# Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.64

| | |
|---|---|
| Product: | 3041799 - PE100 Pressure Pipe BK 90x5.4 L=50 |
| Unit: | 1 piece |
| Manufacturer: | Wavin - DE - Westeregeln - verified |
| Address: | Borrweg 10<br>39448 Börde-Hakel<br>Germany |
| Contact: | https://www.wavin.com/en-en |

PE pressure pipe that offers the right solution for every part of the main network in your sewerage system.

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|---|---|
| LCA standard: | EN15804+A2 (2019) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 11-08-2022 |
| End of validity: | 11-08-2027 |
| Verifier: | Martijn van Hövell - SGS Search |

This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard.

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin - DE - Westeregeln - verified (2020). (☑ = module declared, MND = module not declared).

| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ☑ | ☑ | ☑ | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | ☑ | ☑ | ☑ | ☑ |

**Product stage**

A1 Raw material supply A2 Transport A3 Manufacturing

**Construction process stage**

A4 Transport gate to site
A5 Assembly / Construction installation process

**Use stage**

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment
B6 Operational energy use B7 Operational water use

**End-of-Life stage**

C1 De-construction demolition C2 Transport C3 Waste processing
C4 Disposal

**Benefits and loads beyond the system boundaries**

D Reuse- Recovery- Recycling- potential

## Environmental impacts and parameters

**GWP-total** = EF Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF Climate Change - Land use and LU change [kg CO2 eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m3 depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; **PERM** = Use of renewable primary energy resources used as raw materials [MJ]; **PERT** = Total use of renewable primary energy resources [MJ]; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; **PENRM** = Use of non-renewable primary energy resources used as raw materials [MJ]; **PENRT** = Total use of non-renewable primary energy resources [MJ]; **PET** = Total energy [MJ]; **SM** = Use of secondary material [kg]; **RSF** = Use of renewable secondary fuels [MJ]; **NRSF** = Use of non-renewable secondary fuels [MJ]; **FW** = Use of net fresh water [m3]; **HWD** = Hazardous waste disposed [kg]; **NHWD** = Non-hazardous waste disposed [kg]; **RWD** = Radioactive waste disposed [kg]; **CRU** = Components for re-use [kg]; **MFR** = Materials for recycling [kg]; **MER** = Materials for energy recovery [kg]; **EE** = Exported energy [MJ]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

