# Environmental Profile

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

Ecochain v3.5.64

| | |
|---|---|
| Product: | 3003824 - PE Eccentric Reducer 75x40 |
| Unit: | 1 piece |
| Manufacturer: | Wavin - IT - SM Maddalena |

| | |
|---|---|
| LCA standard: | EN15804+A2 (2019) |
| Standard database: | Worldwide - Ecoinvent v 3.6 Cut-Off |
| Externally verified: | Yes |
| Issue date: | 24-11-2022 |
| End of validity: | 24-11-2027 |
| 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 - IT - SM Maddalena (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 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF 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 | 7.81E-2 | 1.03E-2 | 6.00E-3 | 9.44E-2 | 1.05E-3 | 5.44E-2 | 5.83E-4 | -4.99E-2 | 1.01E-1 |
| GWP-f | kg CO2 eq | 9.22E-2 | 1.03E-2 | 5.14E-3 | 1.08E-1 | 1.05E-3 | 3.51E-2 | 5.84E-4 | -6.02E-2 | 8.43E-2 |
| GWP-b | kg CO2 eq | -1.42E-2 | 5.86E-6 | 4.34E-4 | -1.37E-2 | 6.39E-7 | 1.93E-2 | 4.38E-7 | 1.03E-2 | 1.58E-2 |
| GWP-luluc | kg CO2 eq | 9.08E-5 | 3.79E-6 | 4.34E-4 | 5.28E-4 | 3.73E-7 | 6.23E-6 | 8.37E-9 | -9.20E-5 | 4.43E-4 |
| ODP | kg CFC11 eq | 5.94E-9 | 2.37E-9 | 5.15E-10 | 8.82E-9 | 2.43E-10 | 9.30E-10 | 1.24E-11 | -3.51E-9 | 6.50E-9 |
| AP | mol H+ eq | 3.70E-4 | 7.23E-5 | 2.07E-5 | 4.63E-4 | 6.00E-6 | 3.80E-5 | 2.97E-7 | -2.08E-4 | 2.99E-4 |
| EP-fw | kg P eq | 2.10E-6 | 8.28E-8 | 7.98E-8 | 2.26E-6 | 8.66E-9 | 1.83E-7 | 3.86E-10 | -1.66E-6 | 7.97E-7 |
| EP-m | kg N eq | 7.23E-5 | 2.41E-5 | 3.50E-6 | 9.99E-5 | 2.15E-6 | 1.15E-5 | 2.10E-7 | -4.15E-5 | 7.23E-5 |
| EP-T | mol N eq | 7.86E-4 | 2.66E-4 | 3.93E-5 | 1.09E-3 | 2.36E-5 | 1.27E-4 | 1.21E-6 | -4.70E-4 | 7.73E-4 |
| POCP | kg NMVOC eq | 3.22E-4 | 7.48E-5 | 1.22E-5 | 4.09E-4 | 6.76E-6 | 3.96E-5 | 4.73E-7 | -1.86E-4 | 2.71E-4 |
| ADP-mm | kg Sb eq | 1.26E-6 | 2.58E-7 | 1.25E-7 | 1.64E-6 | 2.72E-8 | 1.51E-7 | 2.98E-10 | -4.43E-7 | 1.37E-6 |
| ADP-f | MJ | 3.03E+0 | 1.57E-1 | 6.76E-2 | 3.25E+0 | 1.62E-2 | 1.13E-1 | 9.09E-4 | -1.71E+0 | 1.67E+0 |
| WDP | m3 depriv. | 6.55E-2 | 4.72E-4 | 2.39E-2 | 8.99E-2 | 4.96E-5 | 2.10E-3 | 4.16E-6 | -4.62E-2 | 4.58E-2 |
| PM | disease inc. | 4.01E-9 | 9.03E-10 | 2.07E-10 | 5.12E-9 | 9.50E-11 | 6.16E-10 | 6.24E-12 | -2.40E-9 | 3.43E-9 |
| IR | kBq U-235 eq | 3.03E-3 | 6.87E-4 | 6.31E-5 | 3.78E-3 | 7.06E-5 | 3.57E-4 | 4.24E-6 | -1.69E-3 | 2.52E-3 |
| ETP-fw | CTUe | 1.89E+0 | 1.27E-1 | 1.07E-1 | 2.12E+0 | 1.31E-2 | 1.36E-1 | 8.01E-4 | -1.08E+0 | 1.19E+0 |
| HTP-c | CTUh | 3.45E-11 | 4.62E-12 | 5.69E-12 | 4.48E-11 | 4.67E-13 | 1.55E-11 | 2.21E-14 | -2.23E-11 | 3.85E-11 |
| HTP-nc | CTUh | 7.18E-10 | 1.49E-10 | 1.18E-10 | 9.85E-10 | 1.56E-11 | 1.93E-10 | 5.09E-13 | -4.95E-10 | 6.98E-10 |
| SQP | Pt | 1.78E+0 | 1.30E-1 | 1.23E-2 | 1.92E+0 | 1.38E-2 | 8.82E-2 | 2.33E-3 | -2.96E+0 | -9.40E-1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 3.12E-1 | 2.21E-3 | 2.34E-1 | 5.48E-1 | 2.32E-4 | 5.38E-3 | 3.60E-5 | -5.19E-1 | 3.47E-2 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 3.12E-1 | 2.21E-3 | 2.34E-1 | 5.48E-1 | 2.32E-4 | 5.38E-3 | 3.60E-5 | -5.19E-1 | 3.47E-2 |
| PENRE | MJ | 3.25E+0 | 1.67E-1 | 7.37E-2 | 3.49E+0 | 1.72E-2 | 1.21E-1 | 9.64E-4 | -1.84E+0 | 1.79E+0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 3.25E+0 | 1.67E-1 | 7.37E-2 | 3.49E+0 | 1.72E-2 | 1.21E-1 | 9.64E-4 | -1.84E+0 | 1.79E+0 |
| PET | MJ | 3.56E+0 | 1.69E-1 | 3.08E-1 | 4.03E+0 | 1.74E-2 | 1.26E-1 | 1.00E-3 | -2.36E+0 | 1.82E+0 |
| 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 | 1.08E-3 | 1.74E-5 | 5.68E-4 | 1.67E-3 | 1.83E-6 | 6.35E-5 | 1.12E-6 | -8.78E-4 | 8.54E-4 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 7.38E-7 | 3.92E-7 | 6.57E-8 | 1.20E-6 | 4.13E-8 | 1.96E-7 | 1.09E-9 | -6.74E-7 | 7.60E-7 |
| NHWD | kg | 5.66E-3 | 9.37E-3 | 6.40E-4 | 1.57E-2 | 1.00E-3 | 5.51E-3 | 4.00E-3 | -2.68E-3 | 2.35E-2 |
| RWD | kg | 3.30E-6 | 1.07E-6 | 7.01E-8 | 4.44E-6 | 1.10E-7 | 4.60E-7 | 5.94E-9 | -1.61E-6 | 3.41E-6 |
| 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

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