

# Environmental Profile

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

Ecochain v3.5.80



Product: 3001589 - KG Bend 15° DN150 EXP  
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         | 0.15    | 0        | 0.01     | 0.16    | 0        | 0.05     | 0        | -0.07     | 0.14     |
| ADPE                           | kg Sb-eq     | 1.24E-3 | 4.47E-7  | 1.82E-6  | 1.24E-3 | 4.08E-7  | 3.61E-6  | 4.72E-9  | -1.53E-5  | 1.23E-3  |
| ADPF                           | kg Sb-eq     | 1.58E-2 | 1.29E-4  | 3.14E-4  | 1.62E-2 | 1.15E-4  | 1.24E-3  | 6.54E-6  | -8.18E-3  | 9.41E-3  |
| GWP                            | kg CO2-eq    | 1.31E+0 | 1.75E-2  | 5.95E-2  | 1.38E+0 | 1.56E-2  | 5.44E-1  | 4.57E-3  | -7.13E-1  | 1.23E+0  |
| ODP                            | kg CFC-11-eq | 6.86E-7 | 3.10E-9  | 4.71E-9  | 6.94E-7 | 2.90E-9  | 5.19E-8  | 1.56E-10 | -3.39E-7  | 4.10E-7  |
| POCP                           | kg ethene-eq | 8.23E-4 | 1.05E-5  | 2.59E-5  | 8.59E-4 | 9.38E-6  | 9.88E-5  | 1.17E-6  | -3.57E-4  | 6.12E-4  |
| AP                             | kg SO2-eq    | 5.34E-3 | 7.68E-5  | 2.56E-4  | 5.68E-3 | 6.73E-5  | 7.35E-4  | 3.53E-6  | -2.33E-3  | 4.15E-3  |
| EP                             | kg PO4 3--eq | 6.87E-4 | 1.51E-5  | 3.29E-5  | 7.35E-4 | 1.34E-5  | 1.14E-4  | 1.59E-6  | -3.22E-4  | 5.42E-4  |
| HTP                            | kg 1,4-DB-eq | 5.18E-1 | 7.36E-3  | 2.77E-2  | 5.53E-1 | 6.69E-3  | 1.89E-1  | 3.69E-4  | -2.22E-1  | 5.27E-1  |
| FAETP                          | kg 1,4-DB-eq | 1.55E-2 | 2.15E-4  | 9.44E-4  | 1.67E-2 | 1.96E-4  | 2.89E-3  | 1.13E-4  | -6.39E-3  | 1.35E-2  |
| MAETP                          | kg 1,4-DB-eq | 3.72E+1 | 7.73E-1  | 3.72E+0  | 4.17E+1 | 7.00E-1  | 9.97E+0  | 1.38E-1  | -1.43E+1  | 3.82E+1  |
| TETP                           | kg 1,4-DB-eq | 3.62E-3 | 2.60E-5  | 2.06E-3  | 5.70E-3 | 2.37E-5  | 6.75E-4  | 1.25E-6  | -2.13E-3  | 4.27E-3  |
| Environmental impact           | Unit         | A1      | A2       | A3       | A1-A3   | C2       | C3       | C4       | D         | Total    |
| GWP-total                      | kg CO2 eq    | 1.35E+0 | 1.76E-2  | 6.81E-2  | 1.43E+0 | 1.58E-2  | 5.77E-1  | 5.33E-3  | -6.64E-1  | 1.37E+0  |
| GWP-f                          | kg CO2 eq    | 1.34E+0 | 1.76E-2  | 5.23E-2  | 1.41E+0 | 1.58E-2  | 5.47E-1  | 5.33E-3  | -7.28E-1  | 1.25E+0  |
| GWP-b                          | kg CO2 eq    | 9.84E-3 | 8.14E-6  | 1.08E-2  | 2.06E-2 | 9.57E-6  | 3.01E-2  | 6.60E-6  | 6.54E-2   | 1.16E-1  |
| GWP-luluc                      | kg CO2 eq    | 1.51E-3 | 6.46E-6  | 4.97E-3  | 6.49E-3 | 5.58E-6  | 1.93E-4  | 1.36E-7  | -9.09E-4  | 5.78E-3  |
| ODP                            | kg CFC11 eq  | 6.83E-7 | 3.89E-9  | 5.53E-9  | 6.92E-7 | 3.63E-9  | 5.35E-8  | 1.94E-10 | -3.36E-7  | 4.13E-7  |
| AP                             | mol H+ eq    | 6.50E-3 | 1.02E-4  | 3.19E-4  | 6.92E-3 | 8.98E-5  | 9.24E-4  | 4.72E-6  | -2.83E-3  | 5.12E-3  |
| EP-fw                          | kg P eq      | 6.30E-5 | 1.78E-7  | 9.17E-7  | 6.41E-5 | 1.30E-7  | 6.46E-6  | 6.18E-9  | -3.01E-5  | 4.06E-5  |
| EP-m                           | kg N eq      | 1.16E-3 | 3.60E-5  | 7.54E-5  | 1.27E-3 | 3.21E-5  | 2.29E-4  | 3.38E-6  | -5.12E-4  | 1.02E-3  |
| EP-T                           | mol N eq     | 1.25E-2 | 3.97E-4  | 8.31E-4  | 1.37E-2 | 3.54E-4  | 2.52E-3  | 1.88E-5  | -5.52E-3  | 1.11E-2  |
| POCP                           | kg NMVOC eq  | 4.16E-3 | 1.13E-4  | 2.37E-4  | 4.51E-3 | 1.01E-4  | 7.51E-4  | 6.50E-6  | -1.83E-3  | 3.53E-3  |
| ADP-mm                         | kg Sb eq     | 1.24E-3 | 4.47E-7  | 1.82E-6  | 1.24E-3 | 4.08E-7  | 3.61E-6  | 4.72E-9  | -1.53E-5  | 1.23E-3  |
| ADP-f                          | MJ           | 3.35E+1 | 2.66E-1  | 5.85E-1  | 3.43E+1 | 2.42E-1  | 2.46E+0  | 1.42E-2  | -1.71E+1  | 1.99E+1  |
| WDP                            | m3 depriv.   | 2.06E+0 | 9.51E-4  | 4.53E-1  | 2.51E+0 | 7.42E-4  | 9.80E-2  | 9.00E-5  | -1.04E+0  | 1.57E+0  |
| PM                             | disease inc. | 4.83E-8 | 1.58E-9  | 3.94E-9  | 5.38E-8 | 1.42E-9  | 1.13E-8  | 9.74E-11 | -2.24E-8  | 4.43E-8  |
| IR                             | kBq U-235 eq | 7.98E-2 | 1.11E-3  | 9.30E-4  | 8.18E-2 | 1.06E-3  | 8.71E-3  | 6.53E-5  | -3.50E-2  | 5.66E-2  |
| ETP-fw                         | CTUe         | 4.08E+1 | 2.37E-1  | 1.36E+0  | 4.24E+1 | 1.96E-1  | 1.92E+1  | 2.11E-1  | -1.44E+1  | 4.75E+1  |
| HTP-c                          | CTUh         | 1.06E-9 | 7.69E-12 | 4.70E-11 | 1.12E-9 | 6.99E-12 | 2.73E-10 | 3.90E-13 | -3.87E-10 | 1.01E-9  |
| HTP-nc                         | CTUh         | 3.46E-8 | 2.59E-10 | 1.47E-9  | 3.63E-8 | 2.34E-10 | 6.66E-9  | 4.10E-11 | -1.33E-8  | 2.99E-8  |
| SQP                            | Pt           | 7.43E+0 | 2.31E-1  | 4.37E-2  | 7.70E+0 | 2.07E-1  | 1.50E+0  | 3.62E-2  | -1.42E+1  | -4.78E+0 |