## Statement of Confidentiality

# Results

| Environmental impact | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 1.48E+2 | 3.35E+0 | 3.14E+0 | 1.54E+2 | 1.94E+0 | 6.30E+1 | 1.07E+0 | -9.71E+1 | 1.23E+2 |
| GWP-f | kg CO2 eq | 1.47E+2 | 3.35E+0 | 2.56E+0 | 1.53E+2 | 1.93E+0 | 6.30E+1 | 1.07E+0 | -9.67E+1 | 1.22E+2 |
| GWP-b | kg CO2 eq | 7.19E-1 | 1.55E-3 | 2.71E-1 | 9.91E-1 | 1.17E-3 | -7.74E-2 | 8.05E-4 | -3.67E-1 | 5.49E-1 |
| GWP-luluc | kg CO2 eq | 4.39E-2 | 1.23E-3 | 3.05E-1 | 3.50E-1 | 6.85E-4 | 1.09E-2 | 1.54E-5 | -2.20E-2 | 3.40E-1 |
| ODP | kg CFC11 eq | 8.05E-6 | 7.39E-7 | 3.30E-7 | 9.12E-6 | 4.46E-7 | 1.41E-6 | 2.29E-8 | -4.64E-6 | 6.37E-6 |
| AP | mol H+ eq | 5.48E-1 | 1.94E-2 | 1.53E-2 | 5.83E-1 | 1.10E-2 | 5.95E-2 | 5.46E-4 | -2.68E-1 | 3.86E-1 |
| EP-fw | kg P eq | 2.42E-3 | 3.38E-5 | 5.84E-5 | 2.51E-3 | 1.59E-5 | 3.14E-4 | 7.08E-7 | -1.20E-3 | 1.64E-3 |
| EP-m | kg N eq | 9.16E-2 | 6.84E-3 | 3.09E-3 | 1.02E-1 | 3.94E-3 | 1.73E-2 | 3.86E-4 | -4.90E-2 | 7.42E-2 |
| EP-T | mol N eq | 1.02E+0 | 7.54E-2 | 3.13E-2 | 1.13E+0 | 4.35E-2 | 1.90E-1 | 2.22E-3 | -5.45E-1 | 8.19E-1 |
| POCP | kg NMVOC eq | 4.89E-1 | 2.15E-2 | 9.01E-3 | 5.20E-1 | 1.24E-2 | 6.02E-2 | 8.68E-4 | -2.54E-1 | 3.39E-1 |
| ADP-mm | kg Sb eq | 1.32E-3 | 8.48E-5 | 7.75E-5 | 1.48E-3 | 5.01E-5 | 2.35E-4 | 5.48E-7 | -6.25E-4 | 1.14E-3 |
| ADP-f | MJ | 5.22E+3 | 5.05E+1 | 3.00E+1 | 5.31E+3 | 2.97E+1 | 1.89E+2 | 1.67E+0 | -2.90E+3 | 2.62E+3 |
| WDP | m3 depriv. | 1.13E+2 | 1.81E-1 | 1.76E+1 | 1.30E+2 | 9.11E-2 | 3.70E+0 | 7.65E-3 | -5.64E+1 | 7.78E+1 |
| PM | disease inc. | 5.22E-6 | 3.01E-7 | 1.35E-7 | 5.65E-6 | 1.75E-7 | 9.78E-7 | 1.15E-8 | -2.12E-6 | 4.70E-6 |
| IR | kBq U-235 eq | 4.51E+0 | 2.12E-1 | 7.90E-2 | 4.80E+0 | 1.30E-1 | 5.68E-1 | 7.78E-3 | -1.75E+0 | 3.75E+0 |
| ETP-fw | CTUe | 9.40E+2 | 4.50E+1 | 7.49E+1 | 1.06E+3 | 2.41E+1 | 2.14E+2 | 1.47E+0 | -4.21E+2 | 8.78E+2 |
| HTP-c | CTUh | 3.85E-8 | 1.46E-9 | 2.79E-9 | 4.27E-8 | 8.58E-10 | 2.54E-8 | 4.05E-11 | -2.00E-8 | 4.89E-8 |
| HTP-nc | CTUh | 9.12E-7 | 4.93E-8 | 7.22E-8 | 1.03E-6 | 2.87E-8 | 3.21E-7 | 9.36E-10 | -4.48E-7 | 9.36E-7 |
| SQP | Pt | 1.98E+2 | 4.38E+1 | 2.81E+0 | 2.45E+2 | 2.54E+1 | 1.51E+2 | 4.28E+0 | -9.20E+1 | 3.33E+2 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 8.42E+1 | 6.32E-1 | 1.65E+2 | 2.49E+2 | 4.26E-1 | 9.30E+0 | 6.61E-2 | -4.20E+1 | 2.17E+2 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 8.42E+1 | 6.32E-1 | 1.65E+2 | 2.49E+2 | 4.26E-1 | 9.30E+0 | 6.61E-2 | -4.20E+1 | 2.17E+2 |
| PENRE | MJ | 5.60E+3 | 5.36E+1 | 3.20E+1 | 5.69E+3 | 3.15E+1 | 2.01E+2 | 1.77E+0 | -3.13E+3 | 2.79E+3 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 5.60E+3 | 5.36E+1 | 3.20E+1 | 5.69E+3 | 3.15E+1 | 2.01E+2 | 1.77E+0 | -3.13E+3 | 2.79E+3 |
| PET | MJ | 5.69E+3 | 5.42E+1 | 1.97E+2 | 5.94E+3 | 3.20E+1 | 2.10E+2 | 1.84E+0 | -3.17E+3 | 3.01E+3 |
| SM | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | m3 | 1.70E+0 | 6.15E-3 | 4.18E-1 | 2.13E+0 | 3.36E-3 | 1.09E-1 | 2.06E-3 | -8.61E-1 | 1.38E+0 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 6.94E-4 | 1.28E-4 | 4.72E-5 | 8.70E-4 | 7.60E-5 | 3.07E-4 | 2.00E-6 | -8.53E-4 | 4.02E-4 |
| NHWD | kg | 4.73E+0 | 3.20E+0 | 5.96E-2 | 7.99E+0 | 1.84E+0 | 9.26E+0 | 7.36E+0 | -2.36E+0 | 2.41E+1 |
| RWD | kg | 4.92E-3 | 3.32E-4 | 1.13E-4 | 5.36E-3 | 2.02E-4 | 7.20E-4 | 1.09E-5 | -1.63E-3 | 4.67E-3 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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