

# Environmental Profile

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

Ecochain v3.5.64



Product: 3015477 - SafeTech RCn WWP Pp 200x11.9 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    | 1.72E+2 | 4.69E+0 | 3.46E+0 | 1.80E+2 | 2.25E+0  | 7.32E+1  | 1.25E+0  | -1.13E+2 | 1.44E+2 |
| GWP-f                | kg CO2 eq    | 1.71E+2 | 4.68E+0 | 2.85E+0 | 1.78E+2 | 2.25E+0  | 7.33E+1  | 1.25E+0  | -1.12E+2 | 1.43E+2 |
| GWP-b                | kg CO2 eq    | 8.34E-1 | 1.98E-3 | 2.89E-1 | 1.12E+0 | 1.37E-3  | -8.29E-2 | 9.35E-4  | -4.26E-1 | 6.18E-1 |
| GWP-luluc            | kg CO2 eq    | 5.20E-2 | 1.78E-3 | 3.25E-1 | 3.79E-1 | 7.96E-4  | 1.26E-2  | 1.79E-5  | -2.56E-2 | 3.67E-1 |
| ODP                  | kg CFC11 eq  | 8.88E-6 | 1.03E-6 | 3.77E-7 | 1.03E-5 | 5.18E-7  | 1.64E-6  | 2.66E-8  | -5.39E-6 | 7.08E-6 |
| AP                   | mol H+ eq    | 6.40E-1 | 3.43E-2 | 1.68E-2 | 6.91E-1 | 1.28E-2  | 6.91E-2  | 6.35E-4  | -3.11E-1 | 4.63E-1 |
| EP-fw                | kg P eq      | 2.85E-3 | 4.56E-5 | 6.44E-5 | 2.96E-3 | 1.85E-5  | 3.65E-4  | 8.25E-7  | -1.40E-3 | 1.94E-3 |
| EP-m                 | kg N eq      | 1.07E-1 | 1.12E-2 | 3.48E-3 | 1.22E-1 | 4.58E-3  | 2.01E-2  | 4.49E-4  | -5.69E-2 | 8.98E-2 |
| EP-T                 | mol N eq     | 1.19E+0 | 1.24E-1 | 3.50E-2 | 1.35E+0 | 5.05E-2  | 2.21E-1  | 2.58E-3  | -6.33E-1 | 9.95E-1 |
| POCP                 | kg NMVOC eq  | 5.69E-1 | 3.46E-2 | 1.01E-2 | 6.14E-1 | 1.44E-2  | 7.00E-2  | 1.01E-3  | -2.95E-1 | 4.04E-1 |
| ADP-mm               | kg Sb eq     | 1.69E-3 | 1.14E-4 | 8.28E-5 | 1.89E-3 | 5.82E-5  | 2.74E-4  | 6.37E-7  | -7.27E-4 | 1.49E-3 |
| ADP-f                | MJ           | 6.04E+3 | 7.00E+1 | 3.35E+1 | 6.14E+3 | 3.45E+1  | 2.19E+2  | 1.94E+0  | -3.37E+3 | 3.03E+3 |
| WDP                  | m3 depriv.   | 1.32E+2 | 2.43E-1 | 1.89E+1 | 1.51E+2 | 1.06E-1  | 4.31E+0  | 9.00E-3  | -6.55E+1 | 8.97E+1 |
| PM                   | disease inc. | 5.99E-6 | 4.05E-7 | 1.51E-7 | 6.55E-6 | 2.03E-7  | 1.14E-6  | 1.33E-8  | -2.46E-6 | 5.44E-6 |
| IR                   | kBq U-235 eq | 5.10E+0 | 2.94E-1 | 9.10E-2 | 5.49E+0 | 1.51E-1  | 6.60E-1  | 9.05E-3  | -2.04E+0 | 4.27E+0 |
| ETP-fw               | CTUe         | 1.11E+3 | 6.16E+1 | 8.16E+1 | 1.25E+3 | 2.80E+1  | 2.49E+2  | 1.71E+0  | -4.90E+2 | 1.04E+3 |
| HTP-c                | CTUh         | 4.56E-8 | 2.07E-9 | 3.03E-9 | 5.07E-8 | 9.98E-10 | 2.96E-8  | 4.72E-11 | -2.33E-8 | 5.80E-8 |
| HTP-nc               | CTUh         | 1.08E-6 | 6.67E-8 | 7.78E-8 | 1.23E-6 | 3.34E-8  | 3.73E-7  | 1.09E-9  | -5.21E-7 | 1.11E-6 |
| SQP                  | Pt           | 2.32E+2 | 5.83E+1 | 3.26E+0 | 2.93E+2 | 2.95E+1  | 1.75E+2  | 4.98E+0  | -1.07E+2 | 3.96E+2 |
| Resource use         | Unit         | A1      | A2      | A3      | A1-A3   | C2       | C3       | C4       | D        | Total   |
| PERE                 | MJ           | 9.86E+1 | 8.56E-1 | 1.75E+2 | 2.75E+2 | 4.95E-1  | 1.08E+1  | 7.68E-2  | -4.88E+1 | 2.37E+2 |
| PERM                 | MJ           | 0       | 0       | 0       | 0       | 0        | 0        | 0        | 0        | 0       |
| PERT                 | MJ           | 9.86E+1 | 8.56E-1 | 1.75E+2 | 2.75E+2 | 4.95E-1  | 1.08E+1  | 7.68E-2  | -4.88E+1 | 2.37E+2 |
| PENRE                | MJ           | 6.48E+3 | 7.44E+1 | 3.58E+1 | 6.59E+3 | 3.67E+1  | 2.34E+2  | 2.06E+0  | -3.64E+3 | 3.22E+3 |
| PENRM                | MJ           | 0       | 0       | 0       | 0       | 0        | 0        | 0        | 0        | 0       |
| PENRT                | MJ           | 6.48E+3 | 7.44E+1 | 3.58E+1 | 6.59E+3 | 3.67E+1  | 2.34E+2  | 2.06E+0  | -3.64E+3 | 3.22E+3 |
| PET                  | MJ           | 6.58E+3 | 7.52E+1 | 2.11E+2 | 6.86E+3 | 3.72E+1  | 2.44E+2  | 2.14E+0  | -3.69E+3 | 3.46E+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           | 2.00E+0 | 8.28E-3 | 4.48E-1 | 2.46E+0 | 3.91E-3  | 1.27E-1  | 2.40E-3  | -1.00E+0 | 1.59E+0 |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 8.21E-4 | 1.72E-4 | 5.48E-5 | 1.05E-3 | 8.83E-5 | 3.57E-4 | 2.33E-6 | -9.91E-4 | 5.05E-4 |
| NHWD                              | kg   | 5.68E+0 | 4.24E+0 | 6.88E-2 | 9.98E+0 | 2.14E+0 | 1.08E+1 | 8.55E+0 | -2.75E+0 | 2.87E+1 |
| RWD                               | kg   | 5.48E-3 | 4.61E-4 | 1.31E-4 | 6.07E-3 | 2.35E-4 | 8.37E-4 | 1.27E-5 | -1.89E-3 | 5.26E-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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