

# Environmental Profile

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

Ecochain v3.5.80



Product: 3004158 - PVC RWA Tee 87.3° GY 100 S/RSP  
Unit: 1 piece  
Manufacturer: Wavin - NL - Hardenberg - Verified  
Address: J.C. Kellerlaan 3  
7772 SG Hardenberg  
Netherlands

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



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.

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                                                                |    |    |     |     | Use stage                                                                                                             |     |     |     |     |     |     | End-of-Life stage                                                             |    |    |    |   |
| A1 Raw material supply A2 Transport A3 Manufacturing                         |    |    |     |     | B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment<br>B6 Operational energy use B7 Operational water use |     |     |     |     |     |     | C1 De-construction demolition C2 Transport C3 Waste processing<br>C4 Disposal |    |    |    |   |
| Construction process stage                                                   |    |    |     |     | Benefits and loads beyond the system boundaries                                                                       |     |     |     |     |     |     |                                                                               |    |    |    |   |
| A4 Transport gate to site<br>A5 Assembly / Construction installation process |    |    |     |     | 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

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# Results

| Environmental impact SBK set 1 | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
|--------------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| ECI                            | euro         | 0.06     | 0        | 0        | 0.07     | 0        | 0.02     | 0        | -0.03     | 0.05     |
| ADPE                           | kg Sb-eq     | 5.43E-4  | 1.99E-7  | 8.42E-7  | 5.44E-4  | 1.78E-7  | 1.66E-6  | 1.99E-9  | -6.32E-6  | 5.40E-4  |
| ADPF                           | kg Sb-eq     | 6.46E-3  | 5.71E-5  | 1.45E-4  | 6.67E-3  | 5.02E-5  | 5.67E-4  | 2.76E-6  | -3.55E-3  | 3.73E-3  |
| GWP                            | kg CO2-eq    | 5.48E-1  | 7.77E-3  | 2.75E-2  | 5.83E-1  | 6.84E-3  | 1.92E-1  | 1.88E-3  | -3.09E-1  | 4.76E-1  |
| ODP                            | kg CFC-11-eq | 3.03E-7  | 1.38E-9  | 2.17E-9  | 3.06E-7  | 1.27E-9  | 2.37E-8  | 6.58E-11 | -1.53E-7  | 1.78E-7  |
| POCP                           | kg ethene-eq | 3.12E-4  | 4.69E-6  | 1.19E-5  | 3.28E-4  | 4.11E-6  | 4.55E-5  | 4.87E-7  | -1.63E-4  | 2.16E-4  |
| AP                             | kg SO2-eq    | 2.19E-3  | 3.42E-5  | 1.18E-4  | 2.35E-3  | 2.94E-5  | 3.32E-4  | 1.49E-6  | -1.09E-3  | 1.62E-3  |
| EP                             | kg PO4 3--eq | 2.92E-4  | 6.71E-6  | 1.52E-5  | 3.14E-4  | 5.88E-6  | 5.07E-5  | 5.86E-7  | -1.56E-4  | 2.15E-4  |
| HTP                            | kg 1,4-DB-eq | 2.13E-1  | 3.27E-3  | 1.28E-2  | 2.29E-1  | 2.93E-3  | 8.62E-2  | 1.56E-4  | -1.02E-1  | 2.16E-1  |
| FAETP                          | kg 1,4-DB-eq | 6.93E-3  | 9.55E-5  | 4.36E-4  | 7.46E-3  | 8.57E-5  | 1.32E-3  | 4.80E-5  | -3.22E-3  | 5.69E-3  |
| MAETP                          | kg 1,4-DB-eq | 1.51E+1  | 3.44E-1  | 1.72E+0  | 1.72E+1  | 3.06E-1  | 4.62E+0  | 5.88E-2  | -6.63E+0  | 1.56E+1  |
| TETP                           | kg 1,4-DB-eq | 1.61E-3  | 1.16E-5  | 9.48E-4  | 2.57E-3  | 1.04E-5  | 3.05E-4  | 5.25E-7  | -1.08E-3  | 1.81E-3  |
| Environmental impact           | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
| GWP-total                      | kg CO2 eq    | 5.66E-1  | 7.84E-3  | 3.14E-2  | 6.06E-1  | 6.90E-3  | 2.12E-1  | 2.19E-3  | -2.74E-1  | 5.53E-1  |
| GWP-f                          | kg CO2 eq    | 5.60E-1  | 7.84E-3  | 2.41E-2  | 5.92E-1  | 6.90E-3  | 1.93E-1  | 2.19E-3  | -3.15E-1  | 4.79E-1  |
| GWP-b                          | kg CO2 eq    | 5.70E-3  | 3.62E-6  | 4.98E-3  | 1.07E-2  | 4.19E-6  | 1.89E-2  | 2.77E-6  | 4.16E-2   | 7.12E-2  |
| GWP-luluc                      | kg CO2 eq    | 7.09E-4  | 2.87E-6  | 2.29E-3  | 3.00E-3  | 2.44E-6  | 8.76E-5  | 5.75E-8  | -4.95E-4  | 2.60E-3  |
| ODP                            | kg CFC11 eq  | 2.99E-7  | 1.73E-9  | 2.55E-9  | 3.03E-7  | 1.59E-9  | 2.44E-8  | 8.17E-11 | -1.51E-7  | 1.78E-7  |
| AP                             | mol H+ eq    | 2.68E-3  | 4.55E-5  | 1.47E-4  | 2.88E-3  | 3.93E-5  | 4.18E-4  | 1.99E-6  | -1.32E-3  | 2.02E-3  |
| EP-fw                          | kg P eq      | 2.75E-5  | 7.91E-8  | 4.23E-7  | 2.80E-5  | 5.67E-8  | 2.94E-6  | 2.60E-9  | -1.46E-5  | 1.63E-5  |
| EP-m                           | kg N eq      | 4.95E-4  | 1.60E-5  | 3.48E-5  | 5.46E-4  | 1.41E-5  | 1.03E-4  | 1.23E-6  | -2.39E-4  | 4.24E-4  |
| EP-T                           | mol N eq     | 5.29E-3  | 1.77E-4  | 3.83E-4  | 5.85E-3  | 1.55E-4  | 1.13E-3  | 7.92E-6  | -2.59E-3  | 4.56E-3  |
| POCP                           | kg NMVOC eq  | 1.66E-3  | 5.04E-5  | 1.09E-4  | 1.82E-3  | 4.43E-5  | 3.40E-4  | 2.73E-6  | -8.44E-4  | 1.37E-3  |
| ADP-mm                         | kg Sb eq     | 5.43E-4  | 1.99E-7  | 8.42E-7  | 5.44E-4  | 1.78E-7  | 1.66E-6  | 1.99E-9  | -6.32E-6  | 5.40E-4  |
| ADP-f                          | MJ           | 1.38E+1  | 1.18E-1  | 2.70E-1  | 1.42E+1  | 1.06E-1  | 1.12E+0  | 5.97E-3  | -7.51E+0  | 7.88E+0  |
| WDP                            | m3 depriv.   | 9.05E-1  | 4.23E-4  | 2.09E-1  | 1.11E+0  | 3.25E-4  | 4.40E-2  | 3.87E-5  | -4.88E-1  | 6.70E-1  |
| PM                             | disease inc. | 1.88E-8  | 7.04E-10 | 1.82E-9  | 2.14E-8  | 6.23E-10 | 5.18E-9  | 4.11E-11 | -1.12E-8  | 1.60E-8  |
| IR                             | kBq U-235 eq | 3.18E-2  | 4.95E-4  | 4.29E-4  | 3.27E-2  | 4.63E-4  | 3.98E-3  | 2.74E-5  | -1.64E-2  | 2.08E-2  |
| ETP-fw                         | CTUe         | 1.88E+1  | 1.05E-1  | 6.27E-1  | 1.95E+1  | 8.60E-2  | 8.66E+0  | 9.53E-2  | -7.39E+0  | 2.10E+1  |
| HTP-c                          | CTUh         | 4.60E-10 | 3.42E-12 | 2.17E-11 | 4.85E-10 | 3.06E-12 | 1.25E-10 | 1.65E-13 | -1.81E-10 | 4.33E-10 |
| HTP-nc                         | CTUh         | 1.52E-8  | 1.15E-10 | 6.78E-10 | 1.60E-8  | 1.02E-10 | 3.01E-9  | 1.83E-11 | -6.26E-9  | 1.28E-8  |
| SQP                            | Pt           | 3.52E+0  | 1.03E-1  | 2.02E-2  | 3.64E+0  | 9.06E-2  | 6.82E-1  | 1.53E-2  | -8.58E+0  | -4.16E+0 |

