

# Environmental Profile

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

Ecochain v3.5.80



Product: 3009573 - KG Bend 15° DN100  
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



The Wavin KG sewer pipes and fittings are suitable for drain and underground sewer applications. This easy push-fit rubber ring jointing system is durable, corrosion free and light weight.

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                            |    |    |     |     | D Reuse- Recovery- Recycling- potential                                                                               |     |     |     |     |     |     |                                                                               |    |    |    |   |
| A5 Assembly / Construction installation process      |    |    |     |     |                                                                                                                       |     |     |     |     |     |     |                                                                               |    |    |    |   |

# Results

| Environmental impact SBK set 1 | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
|--------------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| ECI                            | euro         | 0.07     | 0        | 0        | 0.07     | 0        | 0.02     | 0        | -0.04     | 0.06     |
| ADPE                           | kg Sb-eq     | 5.21E-4  | 2.65E-7  | 8.39E-7  | 5.22E-4  | 1.71E-7  | 1.50E-6  | 1.98E-9  | -6.71E-6  | 5.17E-4  |
| ADPF                           | kg Sb-eq     | 6.72E-3  | 7.63E-5  | 1.44E-4  | 6.94E-3  | 4.82E-5  | 5.26E-4  | 2.74E-6  | -3.58E-3  | 3.94E-3  |
| GWP                            | kg CO2-eq    | 5.58E-1  | 1.04E-2  | 2.73E-2  | 5.95E-1  | 6.56E-3  | 2.25E-1  | 1.91E-3  | -3.14E-1  | 5.14E-1  |
| ODP                            | kg CFC-11-eq | 2.89E-7  | 1.84E-9  | 2.16E-9  | 2.93E-7  | 1.22E-9  | 2.19E-8  | 6.53E-11 | -1.44E-7  | 1.72E-7  |
| POCP                           | kg ethene-eq | 3.85E-4  | 6.26E-6  | 1.19E-5  | 4.03E-4  | 3.94E-6  | 4.12E-5  | 4.91E-7  | -1.86E-4  | 2.63E-4  |
| AP                             | kg SO2-eq    | 2.31E-3  | 4.56E-5  | 1.18E-4  | 2.47E-3  | 2.82E-5  | 3.11E-4  | 1.48E-6  | -1.03E-3  | 1.78E-3  |
| EP                             | kg PO4 3--eq | 2.87E-4  | 8.96E-6  | 1.51E-5  | 3.11E-4  | 5.64E-6  | 4.82E-5  | 6.61E-7  | -1.36E-4  | 2.30E-4  |
| HTP                            | kg 1,4-DB-eq | 2.69E-1  | 4.37E-3  | 1.27E-2  | 2.86E-1  | 2.81E-3  | 7.85E-2  | 1.55E-4  | -1.36E-1  | 2.32E-1  |
| FAETP                          | kg 1,4-DB-eq | 6.70E-3  | 1.28E-4  | 4.34E-4  | 7.26E-3  | 8.22E-5  | 1.19E-3  | 4.75E-5  | -2.91E-3  | 5.67E-3  |
| MAETP                          | kg 1,4-DB-eq | 1.60E+1  | 4.59E-1  | 1.71E+0  | 1.82E+1  | 2.94E-1  | 4.00E+0  | 5.79E-2  | -6.51E+0  | 1.60E+1  |
| TETP                           | kg 1,4-DB-eq | 1.70E-3  | 1.54E-5  | 9.45E-4  | 2.66E-3  | 9.94E-6  | 2.84E-4  | 5.23E-7  | -8.64E-4  | 2.09E-3  |
| Environmental impact           | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
| GWP-total                      | kg CO2 eq    | 4.29E-1  | 1.05E-2  | 3.13E-2  | 4.71E-1  | 6.62E-3  | 3.73E-1  | 2.23E-3  | -3.23E-1  | 5.29E-1  |
| GWP-f                          | kg CO2 eq    | 5.71E-1  | 1.05E-2  | 2.41E-2  | 6.06E-1  | 6.61E-3  | 2.26E-1  | 2.23E-3  | -3.21E-1  | 5.19E-1  |
| GWP-b                          | kg CO2 eq    | -1.43E-1 | 4.83E-6  | 4.96E-3  | -1.38E-1 | 4.02E-6  | 1.46E-1  | 2.76E-6  | -1.88E-3  | 6.71E-3  |
| GWP-luluc                      | kg CO2 eq    | 5.63E-4  | 3.83E-6  | 2.28E-3  | 2.85E-3  | 2.34E-6  | 8.13E-5  | 5.71E-8  | -2.71E-4  | 2.66E-3  |
| ODP                            | kg CFC11 eq  | 2.87E-7  | 2.31E-9  | 2.54E-9  | 2.92E-7  | 1.52E-9  | 2.26E-8  | 8.10E-11 | -1.43E-7  | 1.73E-7  |
| AP                             | mol H+ eq    | 2.79E-3  | 6.07E-5  | 1.47E-4  | 3.00E-3  | 3.77E-5  | 3.91E-4  | 1.98E-6  | -1.26E-3  | 2.17E-3  |
| EP-fw                          | kg P eq      | 2.66E-5  | 1.06E-7  | 4.21E-7  | 2.71E-5  | 5.44E-8  | 2.72E-6  | 2.59E-9  | -1.19E-5  | 1.80E-5  |
| EP-m                           | kg N eq      | 4.88E-4  | 2.14E-5  | 3.46E-5  | 5.44E-4  | 1.35E-5  | 9.72E-5  | 1.40E-6  | -2.36E-4  | 4.20E-4  |
| EP-T                           | mol N eq     | 5.37E-3  | 2.36E-4  | 3.82E-4  | 5.99E-3  | 1.49E-4  | 1.07E-3  | 7.87E-6  | -2.59E-3  | 4.63E-3  |
| POCP                           | kg NMVOC eq  | 1.87E-3  | 6.73E-5  | 1.09E-4  | 2.04E-3  | 4.25E-5  | 3.18E-4  | 2.72E-6  | -8.96E-4  | 1.51E-3  |
| ADP-mm                         | kg Sb eq     | 5.21E-4  | 2.65E-7  | 8.39E-7  | 5.22E-4  | 1.71E-7  | 1.50E-6  | 1.98E-9  | -6.71E-6  | 5.17E-4  |
| ADP-f                          | MJ           | 1.42E+1  | 1.58E-1  | 2.69E-1  | 1.46E+1  | 1.02E-1  | 1.04E+0  | 5.92E-3  | -7.43E+0  | 8.37E+0  |
| WDP                            | m3 depriv.   | 8.64E-1  | 5.65E-4  | 2.08E-1  | 1.07E+0  | 3.12E-4  | 4.11E-2  | 3.77E-5  | -4.03E-1  | 7.11E-1  |
| PM                             | disease inc. | 2.20E-8  | 9.40E-10 | 1.81E-9  | 2.48E-8  | 5.97E-10 | 4.75E-9  | 4.08E-11 | -1.04E-8  | 1.97E-8  |
| IR                             | kBq U-235 eq | 3.40E-2  | 6.61E-4  | 4.27E-4  | 3.51E-2  | 4.44E-4  | 3.70E-3  | 2.73E-5  | -1.46E-2  | 2.46E-2  |
| ETP-fw                         | CTUe         | 1.45E+1  | 1.41E-1  | 6.24E-1  | 1.53E+1  | 8.24E-2  | 8.03E+0  | 8.88E-2  | -5.00E+0  | 1.85E+1  |
| HTP-c                          | CTUh         | 5.89E-10 | 4.57E-12 | 2.16E-11 | 6.15E-10 | 2.93E-12 | 1.17E-10 | 1.63E-13 | -2.75E-10 | 4.61E-10 |
| HTP-nc                         | CTUh         | 1.57E-8  | 1.54E-10 | 6.75E-10 | 1.65E-8  | 9.83E-11 | 2.80E-9  | 1.72E-11 | -6.44E-9  | 1.30E-8  |
| SQP                            | Pt           | 1.42E+1  | 1.37E-1  | 2.01E-2  | 1.44E+1  | 8.68E-2  | 6.40E-1  | 1.52E-2  | -1.19E+1  | 3.25E+0  |

