# Environmental Profile

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

Ecochain v3.5.71

| | |
|---|---|
| Product: | 3039676 - Wavin UR Coupler BN 300 SN8 D/S |
| Unit: | 1 piece |
| Manufacturer: | Wavin - UK - Chippenham - Verified |

Wavin Osma UltraRib Corrugated pipe systems are designed for use in gravity drainage and sewerage installations at depths of up to 10 metres. Osma UltraRib is a fully socketed system of pipe and fittings which combines secure jointing with ease of installation.

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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 - Chippenham - 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 | 7.44E+0 | 3.22E-1 | 5.89E-1 | 8.35E+0 | 9.95E-2 | 2.70E+0 | 3.11E-2 | -4.15E+0 | 7.03E+0 |
| GWP-f | kg CO2 eq | 7.37E+0 | 3.22E-1 | 5.70E-1 | 8.26E+0 | 9.94E-2 | 2.70E+0 | 3.11E-2 | -4.12E+0 | 6.98E+0 |
| GWP-b | kg CO2 eq | 6.57E-2 | -6.92E-5 | 1.84E-2 | 8.41E-2 | 6.04E-5 | -2.72E-3 | 3.92E-5 | -2.91E-2 | 5.23E-2 |
| GWP-luluc | kg CO2 eq | 6.15E-3 | 2.12E-4 | 4.25E-4 | 6.79E-3 | 3.52E-5 | 1.23E-3 | 8.28E-7 | -2.70E-3 | 5.35E-3 |
| ODP | kg CFC11 eq | 4.13E-6 | 6.54E-8 | 5.74E-8 | 4.25E-6 | 2.29E-8 | 3.36E-7 | 1.17E-9 | -2.10E-6 | 2.51E-6 |
| AP | mol H+ eq | 3.42E-2 | 9.63E-3 | 2.94E-3 | 4.68E-2 | 5.66E-4 | 5.64E-3 | 2.85E-5 | -1.58E-2 | 3.73E-2 |
| EP-fw | kg P eq | 3.37E-4 | 1.45E-6 | 7.72E-6 | 3.46E-4 | 8.18E-7 | 4.10E-5 | 3.73E-8 | -1.54E-4 | 2.34E-4 |
| EP-m | kg N eq | 5.77E-3 | 2.39E-3 | 6.28E-4 | 8.78E-3 | 2.03E-4 | 1.36E-3 | 1.75E-5 | -2.72E-3 | 7.64E-3 |
| EP-T | mol N eq | 6.28E-2 | 2.65E-2 | 6.73E-3 | 9.60E-2 | 2.23E-3 | 1.50E-2 | 1.13E-4 | -2.89E-2 | 8.44E-2 |
| POCP | kg NMVOC eq | 2.13E-2 | 6.89E-3 | 3.16E-3 | 3.13E-2 | 6.38E-4 | 4.48E-3 | 3.90E-5 | -1.00E-2 | 2.64E-2 |
| ADP-mm | kg Sb eq | 4.31E-3 | 2.96E-6 | 1.22E-5 | 4.33E-3 | 2.57E-6 | 2.23E-5 | 2.86E-8 | -8.54E-5 | 4.27E-3 |
| ADP-f | MJ | 1.88E+2 | 4.19E+0 | 6.29E+0 | 1.99E+2 | 1.53E+0 | 1.54E+1 | 8.55E-2 | -1.01E+2 | 1.15E+2 |
| WDP | m3 depriv. | 1.25E+1 | 6.88E-3 | 2.03E-1 | 1.27E+1 | 4.68E-3 | 6.17E-1 | 5.81E-4 | -6.02E+0 | 7.28E+0 |
| PM | disease inc. | 2.21E-7 | 1.17E-8 | 1.96E-8 | 2.53E-7 | 8.97E-9 | 6.96E-8 | 5.88E-10 | -9.98E-8 | 2.32E-7 |
| IR | kBq U-235 eq | 4.09E-1 | 1.80E-2 | 1.70E-2 | 4.44E-1 | 6.67E-3 | 5.42E-2 | 3.92E-4 | -1.94E-1 | 3.12E-1 |
| ETP-fw | CTUe | 1.60E+2 | 2.78E+0 | 1.50E+1 | 1.77E+2 | 1.24E+0 | 1.21E+2 | 1.34E+0 | -5.79E+1 | 2.43E+2 |
| HTP-c | CTUh | 5.74E-9 | 1.78E-10 | 5.91E-10 | 6.51E-9 | 4.41E-11 | 1.72E-9 | 2.37E-12 | -2.20E-9 | 6.07E-9 |
| HTP-nc | CTUh | 1.85E-7 | 2.37E-9 | 3.90E-8 | 2.26E-7 | 1.48E-9 | 4.17E-8 | 2.57E-10 | -7.64E-8 | 1.93E-7 |
| SQP | Pt | 2.41E+1 | 9.09E-1 | 2.01E+0 | 2.70E+1 | 1.31E+0 | 9.48E+0 | 2.18E-1 | -1.07E+1 | 2.73E+1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 9.28E+0 | 3.18E-2 | 2.95E+1 | 3.88E+1 | 2.19E-2 | 1.13E+0 | 3.15E-3 | -4.37E+0 | 3.56E+1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 9.28E+0 | 3.18E-2 | 2.95E+1 | 3.88E+1 | 2.19E-2 | 1.13E+0 | 3.15E-3 | -4.37E+0 | 3.56E+1 |
| PENRE | MJ | 2.02E+2 | 4.45E+0 | 6.68E+0 | 2.13E+2 | 1.62E+0 | 1.64E+1 | 9.07E-2 | -1.08E+2 | 1.23E+2 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 2.02E+2 | 4.45E+0 | 6.68E+0 | 2.13E+2 | 1.62E+0 | 1.64E+1 | 9.07E-2 | -1.08E+2 | 1.23E+2 |
| PET | MJ | 2.11E+2 | 4.48E+0 | 3.61E+1 | 2.52E+2 | 1.64E+0 | 1.75E+1 | 9.38E-2 | -1.13E+2 | 1.58E+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 | 1.36E-1 | 2.47E-4 | 5.70E-3 | 1.41E-1 | 1.73E-4 | 1.69E-2 | 1.05E-4 | -6.27E-2 | 9.59E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 6.69E-4 | 4.61E-6 | 7.11E-5 | 7.45E-4 | 3.90E-6 | 2.49E-5 | 1.04E-7 | -8.33E-5 | 6.91E-4 |
| NHWD | kg | 7.24E-1 | 3.81E-2 | 1.43E-2 | 7.76E-1 | 9.46E-2 | 5.57E-1 | 3.78E-1 | -3.20E-1 | 1.49E+0 |
| RWD | kg | 3.55E-4 | 2.91E-5 | 1.88E-5 | 4.03E-4 | 1.04E-5 | 5.77E-5 | 5.56E-7 | -1.71E-4 | 3.01E-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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