| Resource use                      | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| PERE                              | MJ   | 1.04E+0 | 1.48E-3 | 1.31E+0 | 2.35E+0 | 1.52E-3 | 8.05E-2 | 2.23E-4 | -1.73E+0 | 7.07E-1 |
| PERM                              | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PERT                              | MJ   | 1.04E+0 | 1.48E-3 | 1.31E+0 | 2.35E+0 | 1.52E-3 | 8.05E-2 | 2.23E-4 | -1.73E+0 | 7.07E-1 |
| PENRE                             | MJ   | 1.48E+1 | 1.25E-1 | 2.92E-1 | 1.52E+1 | 1.12E-1 | 1.19E+0 | 6.33E-3 | -8.08E+0 | 8.42E+0 |
| PENRM                             | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PENRT                             | MJ   | 1.48E+1 | 1.25E-1 | 2.92E-1 | 1.52E+1 | 1.12E-1 | 1.19E+0 | 6.33E-3 | -8.08E+0 | 8.42E+0 |
| PET                               | MJ   | 1.58E+1 | 1.27E-1 | 1.60E+0 | 1.75E+1 | 1.14E-1 | 1.27E+0 | 6.55E-3 | -9.80E+0 | 9.13E+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   | 1.03E-2 | 1.44E-5 | 4.94E-3 | 1.52E-2 | 1.20E-5 | 1.21E-3 | 7.31E-6 | -6.07E-3 | 1.04E-2 |
| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
| HWD                               | kg   | 7.84E-5 | 3.00E-7 | 2.87E-7 | 7.90E-5 | 2.71E-7 | 1.85E-6 | 7.27E-9 | -6.44E-6 | 7.47E-5 |
| NHWD                              | kg   | 5.97E-2 | 7.50E-3 | 4.42E-4 | 6.76E-2 | 6.56E-3 | 4.05E-2 | 2.62E-2 | -2.61E-2 | 1.15E-1 |
| RWD                               | kg   | 2.77E-5 | 7.76E-7 | 5.31E-7 | 2.90E-5 | 7.20E-7 | 4.29E-6 | 3.88E-8 | -1.46E-5 | 1.95E-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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