

# Environmental Profile

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

Ecochain v3.5.80



Product: 3006935 - PVC-A Pipe YL 110x2.7 SDR41 L=10 CH  
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



PVC-A is very suitable for use in underground low-pressure gas distribution networks. The Gastec Qa quality mark guarantees the high quality of this system.

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         | 3.43     | 0.06     | 0.12     | 3.61     | 0.04     | 1.03    | 0.01     | -1.51    | 3.17    |
| ADPE                           | kg Sb-eq     | 2.06E-2  | 1.24E-5  | 2.20E-5  | 2.06E-2  | 9.35E-6  | 8.19E-5 | 1.04E-7  | -3.14E-4 | 2.04E-2 |
| ADPF                           | kg Sb-eq     | 3.62E-1  | 3.56E-3  | 5.89E-3  | 3.71E-1  | 2.63E-3  | 2.87E-2 | 1.44E-4  | -1.79E-1 | 2.24E-1 |
| GWP                            | kg CO2-eq    | 3.25E+1  | 4.84E-1  | 1.05E+0  | 3.40E+1  | 3.59E-1  | 1.02E+1 | 9.79E-2  | -1.51E+1 | 2.96E+1 |
| ODP                            | kg CFC-11-eq | 1.42E-5  | 8.59E-8  | 9.85E-8  | 1.44E-5  | 6.65E-8  | 1.20E-6 | 3.44E-9  | -7.79E-6 | 7.91E-6 |
| POCP                           | kg ethene-eq | 2.25E-2  | 2.92E-4  | 4.62E-4  | 2.32E-2  | 2.15E-4  | 2.25E-3 | 2.54E-5  | -7.71E-3 | 1.80E-2 |
| AP                             | kg SO2-eq    | 1.38E-1  | 2.13E-3  | 4.11E-3  | 1.45E-1  | 1.54E-3  | 1.67E-2 | 7.76E-5  | -4.91E-2 | 1.14E-1 |
| EP                             | kg PO4 3--eq | 1.61E-2  | 4.18E-4  | 6.49E-4  | 1.71E-2  | 3.08E-4  | 2.53E-3 | 3.05E-5  | -6.03E-3 | 1.40E-2 |
| HTP                            | kg 1,4-DB-eq | 1.01E+1  | 2.04E-1  | 3.96E-1  | 1.07E+1  | 1.53E-1  | 4.38E+0 | 8.13E-3  | -4.77E+0 | 1.05E+1 |
| FAETP                          | kg 1,4-DB-eq | 2.72E-1  | 5.95E-3  | 1.61E-2  | 2.94E-1  | 4.49E-3  | 6.76E-2 | 2.53E-3  | -1.04E-1 | 2.65E-1 |
| MAETP                          | kg 1,4-DB-eq | 7.22E+2  | 2.14E+1  | 6.57E+1  | 8.09E+2  | 1.60E+1  | 2.24E+2 | 3.09E+0  | -3.06E+2 | 7.46E+2 |
| TETP                           | kg 1,4-DB-eq | 7.12E-2  | 7.21E-4  | 2.46E-2  | 9.65E-2  | 5.43E-4  | 1.57E-2 | 2.73E-5  | -3.46E-2 | 7.81E-2 |
| Environmental impact           | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3      | C4       | D        | Total   |
| GWP-total                      | kg CO2 eq    | 3.06E+1  | 4.89E-1  | 1.23E+0  | 3.23E+1  | 3.62E-1  | 1.34E+1 | 1.14E-1  | -1.55E+1 | 3.06E+1 |
| GWP-f                          | kg CO2 eq    | 3.34E+1  | 4.88E-1  | 9.67E-1  | 3.49E+1  | 3.61E-1  | 1.03E+1 | 1.14E-1  | -1.54E+1 | 3.02E+1 |
| GWP-b                          | kg CO2 eq    | -2.84E+0 | 2.25E-4  | 2.09E-1  | -2.63E+0 | 2.20E-4  | 3.07E+0 | 1.44E-4  | -1.07E-1 | 3.36E-1 |
| GWP-luluc                      | kg CO2 eq    | 2.40E-2  | 1.79E-4  | 5.89E-2  | 8.31E-2  | 1.28E-4  | 4.50E-3 | 3.01E-6  | -1.04E-2 | 7.74E-2 |
| ODP                            | kg CFC11 eq  | 1.41E-5  | 1.08E-7  | 1.17E-7  | 1.43E-5  | 8.33E-8  | 1.24E-6 | 4.27E-9  | -7.71E-6 | 7.89E-6 |
| AP                             | mol H+ eq    | 1.66E-1  | 2.83E-3  | 5.27E-3  | 1.74E-1  | 2.06E-3  | 2.10E-2 | 1.04E-4  | -5.94E-2 | 1.38E-1 |
| EP-fw                          | kg P eq      | 1.44E-3  | 4.93E-6  | 1.38E-5  | 1.46E-3  | 2.97E-6  | 1.51E-4 | 1.36E-7  | -5.70E-4 | 1.04E-3 |
| EP-m                           | kg N eq      | 2.88E-2  | 9.98E-4  | 1.55E-3  | 3.14E-2  | 7.37E-4  | 5.12E-3 | 6.41E-5  | -1.05E-2 | 2.69E-2 |
| EP-T                           | mol N eq     | 2.91E-1  | 1.10E-2  | 1.67E-2  | 3.18E-1  | 8.12E-3  | 5.64E-2 | 4.14E-4  | -1.13E-1 | 2.70E-1 |
| POCP                           | kg NMVOC eq  | 1.05E-1  | 3.14E-3  | 4.71E-3  | 1.13E-1  | 2.32E-3  | 1.68E-2 | 1.42E-4  | -3.83E-2 | 9.37E-2 |
| ADP-mm                         | kg Sb eq     | 2.06E-2  | 1.24E-5  | 2.20E-5  | 2.06E-2  | 9.35E-6  | 8.19E-5 | 1.04E-7  | -3.14E-4 | 2.04E-2 |
| ADP-f                          | MJ           | 7.65E+2  | 7.37E+0  | 1.12E+1  | 7.83E+2  | 5.55E+0  | 5.67E+1 | 3.12E-1  | -3.74E+2 | 4.72E+2 |
| WDP                            | m3 depriv.   | 4.42E+1  | 2.64E-2  | 7.57E+0  | 5.18E+1  | 1.70E-2  | 2.27E+0 | 2.07E-3  | -2.21E+1 | 3.20E+1 |
| PM                             | disease inc. | 1.26E-6  | 4.39E-8  | 8.18E-8  | 1.38E-6  | 3.26E-8  | 2.58E-7 | 2.15E-9  | -3.91E-7 | 1.28E-6 |
| IR                             | kBq U-235 eq | 1.46E+0  | 3.09E-2  | 2.02E-2  | 1.51E+0  | 2.43E-2  | 2.00E-1 | 1.43E-3  | -7.16E-1 | 1.02E+0 |
| ETP-fw                         | CTUe         | 6.35E+2  | 6.57E+0  | 1.87E+1  | 6.60E+2  | 4.51E+0  | 4.44E+2 | 4.92E+0  | -2.25E+2 | 8.88E+2 |
| HTP-c                          | CTUh         | 2.21E-8  | 2.13E-10 | 6.37E-10 | 2.29E-8  | 1.60E-10 | 6.50E-9 | 8.62E-12 | -8.28E-9 | 2.13E-8 |
| HTP-nc                         | CTUh         | 7.02E-7  | 7.19E-9  | 1.95E-8  | 7.29E-7  | 5.37E-9  | 1.54E-7 | 9.44E-10 | -2.85E-7 | 6.03E-7 |
| SQP                            | Pt           | 3.67E+2  | 6.39E+0  | 8.37E-1  | 3.74E+2  | 4.75E+0  | 3.48E+1 | 7.98E-1  | -9.91E+1 | 3.16E+2 |

