# Environmental Profile

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

Ecochain v3.5.80

**Ecochain**

| | |
|---|---|
| Product: | 4005937 - PVC Reducer GY 110x80 |
| Unit: | 1 Piece |
| Manufacturer: | Wavin - FR - Varennes |

The Wavin range of PVC pipes and fittings to be glued covers all the usual diameters and allows you to create networks that are 100% compatible, homogeneous and meet the requirements of the French market.

| | |
|---|---|
| LCA standard: | EN15804+A2 (2019) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 24-11-2022 |
| End of validity: | 24-11-2027 |
| Verifier: | Martijn van Hövell - SGS Search |

**WAVIN** An Orbia business.

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 - FR - Varennes (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**

A1 Raw material supply  A2 Transport  A3 Manufacturing

**Construction process stage**

A4 Transport gate to site
A5 Assembly / Construction installation process

**Use stage**

B1 Use  B2 Maintenance  B3 Repair  B4 Replacement  B5 Refurbishment
B6 Operational energy use  B7 Operational water use

**End-of-Life stage**

C1 De-construction demolition  C2 Transport  C3 Waste processing
C4 Disposal

**Benefits and loads beyond the system boundaries**

D Reuse- Recovery- Recycling- potential

### Environmental impacts and parameters

**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

# Results

| Environmental impact | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.02E-1 | 1.00E-2 | 1.61E-2 | 3.29E-1 | 4.14E-3 | 1.77E-1 | 1.28E-3 | -1.59E-1 | 3.52E-1 |
| GWP-f | kg CO2 eq | 3.44E-1 | 9.99E-3 | 1.23E-2 | 3.67E-1 | 4.13E-3 | 1.15E-1 | 1.28E-3 | -1.95E-1 | 2.91E-1 |
| GWP-b | kg CO2 eq | -4.22E-2 | 6.07E-6 | 3.83E-3 | -3.84E-2 | 2.51E-6 | 6.21E-2 | 1.61E-6 | 3.64E-2 | 6.01E-2 |
| GWP-luluc | kg CO2 eq | 5.07E-4 | 3.54E-6 | 1.68E-5 | 5.28E-4 | 1.46E-6 | 5.18E-5 | 3.41E-8 | -3.94E-4 | 1.87E-4 |
| ODP | kg CFC11 eq | 1.76E-7 | 2.30E-9 | 1.65E-9 | 1.80E-7 | 9.52E-10 | 1.44E-8 | 4.84E-11 | -8.94E-8 | 1.06E-7 |
| AP | mol H+ eq | 1.68E-3 | 5.69E-5 | 9.05E-5 | 1.83E-3 | 2.35E-5 | 2.53E-4 | 1.18E-6 | -8.63E-4 | 1.24E-3 |
| EP-fw | kg P eq | 1.71E-5 | 8.22E-8 | 3.01E-7 | 1.75E-5 | 3.40E-8 | 1.73E-6 | 1.53E-9 | -9.85E-6 | 9.40E-6 |
| EP-m | kg N eq | 3.23E-4 | 2.04E-5 | 2.50E-5 | 3.69E-4 | 8.42E-6 | 6.36E-5 | 7.21E-7 | -1.63E-4 | 2.78E-4 |
| EP-T | mol N eq | 3.46E-3 | 2.24E-4 | 3.27E-4 | 4.01E-3 | 9.28E-5 | 7.00E-4 | 4.69E-6 | -1.79E-3 | 3.02E-3 |
| POCP | kg NMVOC eq | 1.07E-3 | 6.42E-5 | 7.41E-5 | 1.21E-3 | 2.65E-5 | 2.10E-4 | 1.61E-6 | -5.74E-4 | 8.74E-4 |
| ADP-mm | kg Sb eq | 3.46E-4 | 2.58E-7 | 3.62E-7 | 3.46E-4 | 1.07E-7 | 1.00E-6 | 1.18E-9 | -3.85E-6 | 3.43E-4 |
| ADP-f | MJ | 8.32E+0 | 1.53E-1 | 1.68E-1 | 8.64E+0 | 6.34E-2 | 6.76E-1 | 3.53E-3 | -4.57E+0 | 4.81E+0 |
| WDP | m3 depriv. | 5.28E-1 | 4.71E-4 | 3.02E-1 | 8.31E-1 | 1.95E-4 | 2.57E-2 | 2.37E-5 | -3.02E-1 | 5.55E-1 |
| PM | disease inc. | 1.32E-8 | 9.02E-10 | 1.25E-9 | 1.53E-8 | 3.73E-10 | 3.18E-9 | 2.43E-11 | -8.45E-9 | 1.04E-8 |
| IR | kBq U-235 eq | 1.97E-2 | 6.70E-4 | 4.45E-4 | 2.08E-2 | 2.77E-4 | 2.41E-3 | 1.62E-5 | -1.06E-2 | 1.29E-2 |
| ETP-fw | CTUe | 1.29E+1 | 1.25E-1 | 2.16E-1 | 1.32E+1 | 5.15E-2 | 5.03E+0 | 5.49E-2 | -5.40E+0 | 1.30E+1 |
| HTP-c | CTUh | 3.02E-10 | 4.43E-12 | 1.42E-11 | 3.20E-10 | 1.83E-12 | 7.69E-11 | 9.72E-14 | -1.29E-10 | 2.70E-10 |
| HTP-nc | CTUh | 9.32E-9 | 1.48E-10 | 4.03E-10 | 9.87E-9 | 6.14E-11 | 1.78E-9 | 1.06E-11 | -4.01E-9 | 7.72E-9 |
| SQP | Pt | 6.40E+0 | 1.31E-1 | 1.50E+0 | 8.04E+0 | 5.43E-2 | 4.15E-1 | 9.02E-3 | -1.04E+1 | -1.88E+0 |

| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 1.26E+0 | 2.20E-3 | 3.82E-1 | 1.64E+0 | 9.10E-4 | 4.76E-2 | 1.30E-4 | -1.88E+0 | -1.90E-1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 1.26E+0 | 2.20E-3 | 3.82E-1 | 1.64E+0 | 9.10E-4 | 4.76E-2 | 1.30E-4 | -1.88E+0 | -1.90E-1 |
| PENRE | MJ | 8.92E+0 | 1.63E-1 | 1.81E-1 | 9.26E+0 | 6.73E-2 | 7.20E-1 | 3.75E-3 | -4.91E+0 | 5.14E+0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 8.92E+0 | 1.63E-1 | 1.81E-1 | 9.26E+0 | 6.73E-2 | 7.20E-1 | 3.75E-3 | -4.91E+0 | 5.14E+0 |
| PET | MJ | 1.02E+1 | 1.65E-1 | 5.63E-1 | 1.09E+1 | 6.83E-2 | 7.67E-1 | 3.88E-3 | -6.79E+0 | 4.95E+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 | 6.18E-3 | 1.74E-5 | 7.09E-3 | 1.33E-2 | 7.18E-6 | 7.10E-4 | 4.32E-6 | -4.03E-3 | 9.97E-3 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 4.98E-5 | 3.92E-7 | 2.21E-7 | 5.05E-5 | 1.62E-7 | 1.13E-6 | 4.30E-9 | -4.13E-6 | 4.76E-5 |
| NHWD | kg | 3.99E-2 | 9.51E-3 | 1.62E-3 | 5.10E-2 | 3.93E-3 | 2.48E-2 | 1.57E-2 | -1.79E-2 | 7.76E-2 |
| RWD | kg | 1.76E-5 | 1.04E-6 | 4.46E-7 | 1.91E-5 | 4.31E-7 | 2.63E-6 | 2.30E-8 | -9.56E-6 | 1.26E-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 |