# Environmental Profile

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

Ecochain v3.5.71

| | |
|---|---|
| Product: | 3052945 - Tigris M1 16 x Hep20 15 Adaptor s/s |
| Unit: | 1 piece |
| Manufacturer: | Wavin - UK - Doncaster - Verified |

Suitable for various professional plumbing jobs. Hep20 is packed with unique features that make push-fit plumbing fitting easier quicker and more secure for installers. No additional equipment or tools required when installing or demounting fittings compared to others where a solder or glue is required.  Just push the pipework into the fitting to create a watertight seal. A wide range of plastic fittings, plumbing pipes and tubes are available. It is the only system with joint recognition and se

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|---|---|
| LCA standard: | EN15804+A2 (2019) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 09-02-2023 |
| End of validity: | 09-02-2028 |
| 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 - UK - Doncaster - Verified (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 | 7.22E-1 | 4.29E-3 | 3.36E-2 | 7.60E-1 | 3.90E-3 | 1.85E-2 | 2.20E-4 | -2.02E-1 | 5.81E-1 |
| GWP-f | kg CO2 eq | 7.21E-1 | 4.28E-3 | 3.10E-2 | 7.57E-1 | 3.90E-3 | 1.86E-2 | 2.20E-4 | -1.99E-1 | 5.81E-1 |
| GWP-b | kg CO2 eq | 2.33E-4 | 2.56E-6 | 2.54E-3 | 2.77E-3 | 2.37E-6 | -1.43E-4 | 2.91E-7 | -2.90E-3 | -2.70E-4 |
| GWP-luluc | kg CO2 eq | 9.58E-4 | 1.53E-6 | 1.01E-5 | 9.70E-4 | 1.38E-6 | 4.50E-6 | 2.29E-8 | -2.84E-4 | 6.92E-4 |
| ODP | kg CFC11 eq | 4.15E-8 | 9.86E-10 | 3.67E-9 | 4.61E-8 | 8.98E-10 | 6.63E-10 | 3.36E-11 | -1.18E-8 | 3.60E-8 |
| AP | mol H+ eq | 5.51E-2 | 2.57E-5 | 6.78E-5 | 5.52E-2 | 2.22E-5 | 4.11E-5 | 7.80E-7 | -4.29E-3 | 5.10E-2 |
| EP-fw | kg P eq | 4.40E-4 | 3.50E-8 | 2.03E-7 | 4.40E-4 | 3.21E-8 | 2.18E-7 | 9.36E-10 | -3.55E-5 | 4.05E-4 |
| EP-m | kg N eq | 2.86E-3 | 9.04E-6 | 1.52E-5 | 2.88E-3 | 7.94E-6 | 1.01E-5 | 4.24E-7 | -5.02E-4 | 2.40E-3 |
| EP-T | mol N eq | 4.17E-2 | 9.96E-5 | 1.44E-4 | 4.19E-2 | 8.75E-5 | 1.15E-4 | 2.98E-6 | -6.95E-3 | 3.52E-2 |
| POCP | kg NMVOC eq | 1.11E-2 | 2.84E-5 | 4.70E-5 | 1.12E-2 | 2.50E-5 | 3.29E-5 | 8.95E-7 | -1.63E-3 | 9.65E-3 |
| ADP-mm | kg Sb eq | 3.50E-3 | 1.10E-7 | 2.69E-7 | 3.50E-3 | 1.01E-7 | 1.74E-7 | 7.54E-10 | -1.63E-3 | 1.87E-3 |
| ADP-f | MJ | 8.44E+0 | 6.56E-2 | 4.43E-1 | 8.95E+0 | 5.98E-2 | 6.82E-2 | 2.30E-3 | -2.63E+0 | 6.45E+0 |
| WDP | m3 depriv. | 5.56E-1 | 2.00E-4 | 4.10E-3 | 5.60E-1 | 1.84E-4 | 6.66E-4 | 9.11E-5 | -1.50E-1 | 4.11E-1 |
| PM | disease inc. | 1.25E-7 | 3.84E-10 | 4.97E-10 | 1.26E-7 | 3.52E-10 | 5.87E-10 | 1.52E-11 | -1.66E-8 | 1.10E-7 |
| IR | kBq U-235 eq | 2.93E-2 | 2.87E-4 | 3.63E-4 | 3.00E-2 | 2.61E-4 | 2.74E-4 | 9.66E-6 | -1.17E-2 | 1.89E-2 |
| ETP-fw | CTUe | 5.42E+2 | 5.32E-2 | 3.39E-1 | 5.42E+2 | 4.86E-2 | 2.08E-1 | 1.93E-3 | -7.66E+1 | 4.66E+2 |
| HTP-c | CTUh | 7.87E-9 | 1.90E-12 | 1.43E-11 | 7.89E-9 | 1.73E-12 | 8.74E-12 | 3.79E-14 | -1.72E-9 | 6.18E-9 |
| HTP-nc | CTUh | 6.34E-7 | 6.32E-11 | 2.95E-10 | 6.34E-7 | 5.79E-11 | 2.30E-10 | 1.18E-12 | -1.09E-7 | 5.25E-7 |
| SQP | Pt | 8.34E+0 | 5.57E-2 | 4.89E-2 | 8.45E+0 | 5.12E-2 | 9.63E-2 | 4.96E-3 | -1.53E+0 | 7.07E+0 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 1.77E+0 | 9.37E-4 | 6.27E-1 | 2.40E+0 | 8.58E-4 | 6.75E-3 | 3.00E-5 | -4.58E-1 | 1.95E+0 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 1.77E+0 | 9.37E-4 | 6.27E-1 | 2.40E+0 | 8.58E-4 | 6.75E-3 | 3.00E-5 | -4.58E-1 | 1.95E+0 |
| PENRE | MJ | 9.01E+0 | 6.97E-2 | 4.86E-1 | 9.56E+0 | 6.35E-2 | 7.25E-2 | 2.44E-3 | -2.81E+0 | 6.89E+0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 9.01E+0 | 6.97E-2 | 4.86E-1 | 9.56E+0 | 6.35E-2 | 7.25E-2 | 2.44E-3 | -2.81E+0 | 6.89E+0 |
| PET | MJ | 1.08E+1 | 7.06E-2 | 1.11E+0 | 1.20E+1 | 6.44E-2 | 7.92E-2 | 2.47E-3 | -3.27E+0 | 8.84E+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 | 1.46E-2 | 7.39E-6 | 1.20E-4 | 1.48E-2 | 6.77E-6 | 3.30E-5 | 2.51E-6 | -4.05E-3 | 1.07E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 4.37E-4 | 1.67E-7 | 4.89E-7 | 4.37E-4 | 1.53E-7 | 1.64E-7 | 3.35E-9 | -2.05E-4 | 2.32E-4 |
| NHWD | kg | 2.13E-1 | 4.03E-3 | 2.28E-3 | 2.19E-1 | 3.71E-3 | 2.89E-3 | 1.49E-2 | -7.13E-2 | 1.69E-1 |
| RWD | kg | 2.49E-5 | 4.47E-7 | 3.70E-7 | 2.58E-5 | 4.07E-7 | 3.38E-7 | 1.51E-8 | -9.31E-6 | 1.72E-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 |

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777