# Environmental Profile

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

Ecochain v3.5.71

| | |
|---|---|
| Product: | 3039651 - Wavin UR Adapt-URSktxBSSpt BN 150 SN8 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 | 1.03E+0 | 4.44E-2 | 8.32E-2 | 1.16E+0 | 1.38E-2 | 3.73E-1 | 4.30E-3 | -5.73E-1 | 9.74E-1 |
| GWP-f | kg CO2 eq | 1.02E+0 | 4.44E-2 | 8.05E-2 | 1.14E+0 | 1.37E-2 | 3.73E-1 | 4.30E-3 | -5.69E-1 | 9.66E-1 |
| GWP-b | kg CO2 eq | 9.08E-3 | -9.53E-6 | 2.60E-3 | 1.17E-2 | 8.34E-6 | -3.76E-4 | 5.41E-6 | -4.02E-3 | 7.29E-3 |
| GWP-luluc | kg CO2 eq | 8.51E-4 | 2.92E-5 | 6.00E-5 | 9.40E-4 | 4.86E-6 | 1.69E-4 | 1.14E-7 | -3.73E-4 | 7.41E-4 |
| ODP | kg CFC11 eq | 5.69E-7 | 9.04E-9 | 8.10E-9 | 5.87E-7 | 3.17E-9 | 4.64E-8 | 1.62E-10 | -2.90E-7 | 3.47E-7 |
| AP | mol H+ eq | 4.73E-3 | 1.33E-3 | 4.15E-4 | 6.47E-3 | 7.83E-5 | 7.79E-4 | 3.93E-6 | -2.18E-3 | 5.16E-3 |
| EP-fw | kg P eq | 4.66E-5 | 2.00E-7 | 1.09E-6 | 4.79E-5 | 1.13E-7 | 5.66E-6 | 5.16E-9 | -2.13E-5 | 3.24E-5 |
| EP-m | kg N eq | 7.97E-4 | 3.29E-4 | 8.88E-5 | 1.22E-3 | 2.80E-5 | 1.88E-4 | 2.41E-6 | -3.76E-4 | 1.06E-3 |
| EP-T | mol N eq | 8.68E-3 | 3.66E-3 | 9.50E-4 | 1.33E-2 | 3.09E-4 | 2.07E-3 | 1.57E-5 | -3.99E-3 | 1.17E-2 |
| POCP | kg NMVOC eq | 2.94E-3 | 9.51E-4 | 4.46E-4 | 4.34E-3 | 8.82E-5 | 6.19E-4 | 5.39E-6 | -1.39E-3 | 3.66E-3 |
| ADP-mm | kg Sb eq | 6.05E-4 | 4.10E-7 | 1.72E-6 | 6.07E-4 | 3.55E-7 | 3.08E-6 | 3.95E-9 | -1.18E-5 | 5.98E-4 |
| ADP-f | MJ | 2.60E+1 | 5.79E-1 | 8.89E-1 | 2.75E+1 | 2.11E-1 | 2.13E+0 | 1.18E-2 | -1.39E+1 | 1.59E+1 |
| WDP | m3 depriv. | 1.72E+0 | 9.51E-4 | 2.86E-2 | 1.75E+0 | 6.47E-4 | 8.53E-2 | 8.06E-5 | -8.31E-1 | 1.01E+0 |
| PM | disease inc. | 3.06E-8 | 1.62E-9 | 2.77E-9 | 3.50E-8 | 1.24E-9 | 9.62E-9 | 8.12E-11 | -1.38E-8 | 3.21E-8 |
| IR | kBq U-235 eq | 5.65E-2 | 2.49E-3 | 2.41E-3 | 6.14E-2 | 9.22E-4 | 7.49E-3 | 5.42E-5 | -2.68E-2 | 4.31E-2 |
| ETP-fw | CTUe | 2.21E+1 | 3.84E-1 | 2.12E+0 | 2.46E+1 | 1.71E-1 | 1.66E+1 | 1.85E-1 | -7.99E+0 | 3.36E+1 |
| HTP-c | CTUh | 7.95E-10 | 2.46E-11 | 8.34E-11 | 9.03E-10 | 6.09E-12 | 2.38E-10 | 3.27E-13 | -3.04E-10 | 8.43E-10 |
| HTP-nc | CTUh | 2.56E-8 | 3.28E-10 | 5.51E-9 | 3.14E-8 | 2.04E-10 | 5.75E-9 | 3.55E-11 | -1.05E-8 | 2.68E-8 |
| SQP | Pt | 3.34E+0 | 1.26E-1 | 2.84E-1 | 3.74E+0 | 1.80E-1 | 1.31E+0 | 3.02E-2 | -1.48E+0 | 3.79E+0 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 1.28E+0 | 4.40E-3 | 4.16E+0 | 5.45E+0 | 3.03E-3 | 1.55E-1 | 4.35E-4 | -6.03E-1 | 5.00E+0 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 1.28E+0 | 4.40E-3 | 4.16E+0 | 5.45E+0 | 3.03E-3 | 1.55E-1 | 4.35E-4 | -6.03E-1 | 5.00E+0 |
| PENRE | MJ | 2.79E+1 | 6.14E-1 | 9.43E-1 | 2.94E+1 | 2.24E-1 | 2.27E+0 | 1.25E-2 | -1.50E+1 | 1.70E+1 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 2.79E+1 | 6.14E-1 | 9.43E-1 | 2.94E+1 | 2.24E-1 | 2.27E+0 | 1.25E-2 | -1.50E+1 | 1.70E+1 |
| PET | MJ | 2.92E+1 | 6.19E-1 | 5.10E+0 | 3.49E+1 | 2.27E-1 | 2.42E+0 | 1.30E-2 | -1.56E+1 | 2.20E+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 | 1.87E-2 | 3.42E-5 | 8.06E-4 | 1.96E-2 | 2.39E-5 | 2.33E-3 | 1.44E-5 | -8.67E-3 | 1.33E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.36E-5 | 6.37E-7 | 1.00E-5 | 1.04E-4 | 5.39E-7 | 3.43E-6 | 1.44E-8 | -1.15E-5 | 9.68E-5 |
| NHWD | kg | 1.00E-1 | 5.28E-3 | 2.02E-3 | 1.07E-1 | 1.31E-2 | 7.70E-2 | 5.23E-2 | -4.42E-2 | 2.05E-1 |
| RWD | kg | 4.91E-5 | 4.01E-6 | 2.66E-6 | 5.58E-5 | 1.43E-6 | 7.97E-6 | 7.68E-8 | -2.36E-5 | 4.17E-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

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