

# Environmental Profile

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

Ecochain v3.5.64



Product: 3075756 - Acaro PP SN 12 Pipe DN/OD 400 Blue L=6  
Unit: 1 piece  
Manufacturer: Wavin Germany Twist  
Address: Industriestraße 20  
49767 Twist  
Germany  
Contact: <https://www.wavin.com/en-en>

LCA standard: EN15804+A2 (2019)  
Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
Externally verified: Yes  
Issue date: 08-04-2022  
End of validity: 08-04-2027  
Verifier: Harry van Ewijk - 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 Germany Twist (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                            |    |    |     |     | D Reuse- Recovery- Recycling- potential                                                                               |     |     |     |     |     |     |                                                                               |    |    |    |   |
| A5 Assembly / Construction installation process      |    |    |     |     |                                                                                                                       |     |     |     |     |     |     |                                                                               |    |    |    |   |

# Results

| Environmental impact | Unit         | A1      | A2      | A3      | A1-A3   | C2      | C3       | C4       | D        | Total   |
|----------------------|--------------|---------|---------|---------|---------|---------|----------|----------|----------|---------|
| GWP-total            | kg CO2 eq    | 2.40E+2 | 1.43E+1 | 8.06E+0 | 2.63E+2 | 3.01E+0 | 8.71E+1  | 1.42E+0  | -1.39E+2 | 2.15E+2 |
| GWP-f                | kg CO2 eq    | 2.40E+2 | 1.42E+1 | 6.65E+0 | 2.61E+2 | 3.00E+0 | 8.72E+1  | 1.42E+0  | -1.39E+2 | 2.13E+2 |
| GWP-b                | kg CO2 eq    | 5.17E-1 | 5.16E-2 | 9.92E-1 | 1.56E+0 | 1.82E-3 | -1.07E-1 | 1.23E-3  | -4.88E-1 | 9.69E-1 |
| GWP-luluc            | kg CO2 eq    | 7.40E-2 | 1.26E-2 | 4.17E-1 | 5.03E-1 | 1.06E-3 | 1.69E-2  | 2.43E-5  | -2.69E-2 | 4.94E-1 |
| ODP                  | kg CFC11 eq  | 5.11E-6 | 2.39E-6 | 7.97E-7 | 8.30E-6 | 6.92E-7 | 2.19E-6  | 3.55E-8  | -5.11E-6 | 6.11E-6 |
| AP                   | mol H+ eq    | 8.75E-1 | 1.32E-1 | 3.08E-2 | 1.04E+0 | 1.71E-2 | 9.20E-2  | 8.48E-4  | -3.91E-1 | 7.56E-1 |
| EP-fw                | kg P eq      | 3.93E-3 | 4.17E-4 | 9.54E-5 | 4.44E-3 | 2.47E-5 | 4.86E-4  | 1.11E-6  | -1.53E-3 | 3.42E-3 |
| EP-m                 | kg N eq      | 1.45E-1 | 4.31E-2 | 8.88E-3 | 1.97E-1 | 6.12E-3 | 2.67E-2  | 5.50E-4  | -6.90E-2 | 1.62E-1 |
| EP-T                 | mol N eq     | 1.63E+0 | 4.77E-1 | 9.28E-2 | 2.20E+0 | 6.74E-2 | 2.94E-1  | 3.44E-3  | -7.64E-1 | 1.80E+0 |
| POCP                 | kg NMVOC eq  | 7.36E-1 | 1.30E-1 | 2.66E-2 | 8.92E-1 | 1.93E-2 | 9.31E-2  | 1.29E-3  | -3.53E-1 | 6.53E-1 |
