# Environmental Profile

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

Ecochain v3.5.80

| | |
|---|---|
| Product: | 3025558 - PVC Bend 22°3 GY 40 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 | 7.37E-2 | 2.68E-3 | 3.86E-3 | 8.02E-2 | 1.00E-3 | 6.20E-2 | 3.07E-4 | -3.64E-2 | 1.07E-1 |
| GWP-f | kg CO2 eq | 9.55E-2 | 2.68E-3 | 2.91E-3 | 1.01E-1 | 1.00E-3 | 3.10E-2 | 3.07E-4 | -5.48E-2 | 7.85E-2 |
| GWP-b | kg CO2 eq | -2.20E-2 | 1.63E-6 | 9.49E-4 | -2.10E-2 | 6.07E-7 | 3.11E-2 | 3.80E-7 | 1.85E-2 | 2.86E-2 |
| GWP-luluc | kg CO2 eq | 1.85E-4 | 9.47E-7 | 4.38E-6 | 1.91E-4 | 3.54E-7 | 1.25E-5 | 8.44E-9 | -1.68E-4 | 3.52E-5 |
| ODP | kg CFC11 eq | 4.28E-8 | 6.17E-10 | 3.94E-10 | 4.38E-8 | 2.31E-10 | 3.50E-9 | 1.17E-11 | -2.22E-8 | 2.53E-8 |
| AP | mol H+ eq | 4.80E-4 | 1.52E-5 | 2.31E-5 | 5.18E-4 | 5.70E-6 | 6.54E-5 | 2.84E-7 | -2.63E-4 | 3.27E-4 |
| EP-fw | kg P eq | 4.84E-6 | 2.20E-8 | 7.20E-8 | 4.94E-6 | 8.23E-9 | 4.19E-7 | 3.76E-10 | -3.27E-6 | 2.09E-6 |
| EP-m | kg N eq | 1.00E-4 | 5.46E-6 | 6.30E-6 | 1.12E-4 | 2.04E-6 | 1.72E-5 | 1.70E-7 | -5.27E-5 | 7.86E-5 |
| EP-T | mol N eq | 1.06E-3 | 6.01E-5 | 8.38E-5 | 1.20E-3 | 2.25E-5 | 1.89E-4 | 1.13E-6 | -5.86E-4 | 8.27E-4 |
| POCP | kg NMVOC eq | 3.18E-4 | 1.72E-5 | 1.86E-5 | 3.54E-4 | 6.42E-6 | 5.68E-5 | 3.87E-7 | -1.80E-4 | 2.37E-4 |
| ADP-mm | kg Sb eq | 9.84E-5 | 6.93E-8 | 9.51E-8 | 9.86E-5 | 2.59E-8 | 2.60E-7 | 2.87E-10 | -1.01E-6 | 9.79E-5 |
| ADP-f | MJ | 2.23E+0 | 4.11E-2 | 3.95E-2 | 2.31E+0 | 1.54E-2 | 1.71E-1 | 8.50E-4 | -1.23E+0 | 1.27E+0 |
| WDP | m3 depriv. | 1.28E-1 | 1.26E-4 | 6.83E-2 | 1.97E-1 | 4.71E-5 | 6.08E-3 | 6.72E-6 | -8.64E-2 | 1.17E-1 |
| PM | disease inc. | 4.43E-9 | 2.42E-10 | 3.15E-10 | 4.98E-9 | 9.03E-11 | 8.41E-10 | 5.84E-12 | -3.15E-9 | 2.76E-9 |
| IR | kBq U-235 eq | 5.46E-3 | 1.80E-4 | 1.02E-4 | 5.75E-3 | 6.71E-5 | 6.15E-4 | 3.88E-6 | -3.20E-3 | 3.23E-3 |
| ETP-fw | CTUe | 4.53E+0 | 3.34E-2 | 5.52E-2 | 4.61E+0 | 1.25E-2 | 1.18E+0 | 1.26E-2 | -2.08E+0 | 3.74E+0 |
| HTP-c | CTUh | 8.51E-11 | 1.19E-12 | 3.48E-12 | 8.97E-11 | 4.44E-13 | 2.08E-11 | 2.39E-14 | -4.06E-11 | 7.04E-11 |
| HTP-nc | CTUh | 2.48E-9 | 3.98E-11 | 1.02E-10 | 2.62E-9 | 1.49E-11 | 4.39E-10 | 2.44E-12 | -1.18E-9 | 1.90E-9 |
| SQP | Pt | 2.94E+0 | 3.52E-2 | 4.10E-1 | 3.38E+0 | 1.31E-2 | 1.06E-1 | 2.16E-3 | -5.08E+0 | -1.58E+0 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 5.29E-1 | 5.90E-4 | 1.04E-1 | 6.34E-1 | 2.20E-4 | 1.15E-2 | 3.04E-5 | -8.95E-1 | -2.49E-1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 5.29E-1 | 5.90E-4 | 1.04E-1 | 6.34E-1 | 2.20E-4 | 1.15E-2 | 3.04E-5 | -8.95E-1 | -2.49E-1 |
| PENRE | MJ | 2.39E+0 | 4.36E-2 | 4.26E-2 | 2.48E+0 | 1.63E-2 | 1.82E-1 | 9.03E-4 | -1.32E+0 | 1.36E+0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 2.39E+0 | 4.36E-2 | 4.26E-2 | 2.48E+0 | 1.63E-2 | 1.82E-1 | 9.03E-4 | -1.32E+0 | 1.36E+0 |
| PET | MJ | 2.92E+0 | 4.42E-2 | 1.47E-1 | 3.11E+0 | 1.65E-2 | 1.93E-1 | 9.33E-4 | -2.21E+0 | 1.11E+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 | 1.64E-3 | 4.65E-6 | 1.60E-3 | 3.25E-3 | 1.74E-6 | 1.70E-4 | 1.03E-6 | -1.34E-3 | 2.08E-3 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 1.42E-5 | 1.05E-7 | 4.98E-8 | 1.43E-5 | 3.93E-8 | 2.97E-7 | 1.04E-9 | -1.20E-6 | 1.34E-5 |
| NHWD | kg | 1.19E-2 | 2.55E-3 | 3.67E-4 | 1.48E-2 | 9.52E-4 | 6.53E-3 | 3.80E-3 | -5.49E-3 | 2.06E-2 |
| RWD | kg | 5.15E-6 | 2.79E-7 | 1.01E-7 | 5.53E-6 | 1.04E-7 | 6.91E-7 | 5.52E-9 | -2.95E-6 | 3.38E-6 |
| 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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