

# Environmental Profile

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

Ecochain v3.5.64



Product: 3015488 - SafeTech RCn WWP Pp 140x12.7 L=12  
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    | 1.24E+2 | 3.38E+0 | 2.25E+0 | 1.29E+2 | 1.62E+0  | 5.27E+1  | 8.98E-1  | -8.13E+1 | 1.03E+2 |
| GWP-f                | kg CO2 eq    | 1.23E+2 | 3.37E+0 | 1.88E+0 | 1.28E+2 | 1.62E+0  | 5.28E+1  | 8.98E-1  | -8.10E+1 | 1.03E+2 |
| GWP-b                | kg CO2 eq    | 6.03E-1 | 1.43E-3 | 1.76E-1 | 7.80E-1 | 9.84E-4  | -6.22E-2 | 6.74E-4  | -3.07E-1 | 4.13E-1 |
| GWP-luluc            | kg CO2 eq    | 3.75E-2 | 1.29E-3 | 1.96E-1 | 2.35E-1 | 5.74E-4  | 9.10E-3  | 1.29E-5  | -1.84E-2 | 2.26E-1 |
| ODP                  | kg CFC11 eq  | 6.40E-6 | 7.41E-7 | 2.62E-7 | 7.40E-6 | 3.73E-7  | 1.18E-6  | 1.92E-8  | -3.88E-6 | 5.09E-6 |
| AP                   | mol H+ eq    | 4.61E-1 | 2.47E-2 | 1.08E-2 | 4.97E-1 | 9.23E-3  | 4.98E-2  | 4.57E-4  | -2.24E-1 | 3.32E-1 |
| EP-fw                | kg P eq      | 2.05E-3 | 3.28E-5 | 4.19E-5 | 2.13E-3 | 1.33E-5  | 2.63E-4  | 5.94E-7  | -1.01E-3 | 1.40E-3 |
| EP-m                 | kg N eq      | 7.70E-2 | 8.06E-3 | 2.36E-3 | 8.74E-2 | 3.30E-3  | 1.45E-2  | 3.23E-4  | -4.10E-2 | 6.46E-2 |
| EP-T                 | mol N eq     | 8.61E-1 | 8.90E-2 | 2.35E-2 | 9.73E-1 | 3.64E-2  | 1.59E-1  | 1.86E-3  | -4.56E-1 | 7.15E-1 |
| POCP                 | kg NMVOC eq  | 4.10E-1 | 2.49E-2 | 6.75E-3 | 4.42E-1 | 1.04E-2  | 5.04E-2  | 7.27E-4  | -2.13E-1 | 2.90E-1 |
| ADP-mm               | kg Sb eq     | 1.22E-3 | 8.20E-5 | 5.03E-5 | 1.35E-3 | 4.19E-5  | 1.97E-4  | 4.59E-7  | -5.24E-4 | 1.07E-3 |
| ADP-f                | MJ           | 4.35E+3 | 5.05E+1 | 2.25E+1 | 4.42E+3 | 2.49E+1  | 1.58E+2  | 1.40E+0  | -2.43E+3 | 2.18E+3 |
| WDP                  | m3 depriv.   | 9.49E+1 | 1.75E-1 | 1.15E+1 | 1.07E+2 | 7.63E-2  | 3.10E+0  | 6.48E-3  | -4.72E+1 | 6.26E+1 |
| PM                   | disease inc. | 4.32E-6 | 2.92E-7 | 1.03E-7 | 4.71E-6 | 1.46E-7  | 8.19E-7  | 9.61E-9  | -1.77E-6 | 3.91E-6 |
| IR                   | kBq U-235 eq | 3.68E+0 | 2.12E-1 | 6.45E-2 | 3.95E+0 | 1.09E-1  | 4.76E-1  | 6.52E-3  | -1.47E+0 | 3.08E+0 |
| ETP-fw               | CTUe         | 7.97E+2 | 4.44E+1 | 5.16E+1 | 8.93E+2 | 2.02E+1  | 1.79E+2  | 1.23E+0  | -3.53E+2 | 7.41E+2 |
| HTP-c                | CTUh         | 3.28E-8 | 1.49E-9 | 1.91E-9 | 3.62E-8 | 7.19E-10 | 2.13E-8  | 3.40E-11 | -1.68E-8 | 4.15E-8 |
| HTP-nc               | CTUh         | 7.78E-7 | 4.80E-8 | 4.81E-8 | 8.75E-7 | 2.41E-8  | 2.69E-7  | 7.84E-10 | -3.75E-7 | 7.93E-7 |
| SQP                  | Pt           | 1.67E+2 | 4.20E+1 | 2.33E+0 | 2.11E+2 | 2.13E+1  | 1.26E+2  | 3.59E+0  | -7.71E+1 | 2.85E+2 |
| Resource use         | Unit         | A1      | A2      | A3      | A1-A3   | C2       | C3       | C4       | D        | Total   |
| PERE                 | MJ           | 7.10E+1 | 6.17E-1 | 1.06E+2 | 1.77E+2 | 3.57E-1  | 7.79E+0  | 5.53E-2  | -3.52E+1 | 1.51E+2 |
| PERM                 | MJ           | 0       | 0       | 0       | 0       | 0        | 0        | 0        | 0        | 0       |
| PERT                 | MJ           | 7.10E+1 | 6.17E-1 | 1.06E+2 | 1.77E+2 | 3.57E-1  | 7.79E+0  | 5.53E-2  | -3.52E+1 | 1.51E+2 |
| PENRE                | MJ           | 4.67E+3 | 5.36E+1 | 2.40E+1 | 4.75E+3 | 2.64E+1  | 1.68E+2  | 1.48E+0  | -2.62E+3 | 2.32E+3 |
| PENRM                | MJ           | 0       | 0       | 0       | 0       | 0        | 0        | 0        | 0        | 0       |
| PENRT                | MJ           | 4.67E+3 | 5.36E+1 | 2.40E+1 | 4.75E+3 | 2.64E+1  | 1.68E+2  | 1.48E+0  | -2.62E+3 | 2.32E+3 |
| PET                  | MJ           | 4.74E+3 | 5.42E+1 | 1.30E+2 | 4.92E+3 | 2.68E+1  | 1.76E+2  | 1.54E+0  | -2.66E+3 | 2.47E+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           | 1.44E+0 | 5.97E-3 | 2.74E-1 | 1.72E+0 | 2.81E-3  | 9.12E-2  | 1.73E-3  | -7.22E-1 | 1.10E+0 |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 5.92E-4 | 1.24E-4 | 3.95E-5 | 7.55E-4 | 6.36E-5 | 2.57E-4 | 1.68E-6 | -7.14E-4 | 3.64E-4 |
| NHWD                              | kg   | 4.09E+0 | 3.05E+0 | 4.89E-2 | 7.19E+0 | 1.54E+0 | 7.76E+0 | 6.16E+0 | -1.98E+0 | 2.07E+1 |
| RWD                               | kg   | 3.94E-3 | 3.32E-4 | 9.44E-5 | 4.37E-3 | 1.69E-4 | 6.03E-4 | 9.15E-6 | -1.36E-3 | 3.79E-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       |



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