# Environmental Profile

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

Ecochain v3.5.64

| | |
|---|---|
| Product: | 3027837 - Tigris K1 Connector Male 50x1 1/2" |
| Unit: | 1 Piece |
| Manufacturer: | Wavin - DE - Twist - Handmade |

Wavin Tigris K1 is proven and perfected to deliver high performance and significant cost savings in a wide range of commercial plumbing and heating projects. Its patented design has been relentlessly engineered to optimise all the benefits of a composite metal-plastic press-fit system and deliver the optimum solution for sanitary, potable water and heating applications, including re-circulating systems.

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|---|---|
| LCA standard: | EN15804+A2 (2019) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 29-11-2022 |
| End of validity: | 29-11-2027 |
| 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 - DE - Twist - Handmade (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 | 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 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF 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 | Total |
|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 1.43E+0 | 5.73E-3 | 3.03E-3 | 1.44E+0 | 1.44E+0 |
| GWP-f | kg CO2 eq | 1.56E+0 | 5.72E-3 | 2.23E-3 | 1.57E+0 | 1.57E+0 |
| GWP-b | kg CO2 eq | -1.36E-1 | 3.48E-6 | 7.97E-4 | -1.35E-1 | -1.35E-1 |
| GWP-luluc | kg CO2 eq | 8.54E-3 | 2.03E-6 | 3.44E-6 | 8.55E-3 | 8.55E-3 |
| ODP | kg CFC11 eq | 3.01E-7 | 1.32E-9 | 3.40E-10 | 3.02E-7 | 3.02E-7 |
| AP | mol H+ eq | 8.77E-3 | 3.26E-5 | 1.85E-5 | 8.82E-3 | 8.82E-3 |
| EP-fw | kg P eq | 6.34E-5 | 4.71E-8 | 7.94E-8 | 6.36E-5 | 6.36E-5 |
| EP-m | kg N eq | 1.50E-3 | 1.17E-5 | 8.79E-6 | 1.52E-3 | 1.52E-3 |
| EP-T | mol N eq | 1.68E-2 | 1.29E-4 | 8.26E-5 | 1.71E-2 | 1.71E-2 |
| POCP | kg NMVOC eq | 7.14E-3 | 3.68E-5 | 2.30E-5 | 7.20E-3 | 7.20E-3 |
| ADP-mm | kg Sb eq | 4.18E-5 | 1.48E-7 | 1.65E-8 | 4.20E-5 | 4.20E-5 |
| ADP-f | MJ | 2.56E+1 | 8.79E-2 | 2.29E-2 | 2.57E+1 | 2.57E+1 |
| WDP | m3 depriv. | 1.27E+0 | 2.70E-4 | 2.99E-2 | 1.30E+0 | 1.30E+0 |
| PM | disease inc. | 8.90E-8 | 5.17E-10 | 4.83E-10 | 9.00E-8 | 9.00E-8 |
| IR | kBq U-235 eq | 5.34E-2 | 3.84E-4 | 1.11E-4 | 5.39E-2 | 5.39E-2 |
| ETP-fw | CTUe | 1.74E+2 | 7.13E-2 | 5.34E-2 | 1.74E+2 | 1.74E+2 |
| HTP-c | CTUh | 1.39E-8 | 2.54E-12 | 2.31E-12 | 1.39E-8 | 1.39E-8 |
| HTP-nc | CTUh | 4.80E-8 | 8.51E-11 | 3.95E-11 | 4.81E-8 | 4.81E-8 |
| SQP | Pt | 1.91E+1 | 7.52E-2 | 1.04E-2 | 1.92E+1 | 1.92E+1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | Total |
| PERE | MJ | 7.85E+0 | 1.26E-3 | 2.07E-3 | 7.85E+0 | 7.85E+0 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 7.85E+0 | 1.26E-3 | 2.07E-3 | 7.85E+0 | 7.85E+0 |
| PENRE | MJ | 2.75E+1 | 9.33E-2 | 2.40E-2 | 2.76E+1 | 2.76E+1 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 2.75E+1 | 9.33E-2 | 2.40E-2 | 2.76E+1 | 2.76E+1 |
| PET | MJ | 3.53E+1 | 9.45E-2 | 2.61E-2 | 3.54E+1 | 3.54E+1 |
| SM | kg | 0 | 0 | 0 | 0 | 0 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 |
| FW | m3 | 3.26E-2 | 9.94E-6 | 6.99E-4 | 3.33E-2 | 3.33E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | Total |
|---|---|---|---|---|---|---|
| HWD | kg | 2.91E-5 | 2.25E-7 | 6.92E-8 | 2.94E-5 | 2.94E-5 |
| NHWD | kg | 1.01E+0 | 5.45E-3 | 5.74E-4 | 1.01E+0 | 1.01E+0 |
| RWD | kg | 5.06E-5 | 5.98E-7 | 1.70E-7 | 5.14E-5 | 5.14E-5 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 |
| EE | MJ | 0 | 0 | 0 | 0 | 0 |
| EET | MJ | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 |

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