m ³ | 8,03E-02 | 2,64E-05 | 0 | 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 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 | C1 | C2 | C3 | C4 | D | |
|  | HWD | kg | 4,40E-03 | 1,27E-05 | 0 | 0 | 0 | 0 | 0 |
|  | NHWD | kg | 2,12E-01 | 1,20E-02 | 0 | 0 | 0 | 0 | 0 |
|  | RWD | kg | 1,28E-04 | 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*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 | 3,39E-05 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 |
|  | MER | kg | 1,34E-02 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 |
|  | EEE | MJ | 7,37E-03 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 |
|  | EET | MJ | 1,12E-01 | 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*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 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






Additional Environmental Information

| Environmental impact indicators EN 15804+A2 and NPCR Part A v2.0 | | | | | | | | |
|--|--------------------------------------|----------|----------|----|----|----|----|---|
| Indicator | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
| GWP | kg CO ₂ -eq | 2,09E+00 | 1,62E-02 | 0 | 0 | 0 | 0 | 0 |
| ODP | kg CFC11 -eq | 1,07E-07 | 3,00E-09 | 0 | 0 | 0 | 0 | 0 |
| POCP | kg C ₂ H ₄ -eq | 4,12E-04 | 1,97E-06 | 0 | 0 | 0 | 0 | 0 |
| AP | kg SO ₂ -eq | 6,23E-03 | 3,23E-05 | 0 | 0 | 0 | 0 | 0 |
| EP | kg PO ₄ ³⁻ -eq | 5,49E-04 | 3,43E-06 | 0 | 0 | 0 | 0 | 0 |
| ADPM | kg Sb -eq | 2,36E-05 | 4,51E-07 | 0 | 0 | 0 | 0 | 0 |
| ADPE | MJ | 7,44E+01 | 2,42E-01 | 0 | 0 | 0 | 0 | 0 |
| GWPIOBC | kg CO ₂ -eq | 2,09E+00 | 1,63E-02 | 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; GWP-IOBC/GHG Global warming potential calculated according to the principle of instantaneous oxidation (except emissions and uptake of biogenic carbon)

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.

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