

# Environmental Profile

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

Ecochain v3.5.80



Product: 3043803 - Wafix PP Bend 88° GY 50 S/S  
 Unit: 1 piece  
 Manufacturer: Wavin - PL -Buk - Extra products

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



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.

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

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# Results

| Environmental impact | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
|----------------------|--------------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| GWP-total            | kg CO2 eq    | 1.06E-1  | 1.03E-3  | 1.45E-4  | 1.07E-1  | 1.70E-3  | 1.60E-1  | 8.01E-4  | -8.96E-2  | 1.79E-1  |
| GWP-f                | kg CO2 eq    | 2.03E-1  | 1.03E-3  | 1.46E-4  | 2.04E-1  | 1.70E-3  | 5.44E-2  | 8.01E-4  | -1.03E-1  | 1.59E-1  |
| GWP-b                | kg CO2 eq    | -9.78E-2 | 6.27E-7  | -1.54E-6 | -9.78E-2 | 1.03E-6  | 1.05E-1  | 6.99E-7  | 1.30E-2   | 2.06E-2  |
| GWP-luluc            | kg CO2 eq    | 2.22E-4  | 3.65E-7  | 1.49E-7  | 2.22E-4  | 6.01E-7  | 1.03E-5  | 1.34E-8  | -1.63E-4  | 6.98E-5  |
| ODP                  | kg CFC11 eq  | 1.20E-8  | 2.38E-10 | 8.26E-12 | 1.22E-8  | 3.91E-10 | 1.59E-9  | 2.01E-11 | -5.78E-9  | 8.45E-9  |
| AP                   | mol H+ eq    | 8.71E-4  | 5.88E-6  | 1.47E-6  | 8.78E-4  | 9.68E-6  | 6.50E-5  | 4.78E-7  | -3.83E-4  | 5.70E-4  |
| EP-fw                | kg P eq      | 4.99E-6  | 8.49E-9  | 8.24E-9  | 5.00E-6  | 1.40E-8  | 3.03E-7  | 6.18E-10 | -2.79E-6  | 2.53E-6  |
| EP-m                 | kg N eq      | 1.76E-4  | 2.10E-6  | 1.55E-7  | 1.78E-4  | 3.46E-6  | 2.00E-5  | 3.13E-7  | -8.02E-5  | 1.21E-4  |
| EP-T                 | mol N eq     | 1.94E-3  | 2.32E-5  | 1.85E-6  | 1.97E-3  | 3.82E-5  | 2.20E-4  | 1.94E-6  | -9.14E-4  | 1.31E-3  |
| POCP                 | kg NMVOC eq  | 7.45E-4  | 6.63E-6  | 6.28E-7  | 7.53E-4  | 1.09E-5  | 6.81E-5  | 7.29E-7  | -3.54E-4  | 4.78E-4  |
| ADP-mm               | kg Sb eq     | 6.70E-6  | 2.67E-8  | 1.97E-8  | 6.74E-6  | 4.39E-8  | 2.55E-7  | 4.80E-10 | -8.47E-7  | 6.19E-6  |
| ADP-f                | MJ           | 5.89E+0  | 1.58E-2  | 1.36E-3  | 5.91E+0  | 2.61E-2  | 1.90E-1  | 1.46E-3  | -2.88E+0  | 3.24E+0  |
| WDP                  | m3 depriv.   | 1.19E-1  | 4.86E-5  | 5.22E-5  | 1.19E-1  | 8.00E-5  | 3.42E-3  | 6.70E-6  | -6.80E-2  | 5.43E-2  |
| PM                   | disease inc. | 9.76E-9  | 9.32E-11 | 9.08E-12 | 9.86E-9  | 1.53E-10 | 1.04E-9  | 1.01E-11 | -5.07E-9  | 5.99E-9  |
| IR                   | kBq U-235 eq | 5.69E-3  | 6.92E-5  | 1.02E-6  | 5.76E-3  | 1.14E-4  | 6.07E-4  | 6.80E-6  | -2.69E-3  | 3.80E-3  |
| ETP-fw               | CTUe         | 3.92E+0  | 1.29E-2  | 1.21E-2  | 3.94E+0  | 2.12E-2  | 2.26E-1  | 1.23E-3  | -1.84E+0  | 2.35E+0  |
| HTP-c                | CTUh         | 1.34E-10 | 4.58E-13 | 6.17E-13 | 1.35E-10 | 7.53E-13 | 2.63E-11 | 3.53E-14 | -5.71E-11 | 1.05E-10 |
| HTP-nc               | CTUh         | 2.47E-9  | 1.53E-11 | 1.57E-11 | 2.50E-9  | 2.52E-11 | 3.19E-10 | 7.86E-13 | -7.65E-10 | 2.08E-9  |
| SQP                  | Pt           | 9.30E+0  | 1.36E-2  | 2.24E-3  | 9.31E+0  | 2.23E-2  | 1.48E-1  | 3.76E-3  | -9.59E+0  | -1.03E-1 |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
| PERE                 | MJ           | 2.08E+0  | 2.27E-4  | 2.40E-2  | 2.10E+0  | 3.74E-4  | 8.94E-3  | 5.71E-5  | -1.54E+0  | 5.70E-1  |
| PERM                 | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PERT                 | MJ           | 2.08E+0  | 2.27E-4  | 2.40E-2  | 2.10E+0  | 3.74E-4  | 8.94E-3  | 5.71E-5  | -1.54E+0  | 5.70E-1  |
| PENRE                | MJ           | 6.32E+0  | 1.68E-2  | 1.44E-3  | 6.34E+0  | 2.77E-2  | 2.02E-1  | 1.55E-3  | -3.10E+0  | 3.46E+0  |
| PENRM                | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PENRT                | MJ           | 6.32E+0  | 1.68E-2  | 1.44E-3  | 6.34E+0  | 2.77E-2  | 2.02E-1  | 1.55E-3  | -3.10E+0  | 3.46E+0  |
| PET                  | MJ           | 8.40E+0  | 1.70E-2  | 2.55E-2  | 8.44E+0  | 2.81E-2  | 2.11E-1  | 1.61E-3  | -4.65E+0  | 4.03E+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           | 2.18E-3  | 1.79E-6  | 1.46E-6  | 2.18E-3  | 2.95E-6  | 1.06E-4  | 1.81E-6  | -1.31E-3  | 9.80E-4  |

| Output flows and waste categories | Unit | A1      | A2      | A3       | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|----------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 2.45E-6 | 4.05E-8 | 2.73E-13 | 2.49E-6 | 6.67E-8 | 3.31E-7 | 1.76E-9 | -1.45E-6 | 1.43E-6 |
| NHWD                              | kg   | 2.40E-2 | 9.82E-4 | 1.05E-6  | 2.50E-2 | 1.62E-3 | 9.40E-3 | 6.46E-3 | -7.11E-3 | 3.53E-2 |
| RWD                               | kg   | 6.10E-6 | 1.08E-7 | 1.10E-13 | 6.20E-6 | 1.77E-7 | 7.87E-7 | 9.57E-9 | -2.66E-6 | 4.51E-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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