

# Environmental Profile

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

Ecochain v3.5.64



Product: 3003831 - PE Eccentric Reducer 110x50  
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                                                   |    |    |     |     | Benefits and loads beyond the system boundaries                                                                                 |     |     |     |     |     |     |                                                                                   |    |    |    |   |
| A4 Transport gate to site<br>A5 Assembly / Construction installation process |    |    |     |     | 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

This document and supporting material contain confidential and proprietary business information of Wavin - IT - SM Maddalena. These materials may be printed or (photo) copied or otherwise used only with the written consent of Wavin - IT - SM Maddalena.

# Results

| Environmental impact | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
|----------------------|--------------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| GWP-total            | kg CO2 eq    | 3.12E-1  | 4.07E-2  | 2.42E-2  | 3.77E-1  | 4.24E-3  | 1.74E-1  | 2.35E-3  | -2.11E-1  | 3.46E-1  |
| GWP-f                | kg CO2 eq    | 3.40E-1  | 4.06E-2  | 2.07E-2  | 4.01E-1  | 4.24E-3  | 1.39E-1  | 2.35E-3  | -2.22E-1  | 3.24E-1  |
| GWP-b                | kg CO2 eq    | -2.77E-2 | 2.30E-5  | 1.75E-3  | -2.59E-2 | 2.57E-6  | 3.45E-2  | 1.76E-6  | 1.12E-2   | 1.99E-2  |
| GWP-luluc            | kg CO2 eq    | 1.81E-4  | 1.49E-5  | 1.75E-3  | 1.94E-3  | 1.50E-6  | 2.42E-5  | 3.37E-8  | -1.46E-4  | 1.82E-3  |
| ODP                  | kg CFC11 eq  | 1.98E-8  | 9.30E-9  | 2.07E-9  | 3.12E-8  | 9.77E-10 | 3.30E-9  | 5.01E-11 | -1.15E-8  | 2.40E-8  |
| AP                   | mol H+ eq    | 1.31E-3  | 2.86E-4  | 8.34E-5  | 1.68E-3  | 2.41E-5  | 1.37E-4  | 1.20E-6  | -6.69E-4  | 1.17E-3  |
| EP-fw                | kg P eq      | 6.37E-6  | 3.25E-7  | 3.21E-7  | 7.01E-6  | 3.49E-8  | 7.02E-7  | 1.55E-9  | -3.86E-6  | 3.89E-6  |
| EP-m                 | kg N eq      | 2.32E-4  | 9.51E-5  | 1.41E-5  | 3.41E-4  | 8.64E-6  | 4.05E-5  | 8.46E-7  | -1.27E-4  | 2.64E-4  |
| EP-T                 | mol N eq     | 2.59E-3  | 1.05E-3  | 1.58E-4  | 3.80E-3  | 9.52E-5  | 4.46E-4  | 4.85E-6  | -1.43E-3  | 2.92E-3  |
| POCP                 | kg NMVOC eq  | 1.16E-3  | 2.95E-4  | 4.92E-5  | 1.50E-3  | 2.72E-5  | 1.40E-4  | 1.90E-6  | -6.23E-4  | 1.05E-3  |
| ADP-mm               | kg Sb eq     | 4.62E-6  | 1.01E-6  | 5.03E-7  | 6.13E-6  | 1.10E-7  | 5.44E-7  | 1.20E-9  | -1.52E-6  | 5.27E-6  |
| ADP-f                | MJ           | 1.17E+1  | 6.19E-1  | 2.72E-1  | 1.26E+1  | 6.51E-2  | 4.26E-1  | 3.66E-3  | -6.53E+0  | 6.56E+0  |
| WDP                  | m3 depriv.   | 2.52E-1  | 1.85E-3  | 9.63E-2  | 3.51E-1  | 2.00E-4  | 8.21E-3  | 1.68E-5  | -1.42E-1  | 2.17E-1  |
| PM                   | disease inc. | 1.32E-8  | 3.55E-9  | 8.35E-10 | 1.76E-8  | 3.83E-10 | 2.25E-9  | 2.51E-11 | -6.30E-9  | 1.40E-8  |
| IR                   | kBq U-235 eq | 1.07E-2  | 2.70E-3  | 2.54E-4  | 1.36E-2  | 2.84E-4  | 1.30E-3  | 1.70E-5  | -4.76E-3  | 1.05E-2  |
| ETP-fw               | CTUe         | 3.74E+0  | 4.98E-1  | 4.29E-1  | 4.67E+0  | 5.28E-2  | 4.92E-1  | 3.22E-3  | -1.95E+0  | 3.27E+0  |
| HTP-c                | CTUh         | 1.11E-10 | 1.82E-11 | 2.29E-11 | 1.52E-10 | 1.88E-12 | 5.77E-11 | 8.88E-14 | -6.14E-11 | 1.51E-10 |
| HTP-nc               | CTUh         | 2.37E-9  | 5.87E-10 | 4.75E-10 | 3.43E-9  | 6.30E-11 | 7.25E-10 | 2.05E-12 | -1.31E-9  | 2.92E-9  |
| SQP                  | Pt           | 3.46E+0  | 5.11E-1  | 4.96E-2  | 4.02E+0  | 5.57E-2  | 3.38E-1  | 9.39E-3  | -4.42E+0  | -2.29E-3 |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
| PERE                 | MJ           | 6.43E-1  | 8.67E-3  | 9.41E-1  | 1.59E+0  | 9.33E-4  | 2.08E-2  | 1.45E-4  | -7.92E-1  | 8.22E-1  |
| PERM                 | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PERT                 | MJ           | 6.43E-1  | 8.67E-3  | 9.41E-1  | 1.59E+0  | 9.33E-4  | 2.08E-2  | 1.45E-4  | -7.92E-1  | 8.22E-1  |
| PENRE                | MJ           | 1.26E+1  | 6.57E-1  | 2.97E-1  | 1.35E+1  | 6.91E-2  | 4.54E-1  | 3.88E-3  | -7.04E+0  | 7.00E+0  |
| PENRM                | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PENRT                | MJ           | 1.26E+1  | 6.57E-1  | 2.97E-1  | 1.35E+1  | 6.91E-2  | 4.54E-1  | 3.88E-3  | -7.04E+0  | 7.00E+0  |
| PET                  | MJ           | 1.32E+1  | 6.65E-1  | 1.24E+0  | 1.51E+1  | 7.00E-2  | 4.75E-1  | 4.03E-3  | -7.83E+0  | 7.82E+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           | 3.94E-3  | 6.83E-5  | 2.29E-3  | 6.29E-3  | 7.36E-6  | 2.44E-4  | 4.52E-6  | -2.37E-3  | 4.18E-3  |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 2.22E-6 | 1.54E-6 | 2.64E-7 | 4.02E-6 | 1.66E-7 | 7.07E-7 | 4.39E-9 | -2.18E-6 | 2.72E-6 |
| NHWD                              | kg   | 1.63E-2 | 3.68E-2 | 2.58E-3 | 5.57E-2 | 4.03E-3 | 2.09E-2 | 1.61E-2 | -7.27E-3 | 8.94E-2 |
| RWD                               | kg   | 1.17E-5 | 4.21E-6 | 2.82E-7 | 1.62E-5 | 4.42E-7 | 1.66E-6 | 2.39E-8 | -4.49E-6 | 1.38E-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       |



Ecochain Technologies BV  
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands  
<https://www.ecochain.com>  
+31 20 3035 777