# Environmental Profile

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

Ecochain v3.5.64

| | |
|---|---|
| Product: | 3003801 - PE Concentric Reducer S12,5 75x63 |
| 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 | 1.04E-1 | 1.38E-2 | 8.10E-3 | 1.26E-1 | 1.42E-3 | 6.52E-2 | 7.88E-4 | -6.95E-2 | 1.24E-1 |
| GWP-f | kg CO2 eq | 1.18E-1 | 1.38E-2 | 6.93E-3 | 1.39E-1 | 1.42E-3 | 4.70E-2 | 7.88E-4 | -7.73E-2 | 1.11E-1 |
| GWP-b | kg CO2 eq | -1.41E-2 | 7.80E-6 | 5.86E-4 | -1.35E-2 | 8.63E-7 | 1.82E-2 | 5.91E-7 | 7.92E-3 | 1.27E-2 |
| GWP-luluc | kg CO2 eq | 8.66E-5 | 5.05E-6 | 5.85E-4 | 6.77E-4 | 5.03E-7 | 8.24E-6 | 1.13E-8 | -8.02E-5 | 6.06E-4 |
| ODP | kg CFC11 eq | 7.22E-9 | 3.15E-9 | 6.96E-10 | 1.11E-8 | 3.28E-10 | 1.17E-9 | 1.68E-11 | -4.23E-9 | 8.35E-9 |
| AP | mol H+ eq | 4.65E-4 | 9.66E-5 | 2.80E-5 | 5.89E-4 | 8.10E-6 | 4.82E-5 | 4.01E-7 | -2.48E-4 | 3.98E-4 |
| EP-fw | kg P eq | 2.43E-6 | 1.10E-7 | 1.08E-7 | 2.64E-6 | 1.17E-8 | 2.40E-7 | 5.20E-10 | -1.69E-6 | 1.21E-6 |
| EP-m | kg N eq | 8.62E-5 | 3.22E-5 | 4.72E-6 | 1.23E-4 | 2.90E-6 | 1.44E-5 | 2.84E-7 | -4.83E-5 | 9.23E-5 |
| EP-T | mol N eq | 9.50E-4 | 3.55E-4 | 5.31E-5 | 1.36E-3 | 3.19E-5 | 1.58E-4 | 1.63E-6 | -5.44E-4 | 1.01E-3 |
| POCP | kg NMVOC eq | 4.09E-4 | 9.98E-5 | 1.65E-5 | 5.25E-4 | 9.13E-6 | 4.97E-5 | 6.38E-7 | -2.27E-4 | 3.58E-4 |
| ADP-mm | kg Sb eq | 1.61E-6 | 3.43E-7 | 1.69E-7 | 2.12E-6 | 3.68E-8 | 1.91E-7 | 4.02E-10 | -5.47E-7 | 1.80E-6 |
| ADP-f | MJ | 3.99E+0 | 2.10E-1 | 9.13E-2 | 4.29E+0 | 2.18E-2 | 1.47E-1 | 1.23E-3 | -2.24E+0 | 2.23E+0 |
| WDP | m3 depriv. | 8.62E-2 | 6.28E-4 | 3.23E-2 | 1.19E-1 | 6.70E-5 | 2.79E-3 | 5.62E-6 | -5.37E-2 | 6.84E-2 |
| PM | disease inc. | 4.85E-9 | 1.20E-9 | 2.80E-10 | 6.33E-9 | 1.28E-10 | 7.86E-10 | 8.43E-12 | -2.59E-9 | 4.66E-9 |
| IR | kBq U-235 eq | 3.80E-3 | 9.16E-4 | 8.51E-5 | 4.80E-3 | 9.54E-5 | 4.56E-4 | 5.72E-6 | -1.88E-3 | 3.47E-3 |
| ETP-fw | CTUe | 1.79E+0 | 1.69E-1 | 1.44E-1 | 2.10E+0 | 1.77E-2 | 1.73E-1 | 1.08E-3 | -9.86E-1 | 1.31E+0 |
| HTP-c | CTUh | 4.15E-11 | 6.16E-12 | 7.68E-12 | 5.53E-11 | 6.30E-13 | 2.00E-11 | 2.98E-14 | -2.47E-11 | 5.12E-11 |
| HTP-nc | CTUh | 8.69E-10 | 1.99E-10 | 1.59E-10 | 1.23E-9 | 2.11E-11 | 2.50E-10 | 6.88E-13 | -5.35E-10 | 9.64E-10 |
| SQP | Pt | 1.73E+0 | 1.73E-1 | 1.66E-2 | 1.92E+0 | 1.87E-2 | 1.16E-1 | 3.15E-3 | -2.57E+0 | -5.10E-1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 3.09E-1 | 2.94E-3 | 3.16E-1 | 6.27E-1 | 3.13E-4 | 7.09E-3 | 4.86E-5 | -4.52E-1 | 1.83E-1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 3.09E-1 | 2.94E-3 | 3.16E-1 | 6.27E-1 | 3.13E-4 | 7.09E-3 | 4.86E-5 | -4.52E-1 | 1.83E-1 |
| PENRE | MJ | 4.28E+0 | 2.23E-1 | 9.95E-2 | 4.61E+0 | 2.32E-2 | 1.57E-1 | 1.30E-3 | -2.41E+0 | 2.37E+0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 4.28E+0 | 2.23E-1 | 9.95E-2 | 4.61E+0 | 2.32E-2 | 1.57E-1 | 1.30E-3 | -2.41E+0 | 2.37E+0 |
| PET | MJ | 4.59E+0 | 2.25E-1 | 4.15E-1 | 5.23E+0 | 2.35E-2 | 1.64E-1 | 1.35E-3 | -2.86E+0 | 2.56E+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 | 1.38E-3 | 2.32E-5 | 7.67E-4 | 2.17E-3 | 2.47E-6 | 8.35E-5 | 1.52E-6 | -9.56E-4 | 1.30E-3 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 8.52E-7 | 5.22E-7 | 8.87E-8 | 1.46E-6 | 5.58E-8 | 2.48E-7 | 1.47E-9 | -8.08E-7 | 9.60E-7 |
| NHWD | kg | 6.39E-3 | 1.25E-2 | 8.64E-4 | 1.97E-2 | 1.35E-3 | 7.18E-3 | 5.41E-3 | -2.95E-3 | 3.07E-2 |
| RWD | kg | 4.14E-6 | 1.43E-6 | 9.47E-8 | 5.66E-6 | 1.48E-7 | 5.84E-7 | 8.02E-9 | -1.79E-6 | 4.62E-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 |

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