# Environmental Profile

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

Ecochain v3.5.80

| | |
|---|---|
| Product: | 3043890 - Wafix PP Reducer GY 110x75 Short |
| Unit: | 1 piece |
| Manufacturer: | Wavin - PL -Buk - Extra products |

Wafix PP is a versatile, uncomplicated solution for your indoor drainage. You can easily install the impact-resistant pipes even in frost. Their excellent chemical resistance makes them ideal for cast-in applications.

| | |
|---|---|
| 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 | 2.62E-1 | 1.22E-3 | 1.45E-4 | 2.64E-1 | 4.16E-3 | 2.95E-1 | 1.96E-3 | -2.15E-1 | 3.49E-1 |
| GWP-f | kg CO2 eq | 4.09E-1 | 1.22E-3 | 1.46E-4 | 4.10E-1 | 4.16E-3 | 1.37E-1 | 1.96E-3 | -2.32E-1 | 3.21E-1 |
| GWP-b | kg CO2 eq | -1.47E-1 | 7.38E-7 | -1.54E-6 | -1.47E-1 | 2.53E-6 | 1.58E-1 | 1.71E-6 | 1.73E-2 | 2.83E-2 |
| GWP-luluc | kg CO2 eq | 3.56E-4 | 4.30E-7 | 1.49E-7 | 3.56E-4 | 1.47E-6 | 2.45E-5 | 3.34E-8 | -2.50E-4 | 1.32E-4 |
| ODP | kg CFC11 eq | 1.72E-8 | 2.80E-10 | 8.26E-12 | 1.75E-8 | 9.58E-10 | 3.56E-9 | 4.92E-11 | -1.29E-8 | 9.12E-9 |
| AP | mol H+ eq | 1.63E-3 | 6.92E-6 | 1.47E-6 | 1.64E-3 | 2.37E-5 | 1.47E-4 | 1.17E-6 | -7.82E-4 | 1.03E-3 |
| EP-fw | kg P eq | 8.92E-6 | 1.00E-8 | 8.24E-9 | 8.94E-6 | 3.42E-8 | 7.16E-7 | 1.53E-9 | -4.93E-6 | 4.77E-6 |
| EP-m | kg N eq | 3.05E-4 | 2.48E-6 | 1.55E-7 | 3.08E-4 | 8.48E-6 | 4.46E-5 | 7.63E-7 | -1.57E-4 | 2.05E-4 |
| EP-T | mol N eq | 3.37E-3 | 2.73E-5 | 1.85E-6 | 3.40E-3 | 9.34E-5 | 4.91E-4 | 4.76E-6 | -1.78E-3 | 2.22E-3 |
| POCP | kg NMVOC eq | 1.40E-3 | 7.80E-6 | 6.28E-7 | 1.41E-3 | 2.67E-5 | 1.53E-4 | 1.79E-6 | -7.18E-4 | 8.71E-4 |
| ADP-mm | kg Sb eq | 1.08E-5 | 3.14E-8 | 1.97E-8 | 1.08E-5 | 1.08E-7 | 5.77E-7 | 1.18E-9 | -1.79E-6 | 9.72E-6 |
| ADP-f | MJ | 1.29E+1 | 1.87E-2 | 1.36E-3 | 1.30E+1 | 6.38E-2 | 4.41E-1 | 3.59E-3 | -6.74E+0 | 6.73E+0 |
| WDP | m3 depriv. | 2.61E-1 | 5.72E-5 | 5.22E-5 | 2.61E-1 | 1.96E-4 | 8.23E-3 | 1.83E-5 | -1.43E-1 | 1.27E-1 |
| PM | disease inc. | 1.70E-8 | 1.10E-10 | 9.08E-12 | 1.71E-8 | 3.75E-10 | 2.38E-9 | 2.47E-11 | -9.20E-9 | 1.07E-8 |
| IR | kBq U-235 eq | 9.93E-3 | 8.15E-5 | 1.02E-6 | 1.00E-2 | 2.79E-4 | 1.38E-3 | 1.66E-5 | -5.14E-3 | 6.54E-3 |
| ETP-fw | CTUe | 5.99E+0 | 1.51E-2 | 1.21E-2 | 6.01E+0 | 5.18E-2 | 5.16E-1 | 3.00E-3 | -2.95E+0 | 3.63E+0 |
| HTP-c | CTUh | 2.05E-10 | 5.39E-13 | 6.17E-13 | 2.06E-10 | 1.84E-12 | 6.25E-11 | 8.79E-14 | -9.84E-11 | 1.72E-10 |
| HTP-nc | CTUh | 4.02E-9 | 1.81E-11 | 1.57E-11 | 4.05E-9 | 6.18E-11 | 7.51E-10 | 1.94E-12 | -1.61E-9 | 3.26E-9 |
| SQP | Pt | 1.38E+1 | 1.60E-2 | 2.24E-3 | 1.39E+1 | 5.46E-2 | 3.48E-1 | 9.21E-3 | -1.42E+1 | 1.01E-1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 3.03E+0 | 2.68E-4 | 2.40E-2 | 3.06E+0 | 9.16E-4 | 2.11E-2 | 1.39E-4 | -2.29E+0 | 7.88E-1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 3.03E+0 | 2.68E-4 | 2.40E-2 | 3.06E+0 | 9.16E-4 | 2.11E-2 | 1.39E-4 | -2.29E+0 | 7.88E-1 |
| PENRE | MJ | 1.39E+1 | 1.98E-2 | 1.44E-3 | 1.39E+1 | 6.78E-2 | 4.70E-1 | 3.81E-3 | -7.26E+0 | 7.19E+0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 1.39E+1 | 1.98E-2 | 1.44E-3 | 1.39E+1 | 6.78E-2 | 4.70E-1 | 3.81E-3 | -7.26E+0 | 7.19E+0 |
| PET | MJ | 1.69E+1 | 2.01E-2 | 2.55E-2 | 1.70E+1 | 6.87E-2 | 4.91E-1 | 3.95E-3 | -9.55E+0 | 7.98E+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 | 4.48E-3 | 2.11E-6 | 1.46E-6 | 4.48E-3 | 7.22E-6 | 2.51E-4 | 4.43E-6 | -2.54E-3 | 2.20E-3 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 3.50E-6 | 4.77E-8 | 2.73E-13 | 3.55E-6 | 1.63E-7 | 7.53E-7 | 4.33E-9 | -2.78E-6 | 1.69E-6 |
| NHWD | kg | 2.79E-2 | 1.16E-3 | 1.05E-6 | 2.91E-2 | 3.96E-3 | 2.22E-2 | 1.58E-2 | -1.25E-2 | 5.85E-2 |
| RWD | kg | 9.85E-6 | 1.27E-7 | 1.10E-13 | 9.97E-6 | 4.34E-7 | 1.78E-6 | 2.34E-8 | -5.00E-6 | 7.21E-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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