# Environmental Profile

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

Ecochain v3.5.64

| | |
|---|---|
| Product: | 3010754 - ED Tech PP Pipe HTDM 90 L=1 S/S |
| Unit: | 1 piece |
| Manufacturer: | Wavin - IT - SM Maddalena |

PP SWR (ED Tech) products made of PP for waste water discharge are the ideal solution for anyone who wants a quick and easy connection system. A push-fit system, made watertight using elastomeric seals. Triple-layer pipes, with a white inner layer for easier inspection. Low linear expansion.

| | |
|---|---|
| LCA standard: | EN15804+A2 (2019) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 24-11-2022 |
| End of validity: | 24-11-2027 |
| 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 - IT - SM Maddalena (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 | 1.07E+0 | 8.95E-2 | 7.42E-2 | 1.23E+0 | 1.75E-2 | 6.86E-1 | 7.18E-3 | -7.16E-1 | 1.22E+0 |
| GWP-f | kg CO2 eq | 1.22E+0 | 8.94E-2 | 6.62E-2 | 1.38E+0 | 1.75E-2 | 5.27E-1 | 7.19E-3 | -7.14E-1 | 1.21E+0 |
| GWP-b | kg CO2 eq | -1.56E-1 | 5.43E-5 | 4.19E-3 | -1.52E-1 | 1.06E-5 | 1.59E-1 | 6.40E-6 | -2.33E-3 | 4.92E-3 |
| GWP-luluc | kg CO2 eq | 4.55E-4 | 3.17E-5 | 3.77E-3 | 4.26E-3 | 6.18E-6 | 9.69E-5 | 1.32E-7 | -1.86E-4 | 4.17E-3 |
| ODP | kg CFC11 eq | 4.47E-8 | 2.06E-8 | 7.21E-9 | 7.25E-8 | 4.02E-9 | 1.29E-8 | 2.01E-10 | -3.02E-8 | 5.94E-8 |
| AP | mol H+ eq | 4.91E-3 | 5.09E-4 | 2.23E-4 | 5.64E-3 | 9.95E-5 | 5.43E-4 | 4.72E-6 | -2.03E-3 | 4.25E-3 |
| EP-fw | kg P eq | 2.11E-5 | 7.36E-7 | 8.84E-7 | 2.27E-5 | 1.44E-7 | 2.80E-6 | 5.97E-9 | -8.25E-6 | 1.74E-5 |
| EP-m | kg N eq | 7.90E-4 | 1.82E-4 | 4.27E-5 | 1.02E-3 | 3.56E-5 | 1.59E-4 | 3.24E-6 | -3.73E-4 | 8.40E-4 |
| EP-T | mol N eq | 8.99E-3 | 2.01E-3 | 4.71E-4 | 1.15E-2 | 3.92E-4 | 1.75E-3 | 1.92E-5 | -4.20E-3 | 9.43E-3 |
| POCP | kg NMVOC eq | 4.02E-3 | 5.74E-4 | 1.50E-4 | 4.74E-3 | 1.12E-4 | 5.50E-4 | 7.03E-6 | -1.86E-3 | 3.55E-3 |
| ADP-mm | kg Sb eq | 4.94E-5 | 2.31E-6 | 1.21E-6 | 5.29E-5 | 4.52E-7 | 2.12E-6 | 4.72E-9 | -5.72E-6 | 4.98E-5 |
| ADP-f | MJ | 4.19E+1 | 1.37E+0 | 9.14E-1 | 4.42E+1 | 2.68E-1 | 1.70E+0 | 1.45E-2 | -2.19E+1 | 2.43E+1 |
| WDP | m3 depriv. | 8.55E-1 | 4.21E-3 | 2.09E-1 | 1.07E+0 | 8.23E-4 | 3.35E-2 | 7.40E-5 | -3.74E-1 | 7.29E-1 |
| PM | disease inc. | 4.69E-8 | 8.07E-9 | 2.71E-9 | 5.77E-8 | 1.58E-9 | 8.84E-9 | 9.93E-11 | -1.82E-8 | 5.00E-8 |
| IR | kBq U-235 eq | 2.96E-2 | 6.00E-3 | 8.91E-4 | 3.64E-2 | 1.17E-3 | 5.13E-3 | 6.70E-5 | -1.10E-2 | 3.18E-2 |
| ETP-fw | CTUe | 9.03E+0 | 1.11E+0 | 1.10E+0 | 1.12E+1 | 2.18E-1 | 2.02E+0 | 1.26E-2 | -3.45E+0 | 1.01E+1 |
| HTP-c | CTUh | 4.19E-10 | 3.97E-11 | 6.66E-11 | 5.25E-10 | 7.75E-12 | 2.29E-10 | 3.42E-13 | -1.52E-10 | 6.10E-10 |
| HTP-nc | CTUh | 9.27E-9 | 1.33E-9 | 1.21E-9 | 1.18E-8 | 2.59E-10 | 2.85E-9 | 7.73E-12 | -3.62E-9 | 1.13E-8 |
| SQP | Pt | 1.59E+1 | 1.17E+0 | 1.89E-1 | 1.73E+1 | 2.29E-1 | 1.36E+0 | 3.67E-2 | -8.22E+0 | 1.07E+1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 2.72E+0 | 1.97E-2 | 2.03E+0 | 4.78E+0 | 3.85E-3 | 8.32E-2 | 5.33E-4 | -1.48E+0 | 3.38E+0 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 2.72E+0 | 1.97E-2 | 2.03E+0 | 4.78E+0 | 3.85E-3 | 8.32E-2 | 5.33E-4 | -1.48E+0 | 3.38E+0 |
| PENRE | MJ | 4.50E+1 | 1.46E+0 | 9.98E-1 | 4.74E+1 | 2.85E-1 | 1.81E+0 | 1.54E-2 | -2.36E+1 | 2.59E+1 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 4.50E+1 | 1.46E+0 | 9.98E-1 | 4.74E+1 | 2.85E-1 | 1.81E+0 | 1.54E-2 | -2.36E+1 | 2.59E+1 |
| PET | MJ | 4.77E+1 | 1.48E+0 | 3.03E+0 | 5.22E+1 | 2.88E-1 | 1.89E+0 | 1.60E-2 | -2.51E+1 | 2.93E+1 |
| 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 | 1.38E-2 | 1.55E-4 | 4.98E-3 | 1.89E-2 | 3.03E-5 | 1.06E-3 | 1.78E-5 | -5.71E-3 | 1.43E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 7.63E-6 | 3.51E-6 | 1.02E-6 | 1.22E-5 | 6.85E-7 | 2.81E-6 | 1.74E-8 | -6.03E-6 | 9.63E-6 |
| NHWD | kg | 7.26E-2 | 8.51E-2 | 9.85E-3 | 1.68E-1 | 1.66E-2 | 8.54E-2 | 6.79E-2 | -2.07E-2 | 3.17E-1 |
| RWD | kg | 2.96E-5 | 9.34E-6 | 1.08E-6 | 4.00E-5 | 1.82E-6 | 6.52E-6 | 9.52E-8 | -1.02E-5 | 3.82E-5 |
| 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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