

# Environmental Profile

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

Ecochain v3.5.64



Product: 3003836 - PE Eccentric Reducer 125x75  
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                                        |    |    |     |     | Use stage                                                                                                             |     |     |     |     |     |     | End-of-Life stage                                                             |    |    |    |   |
| A1 Raw material supply A2 Transport A3 Manufacturing |    |    |     |     | B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment<br>B6 Operational energy use B7 Operational water use |     |     |     |     |     |     | C1 De-construction demolition C2 Transport C3 Waste processing<br>C4 Disposal |    |    |    |   |
| Construction process stage                           |    |    |     |     |                                                                                                                       |     |     |     |     |     |     |                                                                               |    |    |    |   |
| A4 Transport gate to site                            |    |    |     |     |                                                                                                                       |     |     |     |     |     |     |                                                                               |    |    |    |   |
| A5 Assembly / Construction installation process      |    |    |     |     | 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

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# Results

| Environmental impact | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
|----------------------|--------------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| GWP-total            | kg CO2 eq    | 2.37E-1  | 3.06E-2  | 1.80E-2  | 2.86E-1  | 3.16E-3  | 1.43E-1  | 1.75E-3  | -1.53E-1  | 2.81E-1  |
| GWP-f                | kg CO2 eq    | 2.65E-1  | 3.06E-2  | 1.54E-2  | 3.11E-1  | 3.16E-3  | 1.05E-1  | 1.75E-3  | -1.73E-1  | 2.47E-1  |
| GWP-b                | kg CO2 eq    | -2.79E-2 | 1.73E-5  | 1.30E-3  | -2.66E-2 | 1.92E-6  | 3.85E-2  | 1.31E-6  | 2.04E-2   | 3.23E-2  |
| GWP-luluc            | kg CO2 eq    | 2.06E-4  | 1.12E-5  | 1.30E-3  | 1.52E-3  | 1.12E-6  | 1.84E-5  | 2.51E-8  | -1.96E-4  | 1.34E-3  |
| ODP                  | kg CFC11 eq  | 1.63E-8  | 7.01E-9  | 1.55E-9  | 2.49E-8  | 7.28E-10 | 2.63E-9  | 3.73E-11 | -9.55E-9  | 1.87E-8  |
| AP                   | mol H+ eq    | 1.04E-3  | 2.15E-4  | 6.22E-5  | 1.32E-3  | 1.80E-5  | 1.08E-4  | 8.91E-7  | -5.61E-4  | 8.86E-4  |
| EP-fw                | kg P eq      | 5.54E-6  | 2.45E-7  | 2.39E-7  | 6.02E-6  | 2.60E-8  | 5.36E-7  | 1.16E-9  | -3.97E-6  | 2.62E-6  |
| EP-m                 | kg N eq      | 1.95E-4  | 7.15E-5  | 1.05E-5  | 2.77E-4  | 6.44E-6  | 3.25E-5  | 6.30E-7  | -1.10E-4  | 2.07E-4  |
