

# Environmental Profile

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

Ecochain v3.5.80



Product: 3003174 - Wadal PVC Branch 88° GY 110 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                                                             |    |    |     |     | Use stage                                                                                                          |     |     |     |     |     |     | End-of-Life stage                                                          |    |    |    |   |
| A1 Raw material supply A2 Transport A3 Manufacturing                      |    |    |     |     | B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment B6 Operational energy use B7 Operational water use |     |     |     |     |     |     | C1 De-construction demolition C2 Transport C3 Waste processing C4 Disposal |    |    |    |   |
| Construction process stage                                                |    |    |     |     |                                                                                                                    |     |     |     |     |     |     | Benefits and loads beyond the system boundaries                            |    |    |    |   |
| A4 Transport gate to site A5 Assembly / Construction installation process |    |    |     |     |                                                                                                                    |     |     |     |     |     |     | 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    | 1.01E+0  | 1.63E-2  | 1.45E-4  | 1.03E+0  | 1.35E-2  | 6.88E-1  | 4.28E-3  | -5.95E-1  | 1.14E+0  |
| GWP-f                | kg CO2 eq    | 1.23E+0  | 1.63E-2  | 1.46E-4  | 1.25E+0  | 1.35E-2  | 4.20E-1  | 4.28E-3  | -6.69E-1  | 1.02E+0  |
| GWP-b                | kg CO2 eq    | -2.21E-1 | 9.87E-6  | -1.54E-6 | -2.21E-1 | 8.18E-6  | 2.67E-1  | 5.40E-6  | 7.49E-2   | 1.22E-1  |
| GWP-luluc            | kg CO2 eq    | 1.54E-3  | 5.75E-6  | 1.49E-7  | 1.54E-3  | 4.77E-6  | 1.72E-4  | 1.12E-7  | -1.03E-3  | 6.83E-4  |
| ODP                  | kg CFC11 eq  | 5.95E-7  | 3.75E-9  | 8.26E-12 | 5.99E-7  | 3.10E-9  | 4.79E-8  | 1.60E-10 | -3.02E-7  | 3.48E-7  |
| AP                   | mol H+ eq    | 5.93E-3  | 9.26E-5  | 1.47E-6  | 6.02E-3  | 7.67E-5  | 8.29E-4  | 3.88E-6  | -2.77E-3  | 4.16E-3  |
| EP-fw                | kg P eq      | 5.78E-5  | 1.34E-7  | 8.24E-9  | 5.79E-5  | 1.11E-7  | 5.76E-6  | 5.09E-9  | -2.96E-5  | 3.42E-5  |
| EP-m                 | kg N eq      | 1.10E-3  | 3.31E-5  | 1.55E-7  | 1.13E-3  | 2.75E-5  | 2.07E-4  | 2.41E-6  | -5.24E-4  | 8.42E-4  |
| EP-T                 | mol N eq     | 1.18E-2  | 3.65E-4  | 1.85E-6  | 1.22E-2  | 3.03E-4  | 2.28E-3  | 1.55E-5  | -5.71E-3  | 9.07E-3  |
| POCP                 | kg NMVOC eq  | 3.84E-3  | 1.04E-4  | 6.28E-7  | 3.95E-3  | 8.65E-5  | 6.80E-4  | 5.33E-6  | -1.89E-3  | 2.82E-3  |
| ADP-mm               | kg Sb eq     | 1.04E-3  | 4.21E-7  | 1.97E-8  | 1.04E-3  | 3.49E-7  | 3.26E-6  | 3.89E-9  | -1.29E-5  | 1.03E-3  |
| ADP-f                | MJ           | 2.95E+1  | 2.50E-1  | 1.36E-3  | 2.97E+1  | 2.07E-1  | 2.21E+0  | 1.17E-2  | -1.56E+1  | 1.66E+1  |
| WDP                  | m3 depriv.   | 1.82E+0  | 7.66E-4  | 5.22E-5  | 1.82E+0  | 6.35E-4  | 8.61E-2  | 7.62E-5  | -9.54E-1  | 9.53E-1  |
| PM                   | disease inc. | 4.50E-8  | 1.47E-9  | 9.08E-12 | 4.65E-8  | 1.22E-9  | 1.03E-8  | 8.03E-11 | -2.55E-8  | 3.26E-8  |
| IR                   | kBq U-235 eq | 6.59E-2  | 1.09E-3  | 1.02E-6  | 6.70E-2  | 9.04E-4  | 7.87E-3  | 5.36E-5  | -3.33E-2  | 4.25E-2  |
| ETP-fw               | CTUe         | 3.90E+1  | 2.03E-1  | 1.21E-2  | 3.93E+1  | 1.68E-1  | 1.69E+1  | 1.86E-1  | -1.49E+1  | 4.16E+1  |
| HTP-c                | CTUh         | 1.10E-9  | 7.21E-12 | 6.17E-13 | 1.11E-9  | 5.98E-12 | 2.53E-10 | 3.22E-13 | -4.36E-10 | 9.32E-10 |
| HTP-nc               | CTUh         | 3.28E-8  | 2.42E-10 | 1.57E-11 | 3.30E-8  | 2.00E-10 | 5.93E-9  | 3.56E-11 | -1.28E-8  | 2.64E-8  |
| SQP                  | Pt           | 2.67E+1  | 2.13E-1  | 2.24E-3  | 2.69E+1  | 1.77E-1  | 1.35E+0  | 2.99E-2  | -3.20E+1  | -3.54E+0 |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
| PERE                 | MJ           | 7.86E+0  | 3.58E-3  | 2.40E-2  | 7.89E+0  | 2.97E-3  | 1.58E-1  | 4.35E-4  | -5.62E+0  | 2.43E+0  |
| PERM                 | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PERT                 | MJ           | 7.86E+0  | 3.58E-3  | 2.40E-2  | 7.89E+0  | 2.97E-3  | 1.58E-1  | 4.35E-4  | -5.62E+0  | 2.43E+0  |
| PENRE                | MJ           | 3.16E+1  | 2.65E-1  | 1.44E-3  | 3.19E+1  | 2.20E-1  | 2.35E+0  | 1.24E-2  | -1.68E+1  | 1.77E+1  |
| PENRM                | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PENRT                | MJ           | 3.16E+1  | 2.65E-1  | 1.44E-3  | 3.19E+1  | 2.20E-1  | 2.35E+0  | 1.24E-2  | -1.68E+1  | 1.77E+1  |
| PET                  | MJ           | 3.95E+1  | 2.68E-1  | 2.55E-2  | 3.98E+1  | 2.23E-1  | 2.51E+0  | 1.28E-2  | -2.24E+1  | 2.01E+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           | 2.14E-2  | 2.82E-5  | 1.46E-6  | 2.14E-2  | 2.34E-5  | 2.37E-3  | 1.43E-5  | -1.19E-2  | 1.19E-2  |

| Output flows and waste categories | Unit | A1      | A2      | A3       | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|----------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 1.53E-4 | 6.38E-7 | 2.73E-13 | 1.53E-4 | 5.29E-7 | 3.66E-6 | 1.42E-8 | -1.43E-5 | 1.43E-4 |
| NHWD                              | kg   | 1.34E-1 | 1.55E-2 | 1.05E-6  | 1.49E-1 | 1.28E-2 | 8.21E-2 | 5.12E-2 | -5.97E-2 | 2.36E-1 |
| RWD                               | kg   | 5.85E-5 | 1.70E-6 | 1.10E-13 | 6.02E-5 | 1.41E-6 | 8.51E-6 | 7.58E-8 | -3.02E-5 | 4.00E-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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