# Environmental Profile

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

Ecochain v3.5.80

| | |
|---|---|
| Product: | 3025675 - Gutter Bend 67°3 LGY 100 S/SP |
| 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.

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|---|---|
| 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 |

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

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# Results

| Environmental impact | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 5.64E-1 | 1.99E-2 | 2.53E-2 | 6.09E-1 | 7.46E-3 | 3.68E-1 | 2.34E-3 | -3.08E-1 | 6.80E-1 |
| GWP-f | kg CO2 eq | 6.72E-1 | 1.99E-2 | 1.98E-2 | 7.11E-1 | 7.45E-3 | 2.27E-1 | 2.34E-3 | -3.65E-1 | 5.83E-1 |
| GWP-b | kg CO2 eq | -1.08E-1 | 1.21E-5 | 5.46E-3 | -1.03E-1 | 4.52E-6 | 1.41E-1 | 2.89E-6 | 5.83E-2 | 9.60E-2 |
| GWP-luluc | kg CO2 eq | 9.42E-4 | 7.03E-6 | 2.02E-5 | 9.69E-4 | 2.64E-6 | 9.18E-5 | 6.42E-8 | -6.76E-4 | 3.87E-4 |
| ODP | kg CFC11 eq | 3.10E-7 | 4.58E-9 | 2.60E-9 | 3.17E-7 | 1.72E-9 | 2.53E-8 | 8.76E-11 | -1.63E-7 | 1.81E-7 |
| AP | mol H+ eq | 3.90E-3 | 1.13E-4 | 1.18E-4 | 4.13E-3 | 4.24E-5 | 4.51E-4 | 2.14E-6 | -1.56E-3 | 3.06E-3 |
| EP-fw | kg P eq | 3.33E-5 | 1.64E-7 | 4.75E-7 | 3.39E-5 | 6.13E-8 | 3.07E-6 | 2.86E-9 | -1.74E-5 | 1.97E-5 |
| EP-m | kg N eq | 6.44E-4 | 4.05E-5 | 3.41E-5 | 7.19E-4 | 1.52E-5 | 1.14E-4 | 1.29E-6 | -2.98E-4 | 5.52E-4 |
| EP-T | mol N eq | 6.91E-3 | 4.46E-4 | 4.17E-4 | 7.77E-3 | 1.67E-4 | 1.26E-3 | 8.50E-6 | -3.26E-3 | 5.94E-3 |
| POCP | kg NMVOC eq | 2.20E-3 | 1.28E-4 | 1.01E-4 | 2.43E-3 | 4.78E-5 | 3.76E-4 | 2.92E-6 | -1.06E-3 | 1.80E-3 |
| ADP-mm | kg Sb eq | 7.38E-4 | 5.14E-7 | 4.18E-7 | 7.39E-4 | 1.93E-7 | 1.78E-6 | 2.17E-9 | -7.00E-6 | 7.34E-4 |
| ADP-f | MJ | 1.57E+1 | 3.05E-1 | 2.76E-1 | 1.62E+1 | 1.14E-1 | 1.21E+0 | 6.40E-3 | -8.48E+0 | 9.10E+0 |
| WDP | m3 depriv. | 9.96E-1 | 9.36E-4 | 5.47E-1 | 1.54E+0 | 3.51E-4 | 4.54E-2 | 5.21E-5 | -5.38E-1 | 1.05E+0 |
| PM | disease inc. | 2.72E-8 | 1.79E-9 | 1.69E-9 | 3.07E-8 | 6.72E-10 | 5.68E-9 | 4.40E-11 | -1.52E-8 | 2.19E-8 |
| IR | kBq U-235 eq | 3.69E-2 | 1.33E-3 | 7.82E-4 | 3.90E-2 | 5.00E-4 | 4.28E-3 | 2.92E-5 | -1.89E-2 | 2.49E-2 |
| ETP-fw | CTUe | 2.48E+1 | 2.48E-1 | 2.76E-1 | 2.53E+1 | 9.29E-2 | 8.79E+0 | 9.59E-2 | -9.33E+0 | 2.49E+1 |
| HTP-c | CTUh | 6.98E-10 | 8.82E-12 | 2.07E-11 | 7.28E-10 | 3.30E-12 | 1.45E-10 | 1.83E-13 | -2.40E-10 | 6.36E-10 |
| HTP-nc | CTUh | 1.87E-8 | 2.95E-10 | 5.44E-10 | 1.95E-8 | 1.11E-10 | 3.18E-9 | 1.86E-11 | -7.22E-9 | 1.56E-8 |
| SQP | Pt | 1.43E+1 | 2.61E-1 | 1.49E+0 | 1.60E+1 | 9.78E-2 | 7.46E-1 | 1.63E-2 | -1.97E+1 | -2.76E+0 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 2.67E+0 | 4.38E-3 | 3.80E-1 | 3.06E+0 | 1.64E-3 | 8.42E-2 | 2.30E-4 | -3.49E+0 | -3.50E-1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 2.67E+0 | 4.38E-3 | 3.80E-1 | 3.06E+0 | 1.64E-3 | 8.42E-2 | 2.30E-4 | -3.49E+0 | -3.50E-1 |
| PENRE | MJ | 1.68E+1 | 3.24E-1 | 2.98E-1 | 1.74E+1 | 1.21E-1 | 1.28E+0 | 6.79E-3 | -9.12E+0 | 9.71E+0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 1.68E+1 | 3.24E-1 | 2.98E-1 | 1.74E+1 | 1.21E-1 | 1.28E+0 | 6.79E-3 | -9.12E+0 | 9.71E+0 |
| PET | MJ | 1.95E+1 | 3.28E-1 | 6.79E-1 | 2.05E+1 | 1.23E-1 | 1.37E+0 | 7.02E-3 | -1.26E+1 | 9.36E+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 | 1.26E-2 | 3.45E-5 | 1.28E-2 | 2.55E-2 | 1.29E-5 | 1.25E-3 | 7.78E-6 | -7.07E-3 | 1.97E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 1.05E-4 | 7.80E-7 | 4.00E-7 | 1.06E-4 | 2.92E-7 | 2.02E-6 | 7.88E-9 | -7.79E-6 | 1.01E-4 |
| NHWD | kg | 1.04E-1 | 1.89E-2 | 2.93E-3 | 1.26E-1 | 7.09E-3 | 4.54E-2 | 2.83E-2 | -3.30E-2 | 1.73E-1 |
| RWD | kg | 3.28E-5 | 2.07E-6 | 8.09E-7 | 3.57E-5 | 7.78E-7 | 4.68E-6 | 4.15E-8 | -1.72E-5 | 2.40E-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 |

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