| Resource use                      | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| PERE                              | MJ   | 2.21E+0 | 3.33E-3 | 2.84E+0 | 5.06E+0 | 3.47E-3 | 1.77E-1 | 5.38E-4 | -2.95E+0 | 2.28E+0 |
| PERM                              | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PERT                              | MJ   | 2.21E+0 | 3.33E-3 | 2.84E+0 | 5.06E+0 | 3.47E-3 | 1.77E-1 | 5.38E-4 | -2.95E+0 | 2.28E+0 |
| PENRE                             | MJ   | 3.59E+1 | 2.82E-1 | 6.33E-1 | 3.68E+1 | 2.57E-1 | 2.62E+0 | 1.50E-2 | -1.85E+1 | 2.12E+1 |
| PENRM                             | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PENRT                             | MJ   | 3.59E+1 | 2.82E-1 | 6.33E-1 | 3.68E+1 | 2.57E-1 | 2.62E+0 | 1.50E-2 | -1.85E+1 | 2.12E+1 |
| PET                               | MJ   | 3.81E+1 | 2.86E-1 | 3.48E+0 | 4.19E+1 | 2.60E-1 | 2.80E+0 | 1.56E-2 | -2.14E+1 | 2.35E+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   | 2.43E-2 | 3.24E-5 | 1.07E-2 | 3.51E-2 | 2.74E-5 | 2.80E-3 | 1.74E-5 | -1.25E-2 | 2.55E-2 |
| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
| HWD                               | kg   | 1.74E-4 | 6.74E-7 | 6.21E-7 | 1.75E-4 | 6.19E-7 | 4.11E-6 | 1.72E-8 | -1.48E-5 | 1.65E-4 |
| NHWD                              | kg   | 1.39E-1 | 1.69E-2 | 9.59E-4 | 1.57E-1 | 1.50E-2 | 9.11E-2 | 6.22E-2 | -5.57E-2 | 2.69E-1 |
| RWD                               | kg   | 7.46E-5 | 1.75E-6 | 1.15E-6 | 7.75E-5 | 1.64E-6 | 9.36E-6 | 9.21E-8 | -3.14E-5 | 5.72E-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       |



Ecochain Technologies BV  
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands  
<https://www.ecochain.com>  
+31 20 3035 777