| EP-T                 | mol N eq     | 2.15E-3  | 7.89E-4  | 1.18E-4  | 3.05E-3  | 7.09E-5  | 3.57E-4  | 3.62E-6  | -1.24E-3  | 2.25E-3  |
| POCP                 | kg NMVOC eq  | 9.14E-4  | 2.22E-4  | 3.66E-5  | 1.17E-3  | 2.03E-5  | 1.12E-4  | 1.42E-6  | -5.09E-4  | 7.97E-4  |
| ADP-mm               | kg Sb eq     | 3.60E-6  | 7.63E-7  | 3.75E-7  | 4.74E-6  | 8.17E-8  | 4.31E-7  | 8.94E-10 | -1.23E-6  | 4.03E-6  |
| ADP-f                | MJ           | 8.90E+0  | 4.66E-1  | 2.03E-1  | 9.57E+0  | 4.85E-2  | 3.29E-1  | 2.73E-3  | -4.99E+0  | 4.96E+0  |
| WDP                  | m3 depriv.   | 1.92E-1  | 1.40E-3  | 7.17E-2  | 2.66E-1  | 1.49E-4  | 6.21E-3  | 1.25E-5  | -1.23E-1  | 1.49E-1  |
| PM                   | disease inc. | 1.09E-8  | 2.67E-9  | 6.22E-10 | 1.42E-8  | 2.85E-10 | 1.76E-9  | 1.87E-11 | -5.96E-9  | 1.03E-8  |
| IR                   | kBq U-235 eq | 8.54E-3  | 2.04E-3  | 1.89E-4  | 1.08E-2  | 2.12E-4  | 1.02E-3  | 1.27E-5  | -4.34E-3  | 7.67E-3  |
| ETP-fw               | CTUe         | 4.31E+0  | 3.75E-1  | 3.20E-1  | 5.01E+0  | 3.94E-2  | 3.89E-1  | 2.40E-3  | -2.39E+0  | 3.05E+0  |
| HTP-c                | CTUh         | 9.21E-11 | 1.37E-11 | 1.71E-11 | 1.23E-10 | 1.40E-12 | 4.48E-11 | 6.62E-14 | -5.54E-11 | 1.14E-10 |
| HTP-nc               | CTUh         | 1.96E-9  | 4.42E-10 | 3.54E-10 | 2.75E-9  | 4.69E-11 | 5.60E-10 | 1.53E-12 | -1.23E-9  | 2.13E-9  |
| SQP                  | Pt           | 3.68E+0  | 3.85E-1  | 3.69E-2  | 4.11E+0  | 4.15E-2  | 2.58E-1  | 7.00E-3  | -5.98E+0  | -1.57E+0 |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
| PERE                 | MJ           | 6.70E-1  | 6.53E-3  | 7.02E-1  | 1.38E+0  | 6.96E-4  | 1.58E-2  | 1.08E-4  | -1.06E+0  | 3.34E-1  |
| PERM                 | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PERT                 | MJ           | 6.70E-1  | 6.53E-3  | 7.02E-1  | 1.38E+0  | 6.96E-4  | 1.58E-2  | 1.08E-4  | -1.06E+0  | 3.34E-1  |
| PENRE                | MJ           | 9.55E+0  | 4.95E-1  | 2.21E-1  | 1.03E+1  | 5.15E-2  | 3.51E-1  | 2.89E-3  | -5.38E+0  | 5.29E+0  |
| PENRM                | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PENRT                | MJ           | 9.55E+0  | 4.95E-1  | 2.21E-1  | 1.03E+1  | 5.15E-2  | 3.51E-1  | 2.89E-3  | -5.38E+0  | 5.29E+0  |
| PET                  | MJ           | 1.02E+1  | 5.01E-1  | 9.23E-1  | 1.16E+1  | 5.22E-2  | 3.66E-1  | 3.00E-3  | -6.44E+0  | 5.62E+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           | 3.09E-3  | 5.15E-5  | 1.70E-3  | 4.85E-3  | 5.49E-6  | 1.86E-4  | 3.37E-6  | -2.22E-3  | 2.82E-3  |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 1.92E-6 | 1.16E-6 | 1.97E-7 | 3.28E-6 | 1.24E-7 | 5.58E-7 | 3.27E-9 | -1.81E-6 | 2.15E-6 |
| NHWD                              | kg   | 1.45E-2 | 2.77E-2 | 1.92E-3 | 4.42E-2 | 3.01E-3 | 1.61E-2 | 1.20E-2 | -6.65E-3 | 6.86E-2 |
| RWD                               | kg   | 9.30E-6 | 3.17E-6 | 2.10E-7 | 1.27E-5 | 3.30E-7 | 1.31E-6 | 1.78E-8 | -4.11E-6 | 1.02E-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       |



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