

# Environmental Profile

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

Ecochain v3.5.80



Product: 3082334 - PVC Pipe DGY KOMO 500x15.3 PN8 L=10 CH  
Unit: 1 piece  
Manufacturer: Wavin - NL - Hardenberg - Verified  
Address: J.C. Kellerlaan 3  
7772 SG Hardenberg  
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                                                                |    |    |     |     | 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

This document and supporting material contain confidential and proprietary business information of Wavin - NL - Hardenberg - Verified. These materials may be printed or (photo) copied or otherwise used only with the written consent of Wavin - NL - Hardenberg - Verified.

# Results

| Environmental impact SBK set 1 | Unit         | A1       | A2      | A3      | A1-A3    | C2      | C3      | C4       | D        | Total   |
|--------------------------------|--------------|----------|---------|---------|----------|---------|---------|----------|----------|---------|
| ECI                            | euro         | 74.28    | 1.35    | 3.08    | 78.71    | 1.11    | 25.35   | 0.17     | -37      | 68.33   |
| ADPE                           | kg Sb-eq     | 5.52E-1  | 2.86E-4 | 5.62E-4 | 5.53E-1  | 2.39E-4 | 2.06E-3 | 2.62E-6  | -7.79E-3 | 5.47E-1 |
| ADPF                           | kg Sb-eq     | 8.05E+0  | 8.24E-2 | 1.51E-1 | 8.28E+0  | 6.73E-2 | 7.23E-1 | 3.64E-3  | -4.37E+0 | 4.71E+0 |
| GWP                            | kg CO2-eq    | 6.60E+2  | 1.12E+1 | 2.68E+1 | 6.98E+2  | 9.16E+0 | 2.46E+2 | 2.43E+0  | -3.68E+2 | 5.88E+2 |
| ODP                            | kg CFC-11-eq | 3.84E-4  | 1.99E-6 | 2.52E-6 | 3.89E-4  | 1.70E-6 | 3.01E-5 | 8.70E-8  | -1.93E-4 | 2.27E-4 |
| POCP                           | kg ethene-eq | 3.90E-1  | 6.76E-3 | 1.18E-2 | 4.09E-1  | 5.50E-3 | 5.62E-2 | 6.35E-4  | -1.88E-1 | 2.84E-1 |
| AP                             | kg SO2-eq    | 2.64E+0  | 4.92E-2 | 1.05E-1 | 2.79E+0  | 3.94E-2 | 4.18E-1 | 1.96E-3  | -1.20E+0 | 2.05E+0 |
| EP                             | kg PO4 3--eq | 3.19E-1  | 9.68E-3 | 1.66E-2 | 3.46E-1  | 7.87E-3 | 6.29E-2 | 7.63E-4  | -1.45E-1 | 2.72E-1 |
| HTP                            | kg 1,4-DB-eq | 2.62E+2  | 4.72E+0 | 1.01E+1 | 2.77E+2  | 3.92E+0 | 1.11E+2 | 2.04E-1  | -1.17E+2 | 2.74E+2 |
| FAETP                          | kg 1,4-DB-eq | 6.67E+0  | 1.38E-1 | 4.11E-1 | 7.22E+0  | 1.15E-1 | 1.65E+0 | 6.21E-2  | -2.56E+0 | 6.48E+0 |
| MAETP                          | kg 1,4-DB-eq | 1.79E+4  | 4.95E+2 | 1.68E+3 | 2.01E+4  | 4.10E+2 | 5.51E+3 | 7.61E+1  | -7.55E+3 | 1.85E+4 |
| TETP                           | kg 1,4-DB-eq | 1.85E+0  | 1.67E-2 | 6.28E-1 | 2.50E+0  | 1.39E-2 | 3.97E-1 | 6.83E-4  | -8.53E-1 | 2.05E+0 |
| Environmental impact           | Unit         | A1       | A2      | A3      | A1-A3    | C2      | C3      | C4       | D        | Total   |
| GWP-total                      | kg CO2 eq    | 6.57E+2  | 1.13E+1 | 3.15E+1 | 6.99E+2  | 9.24E+0 | 2.75E+2 | 2.83E+0  | -3.79E+2 | 6.07E+2 |
| GWP-f                          | kg CO2 eq    | 6.77E+2  | 1.13E+1 | 2.47E+1 | 7.13E+2  | 9.23E+0 | 2.48E+2 | 2.83E+0  | -3.76E+2 | 5.97E+2 |
| GWP-b                          | kg CO2 eq    | -2.06E+1 | 5.21E-3 | 5.34E+0 | -1.53E+1 | 5.61E-3 | 2.66E+1 | 3.59E-3  | -2.66E+0 | 8.70E+0 |
| GWP-luluc                      | kg CO2 eq    | 5.98E-1  | 4.14E-3 | 1.51E+0 | 2.11E+0  | 3.27E-3 | 1.13E-1 | 7.54E-5  | -2.50E-1 | 1.97E+0 |
| ODP                            | kg CFC11 eq  | 3.79E-4  | 2.49E-6 | 2.98E-6 | 3.84E-4  | 2.13E-6 | 3.09E-5 | 1.08E-7  | -1.91E-4 | 2.26E-4 |
| AP                             | mol H+ eq    | 3.19E+0  | 6.55E-2 | 1.35E-1 | 3.39E+0  | 5.26E-2 | 5.24E-1 | 2.62E-3  | -1.45E+0 | 2.52E+0 |
| EP-fw                          | kg P eq      | 3.16E-2  | 1.14E-4 | 3.53E-4 | 3.21E-2  | 7.60E-5 | 3.78E-3 | 3.40E-6  | -1.41E-2 | 2.19E-2 |
| EP-m                           | kg N eq      | 5.44E-1  | 2.31E-2 | 3.97E-2 | 6.07E-1  | 1.88E-2 | 1.27E-1 | 1.61E-3  | -2.52E-1 | 5.02E-1 |
| EP-T                           | mol N eq     | 5.94E+0  | 2.55E-1 | 4.26E-1 | 6.62E+0  | 2.07E-1 | 1.40E+0 | 1.04E-2  | -2.69E+0 | 5.54E+0 |
| POCP                           | kg NMVOC eq  | 1.98E+0  | 7.27E-2 | 1.20E-1 | 2.17E+0  | 5.93E-2 | 4.18E-1 | 3.58E-3  | -9.26E-1 | 1.72E+0 |
| ADP-mm                         | kg Sb eq     | 5.52E-1  | 2.86E-4 | 5.62E-4 | 5.53E-1  | 2.39E-4 | 2.06E-3 | 2.62E-6  | -7.79E-3 | 5.47E-1 |
| ADP-f                          | MJ           | 1.72E+4  | 1.70E+2 | 2.86E+2 | 1.76E+4  | 1.42E+2 | 1.43E+3 | 7.88E+0  | -9.18E+3 | 1.00E+4 |
| WDP                            | m3 depriv.   | 1.15E+3  | 6.09E-1 | 1.93E+2 | 1.34E+3  | 4.35E-1 | 5.69E+1 | 5.11E-2  | -5.49E+2 | 8.49E+2 |
| PM                             | disease inc. | 2.15E-5  | 1.01E-6 | 2.09E-6 | 2.46E-5  | 8.34E-7 | 6.47E-6 | 5.41E-8  | -9.31E-6 | 2.26E-5 |
| IR                             | kBq U-235 eq | 3.83E+1  | 7.14E-1 | 5.16E-1 | 3.96E+1  | 6.20E-1 | 5.02E+0 | 3.61E-2  | -1.77E+1 | 2.75E+1 |
| ETP-fw                         | CTUe         | 1.61E+4  | 1.52E+2 | 4.77E+2 | 1.67E+4  | 1.15E+2 | 1.11E+4 | 1.23E+2  | -5.40E+3 | 2.27E+4 |
| HTP-c                          | CTUh         | 5.55E-7  | 4.93E-9 | 1.63E-8 | 5.76E-7  | 4.10E-9 | 1.59E-7 | 2.15E-10 | -2.03E-7 | 5.38E-7 |
| HTP-nc                         | CTUh         | 1.80E-5  | 1.66E-7 | 4.98E-7 | 1.87E-5  | 1.37E-7 | 3.84E-6 | 2.36E-8  | -7.01E-6 | 1.56E-5 |
| SQP                            | Pt           | 4.69E+3  | 1.48E+2 | 2.14E+1 | 4.86E+3  | 1.21E+2 | 8.81E+2 | 2.01E+1  | -1.50E+3 | 4.39E+3 |

