

# Environmental Profile

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

Ecochain v3.5.64



Product: 3053466 - SafeTech RCn Gas Pp 32x3 L=6 BC  
Unit: 1 piece  
Manufacturer: Wavin - DE - Westeregeln - verified  
Address: Borrweg 10  
39448 Börde-Hakel  
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: 11-08-2022  
End of validity: 11-08-2027  
Verifier: Martijn van Hövell - SGS Search



Wavin SafeTech RC n is a co-extruded PE-100 RC two-layer pipe with protective properties according to PAS 1075. The outer signal layer is about 10% of the standard wall thickness and is colored according to the medium - blue for drinking water, orange for gas and green for waste water.

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 - DE - Westeregeln - verified (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

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# Results

| Environmental impact | Unit         | A1       | A2       | A3       | A1-A3   | C2       | C3       | C4       | D         | Total   |
|----------------------|--------------|----------|----------|----------|---------|----------|----------|----------|-----------|---------|
| GWP-total            | kg CO2 eq    | 3.41E+0  | 1.33E-1  | 6.98E-2  | 3.61E+0 | 4.46E-2  | 1.45E+0  | 2.47E-2  | -2.24E+0  | 2.90E+0 |
| GWP-f                | kg CO2 eq    | 3.39E+0  | 1.33E-1  | 5.73E-2  | 3.58E+0 | 4.46E-2  | 1.46E+0  | 2.47E-2  | -2.23E+0  | 2.88E+0 |
| GWP-b                | kg CO2 eq    | 1.65E-2  | 6.15E-5  | 5.90E-3  | 2.25E-2 | 2.71E-5  | -1.78E-3 | 1.85E-5  | -8.45E-3  | 1.23E-2 |
| GWP-luluc            | kg CO2 eq    | 1.04E-3  | 4.88E-5  | 6.64E-3  | 7.73E-3 | 1.58E-5  | 2.50E-4  | 3.55E-7  | -5.07E-4  | 7.49E-3 |
| ODP                  | kg CFC11 eq  | 1.76E-7  | 2.94E-8  | 7.51E-9  | 2.13E-7 | 1.03E-8  | 3.26E-8  | 5.27E-10 | -1.07E-7  | 1.49E-7 |
| AP                   | mol H+ eq    | 1.27E-2  | 7.72E-4  | 3.39E-4  | 1.38E-2 | 2.54E-4  | 1.37E-3  | 1.26E-5  | -6.17E-3  | 9.30E-3 |
| EP-fw                | kg P eq      | 5.68E-5  | 1.34E-6  | 1.30E-6  | 5.94E-5 | 3.67E-7  | 7.22E-6  | 1.63E-8  | -2.78E-5  | 3.92E-5 |
| EP-m                 | kg N eq      | 2.12E-3  | 2.72E-4  | 6.97E-5  | 2.46E-3 | 9.08E-5  | 3.99E-4  | 8.88E-6  | -1.13E-3  | 1.84E-3 |
| EP-T                 | mol N eq     | 2.37E-2  | 3.00E-3  | 7.03E-4  | 2.74E-2 | 1.00E-3  | 4.39E-3  | 5.10E-5  | -1.26E-2  | 2.03E-2 |
| POCP                 | kg NMVOC eq  | 1.13E-2  | 8.56E-4  | 2.02E-4  | 1.24E-2 | 2.86E-4  | 1.39E-3  | 2.00E-5  | -5.85E-3  | 8.20E-3 |
| ADP-mm               | kg Sb eq     | 3.39E-5  | 3.37E-6  | 1.69E-6  | 3.90E-5 | 1.15E-6  | 5.42E-6  | 1.26E-8  | -1.44E-5  | 3.12E-5 |
| ADP-f                | MJ           | 1.20E+2  | 2.01E+0  | 6.73E-1  | 1.22E+2 | 6.84E-1  | 4.34E+0  | 3.85E-2  | -6.69E+1  | 6.07E+1 |
