# Environmental Profile

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

Ecochain v3.5.80

| | |
|---|---|
| Product: | 3003177 - Wadal PVC Branch 45° GY 110x50 S/S/S |
| Unit: | 1 piece |
| Manufacturer: | Wavin - PL -Buk - Extra products |

With Wadal you opt for a tensile-resistant system whose connections cannot slide apart. There is a solution for every indoor drainage situation, thanks to the very extensive range of PVC adhesive fittings and pipes. KOMO certified.

| | |
|---|---|
| LCA standard: | EN15804+A2 (2019) |
| 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 |

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 - PL -Buk - Extra products (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 | 7.99E-1 | 1.32E-2 | 1.45E-4 | 8.13E-1 | 1.08E-2 | 5.63E-1 | 3.42E-3 | -4.74E-1 | 9.16E-1 |
| GWP-f | kg CO2 eq | 9.88E-1 | 1.32E-2 | 1.46E-4 | 1.00E+0 | 1.08E-2 | 3.34E-1 | 3.42E-3 | -5.36E-1 | 8.13E-1 |
| GWP-b | kg CO2 eq | -1.90E-1 | 8.02E-6 | -1.54E-6 | -1.90E-1 | 6.54E-6 | 2.29E-1 | 4.32E-6 | 6.31E-2 | 1.02E-1 |
| GWP-luluc | kg CO2 eq | 1.25E-3 | 4.67E-6 | 1.49E-7 | 1.26E-3 | 3.81E-6 | 1.37E-4 | 9.00E-8 | -8.55E-4 | 5.42E-4 |
| ODP | kg CFC11 eq | 4.75E-7 | 3.04E-9 | 8.26E-12 | 4.78E-7 | 2.48E-9 | 3.83E-8 | 1.27E-10 | -2.41E-7 | 2.78E-7 |
| AP | mol H+ eq | 4.77E-3 | 7.52E-5 | 1.47E-6 | 4.84E-3 | 6.13E-5 | 6.63E-4 | 3.10E-6 | -2.24E-3 | 3.33E-3 |
| EP-fw | kg P eq | 4.64E-5 | 1.09E-7 | 8.24E-9 | 4.65E-5 | 8.86E-8 | 4.60E-6 | 4.07E-9 | -2.40E-5 | 2.72E-5 |
| EP-m | kg N eq | 8.84E-4 | 2.69E-5 | 1.55E-7 | 9.11E-4 | 2.19E-5 | 1.66E-4 | 1.92E-6 | -4.25E-4 | 6.76E-4 |
| EP-T | mol N eq | 9.55E-3 | 2.97E-4 | 1.85E-6 | 9.84E-3 | 2.42E-4 | 1.83E-3 | 1.24E-5 | -4.64E-3 | 7.28E-3 |
| POCP | kg NMVOC eq | 3.09E-3 | 8.48E-5 | 6.28E-7 | 3.18E-3 | 6.91E-5 | 5.45E-4 | 4.26E-6 | -1.54E-3 | 2.26E-3 |
| ADP-mm | kg Sb eq | 8.44E-4 | 3.42E-7 | 1.97E-8 | 8.44E-4 | 2.78E-7 | 2.61E-6 | 3.11E-9 | -1.03E-5 | 8.37E-4 |
| ADP-f | MJ | 2.35E+1 | 2.03E-1 | 1.36E-3 | 2.38E+1 | 1.65E-1 | 1.77E+0 | 9.31E-3 | -1.25E+1 | 1.32E+1 |
| WDP | m3 depriv. | 1.45E+0 | 6.22E-4 | 5.22E-5 | 1.45E+0 | 5.07E-4 | 6.87E-2 | 6.16E-5 | -7.67E-1 | 7.55E-1 |
| PM | disease inc. | 3.65E-8 | 1.19E-9 | 9.08E-12 | 3.77E-8 | 9.71E-10 | 8.23E-9 | 6.41E-11 | -2.09E-8 | 2.61E-8 |
| IR | kBq U-235 eq | 5.28E-2 | 8.86E-4 | 1.02E-6 | 5.37E-2 | 7.22E-4 | 6.30E-3 | 4.28E-5 | -2.69E-2 | 3.39E-2 |
| ETP-fw | CTUe | 3.18E+1 | 1.65E-1 | 1.21E-2 | 3.19E+1 | 1.34E-1 | 1.35E+1 | 1.48E-1 | -1.22E+1 | 3.35E+1 |
| HTP-c | CTUh | 8.90E-10 | 5.86E-12 | 6.17E-13 | 8.97E-10 | 4.77E-12 | 2.03E-10 | 2.58E-13 | -3.55E-10 | 7.50E-10 |
| HTP-nc | CTUh | 2.64E-8 | 1.96E-10 | 1.57E-11 | 2.66E-8 | 1.60E-10 | 4.74E-9 | 2.84E-11 | -1.04E-8 | 2.12E-8 |
| SQP | Pt | 2.26E+1 | 1.73E-1 | 2.24E-3 | 2.28E+1 | 1.41E-1 | 1.08E+0 | 2.39E-2 | -2.71E+1 | -3.09E+0 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 6.53E+0 | 2.91E-3 | 2.40E-2 | 6.55E+0 | 2.37E-3 | 1.26E-1 | 3.47E-4 | -4.74E+0 | 1.94E+0 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 6.53E+0 | 2.91E-3 | 2.40E-2 | 6.55E+0 | 2.37E-3 | 1.26E-1 | 3.47E-4 | -4.74E+0 | 1.94E+0 |
| PENRE | MJ | 2.53E+1 | 2.15E-1 | 1.44E-3 | 2.55E+1 | 1.75E-1 | 1.88E+0 | 9.88E-3 | -1.34E+1 | 1.41E+1 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 2.53E+1 | 2.15E-1 | 1.44E-3 | 2.55E+1 | 1.75E-1 | 1.88E+0 | 9.88E-3 | -1.34E+1 | 1.41E+1 |
| PET | MJ | 3.18E+1 | 2.18E-1 | 2.55E-2 | 3.20E+1 | 1.78E-1 | 2.01E+0 | 1.02E-2 | -1.82E+1 | 1.60E+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 | 1.71E-2 | 2.29E-5 | 1.46E-6 | 1.72E-2 | 1.87E-5 | 1.89E-3 | 1.14E-5 | -9.65E-3 | 9.44E-3 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 1.24E-4 | 5.18E-7 | 2.73E-13 | 1.24E-4 | 4.22E-7 | 2.93E-6 | 1.14E-8 | -1.15E-5 | 1.16E-4 |
| NHWD | kg | 1.08E-1 | 1.26E-2 | 1.05E-6 | 1.21E-1 | 1.02E-2 | 6.56E-2 | 4.09E-2 | -4.84E-2 | 1.89E-1 |
| RWD | kg | 4.70E-5 | 1.38E-6 | 1.10E-13 | 4.83E-5 | 1.12E-6 | 6.82E-6 | 6.06E-8 | -2.44E-5 | 3.20E-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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