| Resource use                      | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| PERE                              | MJ   | 2.48E+0 | 1.98E-3 | 1.31E+0 | 3.79E+0 | 1.46E-3 | 7.48E-2 | 2.25E-4 | -2.06E+0 | 1.81E+0 |
| PERM                              | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PERT                              | MJ   | 2.48E+0 | 1.98E-3 | 1.31E+0 | 3.79E+0 | 1.46E-3 | 7.48E-2 | 2.25E-4 | -2.06E+0 | 1.81E+0 |
| PENRE                             | MJ   | 1.52E+1 | 1.68E-1 | 2.91E-1 | 1.57E+1 | 1.08E-1 | 1.11E+0 | 6.29E-3 | -8.00E+0 | 8.91E+0 |
| PENRM                             | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PENRT                             | MJ   | 1.52E+1 | 1.68E-1 | 2.91E-1 | 1.57E+1 | 1.08E-1 | 1.11E+0 | 6.29E-3 | -8.00E+0 | 8.91E+0 |
| PET                               | MJ   | 1.77E+1 | 1.70E-1 | 1.60E+0 | 1.95E+1 | 1.09E-1 | 1.18E+0 | 6.51E-3 | -1.01E+1 | 1.07E+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   | 1.02E-2 | 1.92E-5 | 4.92E-3 | 1.51E-2 | 1.15E-5 | 1.18E-3 | 7.27E-6 | -4.44E-3 | 1.19E-2 |
| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
| HWD                               | kg   | 7.41E-5 | 4.00E-7 | 2.86E-7 | 7.48E-5 | 2.60E-7 | 1.73E-6 | 7.20E-9 | -7.22E-6 | 6.96E-5 |
| NHWD                              | kg   | 6.47E-2 | 1.00E-2 | 4.41E-4 | 7.51E-2 | 6.29E-3 | 3.89E-2 | 2.60E-2 | -3.08E-2 | 1.16E-1 |
| RWD                               | kg   | 3.18E-5 | 1.04E-6 | 5.29E-7 | 3.34E-5 | 6.90E-7 | 3.98E-6 | 3.86E-8 | -1.33E-5 | 2.48E-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       |