# Environmental Profile

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

Ecochain v3.5.80

| | |
|---|---|
| Product: | 3026023 - PVC Branch 87°3 GY 100 S/S/S BC |
| 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

# Results

| Environmental impact | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 7.39E-1 | 2.68E-2 | 3.16E-2 | 7.97E-1 | 1.03E-2 | 4.41E-1 | 3.19E-3 | -4.36E-1 | 8.15E-1 |
| GWP-f | kg CO2 eq | 8.45E-1 | 2.67E-2 | 2.53E-2 | 8.97E-1 | 1.03E-2 | 3.08E-1 | 3.19E-3 | -4.76E-1 | 7.42E-1 |
| GWP-b | kg CO2 eq | -1.07E-1 | 1.62E-5 | 6.26E-3 | -1.01E-1 | 6.25E-6 | 1.33E-1 | 4.01E-6 | 3.99E-2 | 7.21E-2 |
| GWP-luluc | kg CO2 eq | 1.03E-3 | 9.46E-6 | 1.89E-5 | 1.06E-3 | 3.64E-6 | 1.27E-4 | 8.57E-8 | -6.29E-4 | 5.57E-4 |
| ODP | kg CFC11 eq | 4.28E-7 | 6.16E-9 | 3.26E-9 | 4.38E-7 | 2.37E-9 | 3.50E-8 | 1.21E-10 | -2.21E-7 | 2.54E-7 |
| AP | mol H+ eq | 4.13E-3 | 1.52E-4 | 1.22E-4 | 4.40E-3 | 5.86E-5 | 6.08E-4 | 2.93E-6 | -1.93E-3 | 3.15E-3 |
| EP-fw | kg P eq | 4.11E-5 | 2.20E-7 | 5.96E-7 | 4.19E-5 | 8.47E-8 | 4.26E-6 | 3.85E-9 | -2.02E-5 | 2.61E-5 |
| EP-m | kg N eq | 7.56E-4 | 5.45E-5 | 3.72E-5 | 8.48E-4 | 2.10E-5 | 1.51E-4 | 1.79E-6 | -3.56E-4 | 6.65E-4 |
| EP-T | mol N eq | 8.24E-3 | 6.00E-4 | 4.22E-4 | 9.26E-3 | 2.31E-4 | 1.66E-3 | 1.17E-5 | -3.86E-3 | 7.30E-3 |
| POCP | kg NMVOC eq | 2.65E-3 | 1.72E-4 | 1.10E-4 | 2.93E-3 | 6.61E-5 | 4.97E-4 | 4.02E-6 | -1.29E-3 | 2.20E-3 |
| ADP-mm | kg Sb eq | 1.03E-3 | 6.92E-7 | 3.71E-7 | 1.03E-3 | 2.66E-7 | 2.40E-6 | 2.95E-9 | -9.28E-6 | 1.03E-3 |
| ADP-f | MJ | 2.08E+1 | 4.10E-1 | 3.57E-1 | 2.15E+1 | 1.58E-1 | 1.64E+0 | 8.81E-3 | -1.12E+1 | 1.21E+1 |
| WDP | m3 depriv. | 1.32E+0 | 1.26E-3 | 7.56E-1 | 2.08E+0 | 4.85E-4 | 6.35E-2 | 6.21E-5 | -6.82E-1 | 1.46E+0 |
| PM | disease inc. | 3.00E-8 | 2.41E-9 | 1.84E-9 | 3.42E-8 | 9.29E-10 | 7.58E-9 | 6.06E-11 | -1.63E-8 | 2.65E-8 |
| IR | kBq U-235 eq | 4.77E-2 | 1.79E-3 | 1.06E-3 | 5.05E-2 | 6.91E-4 | 5.80E-3 | 4.03E-5 | -2.33E-2 | 3.37E-2 |
| ETP-fw | CTUe | 2.78E+1 | 3.33E-1 | 2.82E-1 | 2.84E+1 | 1.28E-1 | 1.24E+1 | 1.36E-1 | -9.63E+0 | 3.14E+1 |
| HTP-c | CTUh | 7.73E-10 | 1.19E-11 | 2.42E-11 | 8.09E-10 | 4.57E-12 | 1.89E-10 | 2.45E-13 | -2.92E-10 | 7.10E-10 |
| HTP-nc | CTUh | 2.38E-8 | 3.97E-10 | 5.90E-10 | 2.48E-8 | 1.53E-10 | 4.37E-9 | 2.61E-11 | -9.02E-9 | 2.03E-8 |
| SQP | Pt | 1.41E+1 | 3.51E-1 | 9.87E-1 | 1.54E+1 | 1.35E-1 | 1.01E+0 | 2.25E-2 | -1.68E+1 | -1.88E-1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 2.76E+0 | 5.89E-3 | 2.53E-1 | 3.02E+0 | 2.27E-3 | 1.17E-1 | 3.22E-4 | -3.04E+0 | 1.00E-1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 2.76E+0 | 5.89E-3 | 2.53E-1 | 3.02E+0 | 2.27E-3 | 1.17E-1 | 3.22E-4 | -3.04E+0 | 1.00E-1 |
| PENRE | MJ | 2.23E+1 | 4.36E-1 | 3.86E-1 | 2.31E+1 | 1.68E-1 | 1.74E+0 | 9.35E-3 | -1.21E+1 | 1.29E+1 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 2.23E+1 | 4.36E-1 | 3.86E-1 | 2.31E+1 | 1.68E-1 | 1.74E+0 | 9.35E-3 | -1.21E+1 | 1.29E+1 |
| PET | MJ | 2.50E+1 | 4.42E-1 | 6.40E-1 | 2.61E+1 | 1.70E-1 | 1.86E+0 | 9.67E-3 | -1.51E+1 | 1.30E+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 | 1.55E-2 | 4.64E-5 | 1.77E-2 | 3.32E-2 | 1.79E-5 | 1.75E-3 | 1.08E-5 | -8.17E-3 | 2.68E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 1.45E-4 | 1.05E-6 | 5.54E-7 | 1.47E-4 | 4.04E-7 | 2.70E-6 | 1.08E-8 | -9.99E-6 | 1.40E-4 |
| NHWD | kg | 9.43E-2 | 2.54E-2 | 4.05E-3 | 1.24E-1 | 9.79E-3 | 6.10E-2 | 3.91E-2 | -4.07E-2 | 1.93E-1 |
| RWD | kg | 4.18E-5 | 2.79E-6 | 1.12E-6 | 4.57E-5 | 1.07E-6 | 6.26E-6 | 5.73E-8 | -2.10E-5 | 3.21E-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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