| Resource use                      | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| PERE                              | MJ   | 7.54E+1 | 9.22E-2 | 3.37E+1 | 1.09E+2 | 7.96E-2 | 4.13E+0 | 1.16E-2 | -2.81E+1 | 8.54E+1 |
| PERM                              | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PERT                              | MJ   | 7.54E+1 | 9.22E-2 | 3.37E+1 | 1.09E+2 | 7.96E-2 | 4.13E+0 | 1.16E-2 | -2.81E+1 | 8.54E+1 |
| PENRE                             | MJ   | 8.21E+2 | 7.82E+0 | 1.21E+1 | 8.41E+2 | 5.89E+0 | 6.03E+1 | 3.31E-1 | -4.03E+2 | 5.05E+2 |
| PENRM                             | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PENRT                             | MJ   | 8.21E+2 | 7.82E+0 | 1.21E+1 | 8.41E+2 | 5.89E+0 | 6.03E+1 | 3.31E-1 | -4.03E+2 | 5.05E+2 |
| PET                               | MJ   | 8.97E+2 | 7.91E+0 | 4.59E+1 | 9.51E+2 | 5.97E+0 | 6.45E+1 | 3.42E-1 | -4.31E+2 | 5.90E+2 |
| 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   | 5.09E-1 | 8.97E-4 | 1.78E-1 | 6.88E-1 | 6.28E-4 | 6.23E-2 | 3.82E-4 | -2.31E-1 | 5.20E-1 |
| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
| HWD                               | kg   | 3.05E-3 | 1.87E-5 | 1.57E-5 | 3.08E-3 | 1.42E-5 | 9.17E-5 | 3.80E-7 | -3.12E-4 | 2.88E-3 |
| NHWD                              | kg   | 2.78E+0 | 4.67E-1 | 2.26E-2 | 3.27E+0 | 3.44E-1 | 2.11E+0 | 1.37E+0 | -1.20E+0 | 5.90E+0 |
| RWD                               | kg   | 1.27E-3 | 4.84E-5 | 2.81E-5 | 1.35E-3 | 3.77E-5 | 2.13E-4 | 2.03E-6 | -6.32E-4 | 9.68E-4 |
| 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       |