| ADP-mm               | kg Sb eq     | 2.87E-3 | 1.92E-4 | 1.15E-4 | 3.18E-3 | 7.77E-5 | 3.65E-4  | 8.57E-7  | -9.23E-4 | 2.70E-3 |
| ADP-f                | MJ           | 8.27E+3 | 2.09E+2 | 8.52E+1 | 8.57E+3 | 4.61E+1 | 2.92E+2  | 2.59E+0  | -4.39E+3 | 4.52E+3 |
| WDP                  | m3 depriv.   | 1.60E+2 | 1.39E+0 | 4.76E+1 | 2.09E+2 | 1.41E-1 | 5.73E+0  | 1.39E-2  | -7.61E+1 | 1.39E+2 |
| PM                   | disease inc. | 7.49E-6 | 1.09E-6 | 4.65E-7 | 9.04E-6 | 2.71E-7 | 1.52E-6  | 1.78E-8  | -3.27E-6 | 7.57E-6 |
| IR                   | kBq U-235 eq | 4.67E+0 | 1.05E+0 | 1.21E-1 | 5.84E+0 | 2.01E-1 | 8.81E-1  | 1.20E-2  | -2.04E+0 | 4.90E+0 |
| ETP-fw               | CTUe         | 1.47E+3 | 2.06E+2 | 1.14E+2 | 1.79E+3 | 3.74E+1 | 3.30E+2  | 2.17E+0  | -5.42E+2 | 1.62E+3 |
| HTP-c                | CTUh         | 5.39E-8 | 1.08E-8 | 5.02E-9 | 6.98E-8 | 1.33E-9 | 4.03E-8  | 6.40E-11 | -2.32E-8 | 8.83E-8 |
| HTP-nc               | CTUh         | 1.56E-6 | 2.26E-7 | 1.19E-7 | 1.90E-6 | 4.46E-8 | 4.93E-7  | 1.40E-9  | -6.57E-7 | 1.79E-6 |
| SQP                  | Pt           | 3.32E+2 | 1.50E+2 | 9.14E+0 | 4.91E+2 | 3.94E+1 | 2.34E+2  | 6.65E+0  | -1.18E+2 | 6.53E+2 |
| Resource use         | Unit         | A1      | A2      | A3      | A1-A3   | C2      | C3       | C4       | D        | Total   |
| PERE                 | MJ           | 1.34E+2 | 1.19E+1 | 2.25E+2 | 3.71E+2 | 6.61E-1 | 1.44E+1  | 1.00E-1  | -5.46E+1 | 3.32E+2 |
| PERM                 | MJ           | 0       | 0       | 0       | 0       | 0       | 0        | 0        | 0        | 0       |
| PERT                 | MJ           | 1.34E+2 | 1.19E+1 | 2.25E+2 | 3.71E+2 | 6.61E-1 | 1.44E+1  | 1.00E-1  | -5.46E+1 | 3.32E+2 |
| PENRE                | MJ           | 8.88E+3 | 2.21E+2 | 9.28E+1 | 9.19E+3 | 4.89E+1 | 3.12E+2  | 2.75E+0  | -4.73E+3 | 4.83E+3 |
| PENRM                | MJ           | 0       | 0       | 0       | 0       | 0       | 0        | 0        | 0        | 0       |
| PENRT                | MJ           | 8.88E+3 | 2.21E+2 | 9.28E+1 | 9.19E+3 | 4.89E+1 | 3.12E+2  | 2.75E+0  | -4.73E+3 | 4.83E+3 |
| PET                  | MJ           | 9.01E+3 | 2.33E+2 | 3.18E+2 | 9.56E+3 | 4.96E+1 | 3.26E+2  | 2.85E+0  | -4.78E+3 | 5.16E+3 |
| 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           | 2.52E+0 | 6.89E-2 | 1.12E+0 | 3.70E+0 | 5.22E-3 | 1.69E-1  | 3.19E-3  | -1.14E+0 | 2.74E+0 |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 1.26E-3 | 4.34E-4 | 1.14E-4 | 1.81E-3 | 1.18E-4 | 4.76E-4 | 3.13E-6 | -1.00E-3 | 1.40E-3 |
| NHWD                              | kg   | 9.38E+0 | 6.14E+0 | 4.74E-1 | 1.60E+1 | 2.86E+0 | 1.43E+1 | 1.14E+1 | -3.38E+0 | 4.12E+1 |
| RWD                               | kg   | 4.06E-3 | 1.32E-3 | 1.66E-4 | 5.54E-3 | 3.13E-4 | 1.12E-3 | 1.69E-5 | -1.83E-3 | 5.16E-3 |
| 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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