# Environmental Profile

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

Ecochain v3.5.80

| | |
|---|---|
| Product: | 3004222 - PVC RWA Socket WT 100 S/RSP |
| Unit: | 1 piece |
| Manufacturer: | Wavin - NL - Hardenberg - Verified |
| Address: | J.C. Kellerlaan 3<br>7772 SG Hardenberg<br>Netherlands |

Wavin carries a complete PVC range of outdoor sewers. With PVC as a material, a smooth-walled, flexible and completely watertight piping system is obtained. Moreover, PVC is absolutely resistant to all substances that occur in domestic waste water. By working with a light material, large pipe lengths and plug connections, a very fast installation is guaranteed.

| | |
|---|---|
| LCA standard: | NMD Bepalingsmethode 1.1 (2022) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 08-06-2023 |
| End of validity: | 08-06-2028 |
| 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 - NL - Hardenberg - 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

**ECI** = Environmental Costs Indicator [euro]; **ADPE** = Abiotic depletion potential for non-fossil resources [kg Sb-eq]; **ADPF** = Abiotic depletion potential for fossil resources [kg Sb-eq]; **GWP** = Global warming potential [kg CO2-eq]; **ODP** = Depletion potential of the stratospheric ozone layer [kg CFC-11-eq]; **POCP** = Formation potential of tropospheric ozone photochemical oxidants [kg ethene-eq]; **AP** = Acidification potential of land and water [kg SO2-eq]; **EP** = Eutrophication potential [kg PO4 3−-eq]; **HTP** = Human toxicity potential [kg 1,4-DB-eq]; **FAETP** = Freshwater aquatic ecotoxicity potential [kg 1,4-DB-eq]; **MAETP** = Marine aquatic ecotoxicity potential [kg 1,4-DB-eq]; **TETP** = Terrestrial ecotoxicity potential [kg 1,4-DB-eq]; **GWP-total** = EF EN15804+A2 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF EN15804+A2 Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF EN15804+A2 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 SBK set 1 | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| ECI | euro | 0.03 | 0 | 0 | 0.03 | 0 | 0.01 | 0 | -0.02 | 0.03 |
| ADPE | kg Sb-eq | 3.53E-4 | 9.14E-8 | 4.18E-7 | 3.53E-4 | 8.85E-8 | 7.86E-7 | 1.01E-9 | -3.06E-6 | 3.51E-4 |
| ADPF | kg Sb-eq | 3.20E-3 | 2.63E-5 | 7.18E-5 | 3.30E-3 | 2.49E-5 | 2.73E-4 | 1.38E-6 | -1.72E-3 | 1.88E-3 |
| GWP | kg CO2-eq | 2.77E-1 | 3.58E-3 | 1.36E-2 | 2.95E-1 | 3.39E-3 | 9.46E-2 | 9.45E-4 | -1.47E-1 | 2.47E-1 |
| ODP | kg CFC-11-eq | 1.41E-7 | 6.34E-10 | 1.08E-9 | 1.43E-7 | 6.30E-10 | 1.13E-8 | 3.27E-11 | -7.50E-8 | 7.98E-8 |
| POCP | kg ethene-eq | 1.70E-4 | 2.16E-6 | 5.92E-6 | 1.78E-4 | 2.04E-6 | 2.15E-5 | 2.44E-7 | -7.61E-5 | 1.25E-4 |
| AP | kg SO2-eq | 1.16E-3 | 1.57E-5 | 5.86E-5 | 1.23E-3 | 1.46E-5 | 1.58E-4 | 7.42E-7 | -4.98E-4 | 9.08E-4 |
| EP | kg PO4 3−-eq | 1.45E-4 | 3.09E-6 | 7.53E-6 | 1.56E-4 | 2.92E-6 | 2.40E-5 | 2.88E-7 | -6.58E-5 | 1.17E-4 |
| HTP | kg 1,4-DB-eq | 1.05E-1 | 1.51E-3 | 6.33E-3 | 1.13E-1 | 1.45E-3 | 4.17E-2 | 7.74E-5 | -4.77E-2 | 1.08E-1 |
| FAETP | kg 1,4-DB-eq | 3.26E-3 | 4.40E-5 | 2.16E-4 | 3.52E-3 | 4.25E-5 | 6.35E-4 | 2.41E-5 | -1.28E-3 | 2.93E-3 |
| MAETP | kg 1,4-DB-eq | 7.54E+0 | 1.58E-1 | 8.52E-1 | 8.55E+0 | 1.52E-1 | 2.17E+0 | 2.96E-2 | -3.09E+0 | 7.82E+0 |
| TETP | kg 1,4-DB-eq | 7.43E-4 | 5.32E-6 | 4.71E-4 | 1.22E-3 | 5.14E-6 | 1.49E-4 | 2.61E-7 | -4.29E-4 | 9.44E-4 |
| Environmental impact | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| GWP-total | kg CO2 eq | 2.87E-1 | 3.61E-3 | 1.56E-2 | 3.06E-1 | 3.42E-3 | 9.98E-2 | 1.10E-3 | -1.41E-1 | 2.70E-1 |
| GWP-f | kg CO2 eq | 2.84E-1 | 3.61E-3 | 1.20E-2 | 3.00E-1 | 3.42E-3 | 9.52E-2 | 1.10E-3 | -1.50E-1 | 2.50E-1 |
| GWP-b | kg CO2 eq | 2.75E-3 | 1.66E-6 | 2.47E-3 | 5.22E-3 | 2.08E-6 | 4.54E-3 | 1.36E-6 | 9.58E-3 | 1.93E-2 |
| GWP-luluc | kg CO2 eq | 2.95E-4 | 1.32E-6 | 1.14E-3 | 1.43E-3 | 1.21E-6 | 4.24E-5 | 2.97E-8 | -1.68E-4 | 1.31E-3 |
| ODP | kg CFC11 eq | 1.39E-7 | 7.96E-10 | 1.27E-9 | 1.41E-7 | 7.89E-10 | 1.16E-8 | 4.06E-11 | -7.43E-8 | 7.95E-8 |
| AP | mol H+ eq | 1.40E-3 | 2.09E-5 | 7.30E-5 | 1.50E-3 | 1.95E-5 | 1.99E-4 | 9.93E-7 | -6.02E-4 | 1.12E-3 |
| EP-fw | kg P eq | 1.35E-5 | 3.64E-8 | 2.10E-7 | 1.38E-5 | 2.82E-8 | 1.42E-6 | 1.33E-9 | -6.31E-6 | 8.92E-6 |
| EP-m | kg N eq | 2.50E-4 | 7.37E-6 | 1.73E-5 | 2.74E-4 | 6.97E-6 | 4.85E-5 | 6.04E-7 | -1.07E-4 | 2.24E-4 |
| EP-T | mol N eq | 2.65E-3 | 8.13E-5 | 1.90E-4 | 2.92E-3 | 7.69E-5 | 5.35E-4 | 3.95E-6 | -1.15E-3 | 2.39E-3 |
| POCP | kg NMVOC eq | 8.69E-4 | 2.32E-5 | 5.41E-5 | 9.47E-4 | 2.20E-5 | 1.60E-4 | 1.36E-6 | -3.85E-4 | 7.46E-4 |
| ADP-mm | kg Sb eq | 3.53E-4 | 9.14E-8 | 4.18E-7 | 3.53E-4 | 8.85E-8 | 7.86E-7 | 1.01E-9 | -3.06E-6 | 3.51E-4 |
| ADP-f | MJ | 6.80E+0 | 5.44E-2 | 1.34E-1 | 6.99E+0 | 5.25E-2 | 5.39E-1 | 2.97E-3 | -3.62E+0 | 3.97E+0 |
| WDP | m3 depriv. | 4.32E-1 | 1.95E-4 | 1.04E-1 | 5.36E-1 | 1.61E-4 | 2.12E-2 | 2.33E-5 | -2.26E-1 | 3.31E-1 |
| PM | disease inc. | 9.49E-9 | 3.24E-10 | 9.02E-10 | 1.07E-8 | 3.09E-10 | 2.47E-9 | 2.05E-11 | -4.49E-9 | 9.02E-9 |
| IR | kBq U-235 eq | 1.50E-2 | 2.28E-4 | 2.13E-4 | 1.54E-2 | 2.30E-4 | 1.90E-3 | 1.36E-5 | -7.45E-3 | 1.01E-2 |
| ETP-fw | CTUe | 8.66E+0 | 4.85E-2 | 3.11E-1 | 9.02E+0 | 4.27E-2 | 4.14E+0 | 4.57E-2 | -2.83E+0 | 1.04E+1 |
| HTP-c | CTUh | 2.41E-10 | 1.57E-12 | 1.08E-11 | 2.54E-10 | 1.52E-12 | 6.25E-11 | 8.49E-14 | -8.34E-11 | 2.34E-10 |
| HTP-nc | CTUh | 7.76E-9 | 5.31E-11 | 3.36E-10 | 8.15E-9 | 5.08E-11 | 1.45E-9 | 8.82E-12 | -2.89E-9 | 6.77E-9 |
| SQP | Pt | 1.31E+0 | 4.72E-2 | 1.00E-2 | 1.36E+0 | 4.49E-2 | 3.31E-1 | 7.59E-3 | -2.28E+0 | -5.29E-1 |

| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 4.19E-1 | 6.81E-4 | 6.51E-1 | 1.07E+0 | 7.54E-4 | 3.89E-2 | 1.09E-4 | -4.98E-1 | 6.13E-1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 4.19E-1 | 6.81E-4 | 6.51E-1 | 1.07E+0 | 7.54E-4 | 3.89E-2 | 1.09E-4 | -4.98E-1 | 6.13E-1 |
| PENRE | MJ | 7.30E+0 | 5.77E-2 | 1.45E-1 | 7.50E+0 | 5.58E-2 | 5.74E-1 | 3.15E-3 | -3.89E+0 | 4.24E+0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 7.30E+0 | 5.77E-2 | 1.45E-1 | 7.50E+0 | 5.58E-2 | 5.74E-1 | 3.15E-3 | -3.89E+0 | 4.24E+0 |
| PET | MJ | 7.72E+0 | 5.84E-2 | 7.96E-1 | 8.57E+0 | 5.65E-2 | 6.13E-1 | 3.26E-3 | -4.39E+0 | 4.85E+0 |
| 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 | 5.01E-3 | 6.62E-6 | 2.45E-3 | 7.47E-3 | 5.94E-6 | 5.81E-4 | 3.62E-6 | -2.60E-3 | 5.46E-3 |
| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| HWD | kg | 4.91E-5 | 1.38E-7 | 1.42E-7 | 4.93E-5 | 1.34E-7 | 8.81E-7 | 3.65E-9 | -3.05E-6 | 4.73E-5 |
| NHWD | kg | 2.79E-2 | 3.45E-3 | 2.20E-4 | 3.16E-2 | 3.26E-3 | 1.96E-2 | 1.30E-2 | -1.21E-2 | 5.54E-2 |
| RWD | kg | 1.30E-5 | 3.57E-7 | 2.64E-7 | 1.36E-5 | 3.57E-7 | 2.04E-6 | 1.93E-8 | -6.61E-6 | 9.40E-6 |
| 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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