# Environmental Profile

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

Ecochain v4.3.1

| | |
|---|---|
| Product: | 3051005 - PPr Tee WT 125 |
| Unit: | 1 piece |
| Manufacturer: | Wavin - TR - Adana |
| Location: | Güzelevler Mahallesi |
| Address: | Girne Bulvarı 294<br>01321 Adana<br>Turkey |

| | |
|---|---|
| LCA standard: | EN15804+A2 (2019) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 04-10-2022 |
| End of validity: | 04-10-2027 |
| 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 - TR - Adana (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-f** = EF Resource use, fossils [MJ]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **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 | 4.44E+0 | 3.29E-1 | 1.28E-1 | 4.90E+0 | 1.07E-1 | 3.47E+0 | 5.05E-2 | -2.44E+0 | 6.09E+0 |
| GWP-f | kg CO2 eq | 4.42E+0 | 3.29E-1 | 1.24E-1 | 4.88E+0 | 1.07E-1 | 3.29E+0 | 5.05E-2 | -2.64E+0 | 5.68E+0 |
| GWP-b | kg CO2 eq | 2.01E-2 | -5.98E-5 | 4.33E-3 | 2.43E-2 | 6.50E-5 | 1.80E-1 | 4.39E-5 | 2.02E-1 | 4.06E-1 |
| GWP-luluc | kg CO2 eq | 2.47E-3 | 2.10E-4 | 7.55E-5 | 2.76E-3 | 3.79E-5 | 6.13E-4 | 8.59E-7 | -1.95E-3 | 1.46E-3 |
| ODP | kg CFC11 eq | 1.07E-7 | 6.71E-8 | 9.93E-9 | 1.84E-7 | 2.47E-8 | 8.42E-8 | 1.27E-9 | -1.11E-7 | 1.83E-7 |
| AP | mol H+ eq | 1.80E-2 | 9.28E-3 | 7.88E-4 | 2.80E-2 | 6.10E-4 | 3.51E-3 | 3.02E-5 | -8.00E-3 | 2.42E-2 |
| EP-fw | kg P eq | 7.95E-5 | 1.64E-6 | 9.89E-6 | 9.10E-5 | 8.81E-7 | 1.78E-5 | 3.94E-8 | -4.56E-5 | 6.42E-5 |
| EP-m | kg N eq | 2.92E-3 | 2.31E-3 | 2.75E-4 | 5.51E-3 | 2.18E-4 | 1.04E-3 | 1.96E-5 | -1.47E-3 | 5.31E-3 |
| EP-T | mol N eq | 3.20E-2 | 2.57E-2 | 1.86E-3 | 5.96E-2 | 2.40E-3 | 1.14E-2 | 1.23E-4 | -1.64E-2 | 5.72E-2 |
| POCP | kg NMVOC eq | 1.40E-2 | 6.69E-3 | 6.07E-4 | 2.13E-2 | 6.87E-4 | 3.60E-3 | 4.60E-5 | -6.99E-3 | 1.86E-2 |
| ADP-f | MJ | 1.51E+2 | 4.33E+0 | 1.23E+0 | 1.57E+2 | 1.64E+0 | 1.08E+1 | 9.24E-2 | -8.10E+1 | 8.86E+1 |
| ADP-mm | kg Sb eq | 5.82E-5 | 3.39E-6 | 9.82E-6 | 7.14E-5 | 2.77E-6 | 1.39E-5 | 3.04E-8 | -1.79E-5 | 7.03E-5 |
| WDP | m3 depriv. | 3.11E+0 | 7.95E-3 | 2.56E-1 | 3.37E+0 | 5.04E-3 | 2.08E-1 | 4.67E-4 | -1.66E+0 | 1.92E+0 |
| PM | disease inc. | 1.52E-7 | 1.32E-8 | 1.08E-8 | 1.76E-7 | 9.66E-9 | 5.74E-8 | 6.35E-10 | -7.83E-8 | 1.65E-7 |
| IR | kBq U-235 eq | 8.91E-2 | 1.85E-2 | 3.69E-3 | 1.11E-1 | 7.18E-3 | 3.32E-2 | 4.28E-4 | -4.96E-2 | 1.03E-1 |
| ETP-fw | CTUe | 5.07E+1 | 2.98E+0 | 6.65E+0 | 6.03E+1 | 1.33E+0 | 1.26E+1 | 7.73E-2 | -2.56E+1 | 4.86E+1 |
| HTP-c | CTUh | 1.40E-9 | 1.80E-10 | 4.05E-10 | 1.98E-9 | 4.75E-11 | 1.50E-9 | 2.26E-12 | -5.38E-10 | 2.99E-9 |
| HTP-nc | CTUh | 3.24E-8 | 2.59E-9 | 7.14E-9 | 4.21E-8 | 1.59E-9 | 1.83E-8 | 4.98E-11 | -1.59E-8 | 4.62E-8 |
| SQP | Pt | 1.46E+1 | 1.15E+0 | 1.64E+0 | 1.74E+1 | 1.41E+0 | 8.57E+0 | 2.37E-1 | -3.98E+1 | -1.22E+1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 4.06E+0 | 3.30E-2 | 2.24E+1 | 2.64E+1 | 2.36E-2 | 5.27E-1 | 3.58E-3 | -7.82E+0 | 1.92E+1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 4.06E+0 | 3.30E-2 | 2.24E+1 | 2.64E+1 | 2.36E-2 | 5.27E-1 | 3.58E-3 | -7.82E+0 | 1.92E+1 |
| PENRE | MJ | 1.63E+2 | 4.59E+0 | 1.31E+0 | 1.68E+2 | 1.74E+0 | 1.15E+1 | 9.80E-2 | -8.73E+1 | 9.46E+1 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 1.63E+2 | 4.59E+0 | 1.31E+0 | 1.68E+2 | 1.74E+0 | 1.15E+1 | 9.80E-2 | -8.73E+1 | 9.46E+1 |
| PET | MJ | 1.67E+2 | 4.63E+0 | 2.37E+1 | 1.95E+2 | 1.77E+0 | 1.21E+1 | 1.02E-1 | -9.51E+1 | 1.14E+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 | 4.97E-2 | 2.78E-4 | 6.13E-3 | 5.61E-2 | 1.86E-4 | 6.20E-3 | 1.14E-4 | -2.82E-2 | 3.44E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 2.33E-5 | 5.28E-6 | 7.91E-6 | 3.65E-5 | 4.20E-6 | 1.80E-5 | 1.11E-7 | -2.15E-5 | 3.74E-5 |
| NHWD | kg | 2.87E-1 | 5.71E-2 | 1.47E-1 | 4.91E-1 | 1.02E-1 | 5.35E-1 | 4.07E-1 | -7.71E-2 | 1.46E+0 |
| RWD | kg | 7.95E-5 | 2.98E-5 | 4.52E-6 | 1.14E-4 | 1.12E-5 | 4.24E-5 | 6.03E-7 | -4.54E-5 | 1.23E-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 | 5.35E+0 | 5.35E+0 | 0 | 0 | 0 | 0 | 5.35E+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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