# Environmental Profile

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

Ecochain v4.0.3

| | |
|---|---|
| Product: | 3041542 - Tegra NG2 1000 PP Cross 45° 160 SW |
| Unit: | 1 piece |
| Manufacturer: | Wavin |

Wavin's Tegra drains that Wavin offers are also part of a sustainable total solution for your sewer system. Your system becomes accessible for inspection and maintenance-friendly thanks to our flow profiles. Tegra wells are resistant to acids, bases and solvents.

| | |
|---|---|
| LCA standard: | EN15804+A2 (2019) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 26-07-2023 |
| End of validity: | 26-07-2028 |
| 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 (2021). (☑ = 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 | 1.08E+2 | 4.08E+0 | 1.59E+0 | 1.13E+2 | 1.49E+0 | 5.72E+1 | 7.02E-1 | -6.98E+1 | 1.03E+2 |
| GWP-f | kg CO2 eq | 1.24E+2 | 4.07E+0 | 1.61E+0 | 1.29E+2 | 1.49E+0 | 4.33E+1 | 7.02E-1 | -6.96E+1 | 1.05E+2 |
| GWP-b | kg CO2 eq | -1.61E+1 | 1.88E-3 | -1.88E-2 | -1.62E+1 | 9.04E-4 | 1.39E+1 | 6.11E-4 | -2.37E-1 | -2.49E+0 |
| GWP-luluc | kg CO2 eq | 4.40E-2 | 1.49E-3 | 1.75E-3 | 4.73E-2 | 5.27E-4 | 8.39E-3 | 1.19E-5 | -1.97E-2 | 3.65E-2 |
| ODP | kg CFC11 eq | 3.90E-6 | 8.99E-7 | 9.07E-8 | 4.89E-6 | 3.43E-7 | 1.10E-6 | 1.76E-8 | -2.74E-6 | 3.61E-6 |
| AP | mol H+ eq | 4.62E-1 | 2.36E-2 | 1.76E-2 | 5.04E-1 | 8.48E-3 | 4.62E-2 | 4.20E-4 | -2.02E-1 | 3.57E-1 |
| EP-fw | kg P eq | 1.97E-3 | 4.11E-5 | 9.97E-5 | 2.11E-3 | 1.22E-5 | 2.42E-4 | 5.47E-7 | -8.31E-4 | 1.54E-3 |
| EP-m | kg N eq | 7.92E-2 | 8.33E-3 | 1.80E-3 | 8.93E-2 | 3.03E-3 | 1.35E-2 | 2.73E-4 | -3.69E-2 | 6.92E-2 |
| EP-T | mol N eq | 9.09E-1 | 9.18E-2 | 2.15E-2 | 1.02E+0 | 3.34E-2 | 1.48E-1 | 1.70E-3 | -4.11E-1 | 7.95E-1 |
| POCP | kg NMVOC eq | 4.02E-1 | 2.62E-2 | 7.22E-3 | 4.35E-1 | 9.56E-3 | 4.69E-2 | 6.40E-4 | -1.86E-1 | 3.06E-1 |
| ADP-mm | kg Sb eq | 3.15E-3 | 1.03E-4 | 2.25E-4 | 3.47E-3 | 3.85E-5 | 1.83E-4 | 4.23E-7 | -4.79E-4 | 3.22E-3 |
| ADP-f | MJ | 4.30E+3 | 6.14E+1 | 1.54E+1 | 4.37E+3 | 2.29E+1 | 1.46E+2 | 1.28E+0 | -2.17E+3 | 2.38E+3 |
| WDP | m3 depriv. | 8.31E+1 | 2.20E-1 | 6.23E-1 | 8.40E+1 | 7.01E-2 | 2.85E+0 | 6.47E-3 | -3.74E+1 | 4.95E+1 |
| PM | disease inc. | 4.48E-6 | 3.66E-7 | 1.05E-7 | 4.95E-6 | 1.34E-7 | 7.59E-7 | 8.83E-9 | -1.84E-6 | 4.01E-6 |
| IR | kBq U-235 eq | 2.67E+0 | 2.57E-1 | 1.14E-2 | 2.94E+0 | 9.99E-2 | 4.42E-1 | 5.96E-3 | -1.08E+0 | 2.41E+0 |
| ETP-fw | CTUe | 8.68E+2 | 5.48E+1 | 1.45E+2 | 1.07E+3 | 1.86E+1 | 1.64E+2 | 1.08E+0 | -3.17E+2 | 9.34E+2 |
| HTP-c | CTUh | 4.24E-8 | 1.78E-9 | 7.46E-9 | 5.16E-8 | 6.60E-10 | 1.99E-8 | 3.14E-11 | -1.63E-8 | 5.60E-8 |
| HTP-nc | CTUh | 9.49E-7 | 5.99E-8 | 1.87E-7 | 1.20E-6 | 2.21E-8 | 2.45E-7 | 6.92E-10 | -3.61E-7 | 1.10E-6 |
| SQP | Pt | 1.63E+3 | 5.33E+1 | 2.62E+1 | 1.71E+3 | 1.95E+1 | 1.17E+2 | 3.30E+0 | -1.04E+3 | 8.14E+2 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 3.75E+2 | 7.69E-1 | 2.84E+2 | 6.59E+2 | 3.28E-1 | 7.19E+0 | 4.98E-2 | -1.73E+2 | 4.94E+2 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 3.75E+2 | 7.69E-1 | 2.84E+2 | 6.59E+2 | 3.28E-1 | 7.19E+0 | 4.98E-2 | -1.73E+2 | 4.94E+2 |
| PENRE | MJ | 4.61E+3 | 6.52E+1 | 1.64E+1 | 4.69E+3 | 2.43E+1 | 1.56E+2 | 1.36E+0 | -2.34E+3 | 2.54E+3 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 4.61E+3 | 6.52E+1 | 1.64E+1 | 4.69E+3 | 2.43E+1 | 1.56E+2 | 1.36E+0 | -2.34E+3 | 2.54E+3 |
| PET | MJ | 4.99E+3 | 6.60E+1 | 3.00E+2 | 5.35E+3 | 2.46E+1 | 1.63E+2 | 1.41E+0 | -2.51E+3 | 3.03E+3 |
| 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 | 1.28E+0 | 7.48E-3 | 1.73E-2 | 1.30E+0 | 2.59E-3 | 8.41E-2 | 1.58E-3 | -5.68E-1 | 8.23E-1 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 8.24E-4 | 1.56E-4 | 3.25E-9 | 9.80E-4 | 5.84E-5 | 2.38E-4 | 1.55E-6 | -5.71E-4 | 7.06E-4 |
| NHWD | kg | 7.64E+0 | 3.90E+0 | 1.28E-2 | 1.16E+1 | 1.42E+0 | 7.17E+0 | 5.66E+0 | -2.18E+0 | 2.36E+1 |
| RWD | kg | 2.64E-3 | 4.03E-4 | 1.21E-9 | 3.04E-3 | 1.55E-4 | 5.61E-4 | 8.39E-6 | -9.97E-4 | 2.77E-3 |
| 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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