

# Environmental Profile

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

Ecochain v3.5.71



Product: 3029645 - Hep20 Barrier Pipe WT 22 L=50  
Unit: 1 piece  
Manufacturer: Wavin - UK - Doncaster - Verified

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



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

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                                                                |    |    |     |     | Use stage                                                                                                             |     |     |     |     |     |     | End-of-Life stage                                                             |    |    |    |   |
| A1 Raw material supply A2 Transport A3 Manufacturing                         |    |    |     |     | B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment<br>B6 Operational energy use B7 Operational water use |     |     |     |     |     |     | C1 De-construction demolition C2 Transport C3 Waste processing<br>C4 Disposal |    |    |    |   |
| Construction process stage                                                   |    |    |     |     |                                                                                                                       |     |     |     |     |     |     | Benefits and loads beyond the system boundaries                               |    |    |    |   |
| A4 Transport gate to site<br>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    | 2.60E+1 | 5.37E-1  | 3.25E+0 | 2.98E+1 | 1.65E-1  | 5.01E+0  | 7.17E-2  | -1.38E+1  | 2.12E+1 |
| GWP-f                | kg CO2 eq    | 2.59E+1 | 5.36E-1  | 3.02E+0 | 2.95E+1 | 1.65E-1  | 5.02E+0  | 7.17E-2  | -1.38E+1  | 2.09E+1 |
| GWP-b                | kg CO2 eq    | 1.04E-1 | 3.04E-4  | 2.31E-1 | 3.36E-1 | 9.99E-5  | -6.50E-3 | 7.16E-5  | -5.29E-2  | 2.76E-1 |
| GWP-luluc            | kg CO2 eq    | 2.13E-3 | 1.97E-4  | 1.16E-3 | 3.49E-3 | 5.82E-5  | 9.70E-4  | 1.39E-6  | -1.34E-4  | 4.38E-3 |
| ODP                  | kg CFC11 eq  | 2.52E-7 | 1.23E-7  | 3.44E-7 | 7.18E-7 | 3.79E-8  | 1.38E-7  | 1.95E-9  | -2.17E-7  | 6.79E-7 |
| AP                   | mol H+ eq    | 1.68E-1 | 3.75E-3  | 7.38E-3 | 1.79E-1 | 9.37E-4  | 5.46E-3  | 4.83E-5  | -6.79E-2  | 1.17E-1 |
| EP-fw                | kg P eq      | 1.41E-4 | 4.30E-6  | 2.14E-5 | 1.67E-4 | 1.35E-6  | 2.84E-5  | 6.38E-8  | -1.23E-5  | 1.85E-4 |
| EP-m                 | kg N eq      | 1.98E-2 | 1.25E-3  | 1.56E-3 | 2.26E-2 | 3.35E-4  | 1.62E-3  | 8.91E-5  | -9.06E-3  | 1.56E-2 |
| EP-T                 | mol N eq     | 2.18E-1 | 1.38E-2  | 1.51E-2 | 2.47E-1 | 3.70E-3  | 1.77E-2  | 1.92E-4  | -9.90E-2  | 1.70E-1 |
| POCP                 | kg NMVOC eq  | 1.14E-1 | 3.88E-3  | 4.90E-3 | 1.23E-1 | 1.06E-3  | 5.49E-3  | 7.01E-5  | -5.42E-2  | 7.54E-2 |
| ADP-mm               | kg Sb eq     | 2.01E-4 | 1.34E-5  | 3.15E-5 | 2.46E-4 | 4.26E-6  | 2.08E-5  | 4.72E-8  | -2.95E-6  | 2.68E-4 |