| Resource use                      | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| PERE                              | MJ   | 1.23E+3 | 2.13E+0 | 8.62E+2 | 2.09E+3 | 2.03E+0 | 1.04E+2 | 2.90E-1 | -5.03E+2 | 1.70E+3 |
| PERM                              | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PERT                              | MJ   | 1.23E+3 | 2.13E+0 | 8.62E+2 | 2.09E+3 | 2.03E+0 | 1.04E+2 | 2.90E-1 | -5.03E+2 | 1.70E+3 |
| PENRE                             | MJ   | 1.84E+4 | 1.81E+2 | 3.10E+2 | 1.89E+4 | 1.50E+2 | 1.52E+3 | 8.36E+0 | -9.88E+3 | 1.07E+4 |
| PENRM                             | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PENRT                             | MJ   | 1.84E+4 | 1.81E+2 | 3.10E+2 | 1.89E+4 | 1.50E+2 | 1.52E+3 | 8.36E+0 | -9.88E+3 | 1.07E+4 |
| PET                               | MJ   | 1.96E+4 | 1.83E+2 | 1.17E+3 | 2.10E+4 | 1.53E+2 | 1.63E+3 | 8.65E+0 | -1.04E+4 | 1.24E+4 |
| 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   | 1.25E+1 | 2.07E-2 | 4.55E+0 | 1.71E+1 | 1.60E-2 | 1.56E+0 | 9.64E-3 | -5.73E+0 | 1.30E+1 |
| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
| HWD                               | kg   | 8.14E-2 | 4.32E-4 | 4.00E-4 | 8.23E-2 | 3.63E-4 | 2.30E-3 | 9.58E-6 | -7.62E-3 | 7.73E-2 |
| NHWD                              | kg   | 6.81E+1 | 1.08E+1 | 5.78E-1 | 7.94E+1 | 8.79E+0 | 5.22E+1 | 3.51E+1 | -2.94E+1 | 1.46E+2 |
| RWD                               | kg   | 3.32E-2 | 1.12E-3 | 7.19E-4 | 3.51E-2 | 9.64E-4 | 5.35E-3 | 5.13E-5 | -1.56E-2 | 2.58E-2 |
| 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       |