| WDP                  | m3 depriv.   | 2.61E+0  | 7.18E-3  | 3.85E-1  | 3.00E+0 | 2.10E-3  | 8.53E-2  | 1.79E-4  | -1.30E+0  | 1.79E+0 |
| PM                   | disease inc. | 1.19E-7  | 1.20E-8  | 3.03E-9  | 1.34E-7 | 4.02E-9  | 2.25E-8  | 2.64E-10 | -4.88E-8  | 1.12E-7 |
| IR                   | kBq U-235 eq | 1.01E-1  | 8.41E-3  | 1.81E-3  | 1.11E-1 | 2.99E-3  | 1.31E-2  | 1.79E-4  | -4.03E-2  | 8.74E-2 |
| ETP-fw               | CTUe         | 2.21E+1  | 1.79E+0  | 1.65E+0  | 2.55E+1 | 5.55E-1  | 4.93E+0  | 3.39E-2  | -9.71E+0  | 2.13E+1 |
| HTP-c                | CTUh         | 9.07E-10 | 5.81E-11 | 6.15E-11 | 1.03E-9 | 1.98E-11 | 5.87E-10 | 9.36E-13 | -4.62E-10 | 1.17E-9 |
| HTP-nc               | CTUh         | 2.15E-8  | 1.96E-9  | 1.58E-9  | 2.50E-8 | 6.62E-10 | 7.40E-9  | 2.16E-11 | -1.03E-8  | 2.28E-8 |
| SQP                  | Pt           | 4.61E+0  | 1.74E+0  | 6.46E-2  | 6.42E+0 | 5.85E-1  | 3.47E+0  | 9.87E-2  | -2.12E+0  | 8.45E+0 |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3   | C2       | C3       | C4       | D         | Total   |
| PERE                 | MJ           | 1.96E+0  | 2.51E-2  | 3.58E+0  | 5.57E+0 | 9.81E-3  | 2.14E-1  | 1.52E-3  | -9.67E-1  | 4.83E+0 |
| PERM                 | MJ           | 0        | 0        | 0        | 0       | 0        | 0        | 0        | 0         | 0       |
| PERT                 | MJ           | 1.96E+0  | 2.51E-2  | 3.58E+0  | 5.57E+0 | 9.81E-3  | 2.14E-1  | 1.52E-3  | -9.67E-1  | 4.83E+0 |
| PENRE                | MJ           | 1.28E+2  | 2.13E+0  | 7.19E-1  | 1.31E+2 | 7.26E-1  | 4.63E+0  | 4.08E-2  | -7.21E+1  | 6.46E+1 |
| PENRM                | MJ           | 0        | 0        | 0        | 0       | 0        | 0        | 0        | 0         | 0       |
| PENRT                | MJ           | 1.28E+2  | 2.13E+0  | 7.19E-1  | 1.31E+2 | 7.26E-1  | 4.63E+0  | 4.08E-2  | -7.21E+1  | 6.46E+1 |
| PET                  | MJ           | 1.30E+2  | 2.16E+0  | 4.30E+0  | 1.37E+2 | 7.36E-1  | 4.84E+0  | 4.23E-2  | -7.31E+1  | 6.94E+1 |
| 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           | 3.98E-2  | 2.45E-4  | 9.14E-3  | 4.92E-2 | 7.74E-5  | 2.51E-3  | 4.75E-5  | -1.98E-2  | 3.19E-2 |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 1.64E-5 | 5.09E-6 | 1.09E-6 | 2.26E-5 | 1.75E-6 | 7.08E-6 | 4.62E-8 | -1.97E-5 | 1.18E-5 |
| NHWD                              | kg   | 1.13E-1 | 1.27E-1 | 1.36E-3 | 2.42E-1 | 4.24E-2 | 2.14E-1 | 1.69E-1 | -5.45E-2 | 6.13E-1 |
| RWD                               | kg   | 1.08E-4 | 1.32E-5 | 2.60E-6 | 1.24E-4 | 4.65E-6 | 1.66E-5 | 2.52E-7 | -3.75E-5 | 1.08E-4 |
| 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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