| ADP-f                | MJ           | 5.76E+2 | 8.16E+0  | 4.25E+1 | 6.27E+2 | 2.53E+0  | 1.65E+1  | 1.44E-1  | -3.01E+2  | 3.45E+2 |
| WDP                  | m3 depriv.   | 5.27E+0 | 2.45E-2  | 4.21E-1 | 5.72E+0 | 7.75E-3  | 3.44E-1  | 6.63E-4  | -1.34E+0  | 4.73E+0 |
| PM                   | disease inc. | 1.30E-6 | 4.68E-8  | 5.41E-8 | 1.40E-6 | 1.49E-8  | 8.57E-8  | 9.79E-10 | -5.75E-7  | 9.23E-7 |
| IR                   | kBq U-235 eq | 1.23E-1 | 3.57E-2  | 3.63E-2 | 1.95E-1 | 1.10E-2  | 5.02E-2  | 6.92E-4  | -1.45E-2  | 2.43E-1 |
| ETP-fw               | CTUe         | 8.15E+1 | 6.57E+0  | 3.82E+1 | 1.26E+2 | 2.05E+0  | 2.52E+1  | 2.96E-1  | -9.40E+0  | 1.44E+2 |
| HTP-c                | CTUh         | 7.79E-9 | 2.40E-10 | 1.58E-9 | 9.61E-9 | 7.30E-11 | 2.34E-9  | 3.79E-12 | -9.40E-10 | 1.11E-8 |
| HTP-nc               | CTUh         | 1.13E-7 | 7.75E-9  | 3.34E-8 | 1.54E-7 | 2.45E-9  | 2.98E-8  | 1.20E-10 | -2.10E-8  | 1.66E-7 |
| SQP                  | Pt           | 2.49E+1 | 6.75E+0  | 5.36E+0 | 3.70E+1 | 2.16E+0  | 1.30E+1  | 3.65E-1  | -1.34E+0  | 5.12E+1 |
| Resource use         | Unit         | A1      | A2       | A3      | A1-A3   | C2       | C3       | C4       | D         | Total   |
| PERE                 | MJ           | 6.08E+0 | 1.14E-1  | 7.46E+1 | 8.08E+1 | 3.62E-2  | 8.36E-1  | 6.59E-3  | -1.38E+0  | 8.03E+1 |
| PERM                 | MJ           | 0       | 0        | 0       | 0       | 0        | 0        | 0        | 0         | 0       |
| PERT                 | MJ           | 6.08E+0 | 1.14E-1  | 7.46E+1 | 8.08E+1 | 3.62E-2  | 8.36E-1  | 6.59E-3  | -1.38E+0  | 8.03E+1 |
| PENRE                | MJ           | 6.19E+2 | 8.67E+0  | 4.66E+1 | 6.74E+2 | 2.68E+0  | 1.76E+1  | 1.52E-1  | -3.25E+2  | 3.70E+2 |
| PENRM                | MJ           | 0       | 0        | 0       | 0       | 0        | 0        | 0        | 0         | 0       |
| PENRT                | MJ           | 6.19E+2 | 8.67E+0  | 4.66E+1 | 6.74E+2 | 2.68E+0  | 1.76E+1  | 1.52E-1  | -3.25E+2  | 3.70E+2 |
| PET                  | MJ           | 6.25E+2 | 8.78E+0  | 1.21E+2 | 7.55E+2 | 2.72E+0  | 1.84E+1  | 1.59E-1  | -3.26E+2  | 4.50E+2 |
| 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           | 1.25E-1 | 9.02E-4  | 1.26E-2 | 1.39E-1 | 2.86E-4  | 1.01E-2  | 1.79E-4  | -3.00E-2  | 1.19E-1 |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 6.26E-5 | 2.03E-5 | 4.47E-5 | 1.28E-4 | 6.46E-6 | 2.75E-5 | 1.71E-7 | -4.26E-5 | 1.19E-4 |
| NHWD                              | kg   | 1.82E+0 | 4.86E-1 | 2.09E-1 | 2.51E+0 | 1.57E-1 | 8.18E-1 | 6.26E-1 | -1.41E-1 | 3.97E+0 |
| RWD                               | kg   | 1.23E-4 | 5.56E-5 | 3.38E-5 | 2.12E-4 | 1.72E-5 | 6.30E-5 | 9.46E-7 | -1.77E-5 | 2.76E-4 |
| 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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