

# Environmental Profile

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

Ecochain v3.5.64



Product: 3015418 - SafeTech RCn WWP Pp 110x6.6 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

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

# Results

| Environmental impact | Unit         | A1      | A2       | A3       | A1-A3   | C2       | C3       | C4       | D        | Total   |
|----------------------|--------------|---------|----------|----------|---------|----------|----------|----------|----------|---------|
| GWP-total            | kg CO2 eq    | 5.28E+1 | 1.44E+0  | 9.66E-1  | 5.52E+1 | 6.92E-1  | 2.25E+1  | 3.83E-1  | -3.47E+1 | 4.41E+1 |
| GWP-f                | kg CO2 eq    | 5.26E+1 | 1.44E+0  | 8.06E-1  | 5.48E+1 | 6.92E-1  | 2.25E+1  | 3.83E-1  | -3.46E+1 | 4.39E+1 |
| GWP-b                | kg CO2 eq    | 2.57E-1 | 6.09E-4  | 7.56E-2  | 3.33E-1 | 4.20E-4  | -2.56E-2 | 2.88E-4  | -1.31E-1 | 1.77E-1 |
| GWP-luluc            | kg CO2 eq    | 1.60E-2 | 5.49E-4  | 8.45E-2  | 1.01E-1 | 2.45E-4  | 3.89E-3  | 5.51E-6  | -7.87E-3 | 9.73E-2 |
| ODP                  | kg CFC11 eq  | 2.73E-6 | 3.16E-7  | 1.12E-7  | 3.16E-6 | 1.59E-7  | 5.06E-7  | 8.18E-9  | -1.66E-6 | 2.17E-6 |
| AP                   | mol H+ eq    | 1.97E-1 | 1.06E-2  | 4.65E-3  | 2.12E-1 | 3.94E-3  | 2.13E-2  | 1.95E-4  | -9.58E-2 | 1.42E-1 |
| EP-fw                | kg P eq      | 8.78E-4 | 1.40E-5  | 1.80E-5  | 9.10E-4 | 5.69E-6  | 1.12E-4  | 2.54E-7  | -4.31E-4 | 5.97E-4 |
| EP-m                 | kg N eq      | 3.29E-2 | 3.44E-3  | 1.01E-3  | 3.74E-2 | 1.41E-3  | 6.19E-3  | 1.38E-4  | -1.75E-2 | 2.76E-2 |
| EP-T                 | mol N eq     | 3.68E-1 | 3.80E-2  | 1.00E-2  | 4.16E-1 | 1.55E-2  | 6.81E-2  | 7.92E-4  | -1.95E-1 | 3.05E-1 |
| POCP                 | kg NMVOC eq  | 1.75E-1 | 1.07E-2  | 2.89E-3  | 1.89E-1 | 4.44E-3  | 2.15E-2  | 3.11E-4  | -9.08E-2 | 1.24E-1 |
| ADP-mm               | kg Sb eq     | 5.21E-4 | 3.50E-5  | 2.16E-5  | 5.77E-4 | 1.79E-5  | 8.41E-5  | 1.96E-7  | -2.24E-4 | 4.56E-4 |
| ADP-f                | MJ           | 1.86E+3 | 2.15E+1  | 9.61E+0  | 1.89E+3 | 1.06E+1  | 6.74E+1  | 5.97E-1  | -1.04E+3 | 9.31E+2 |
| WDP                  | m3 depriv.   | 4.05E+1 | 7.47E-2  | 4.95E+0  | 4.56E+1 | 3.26E-2  | 1.32E+0  | 2.77E-3  | -2.02E+1 | 2.68E+1 |
| PM                   | disease inc. | 1.84E-6 | 1.25E-7  | 4.39E-8  | 2.01E-6 | 6.25E-8  | 3.50E-7  | 4.10E-9  | -7.57E-7 | 1.67E-6 |
| IR                   | kBq U-235 eq | 1.57E+0 | 9.04E-2  | 2.76E-2  | 1.69E+0 | 4.64E-2  | 2.03E-1  | 2.78E-3  | -6.26E-1 | 1.31E+0 |
| ETP-fw               | CTUe         | 3.40E+2 | 1.89E+1  | 2.22E+1  | 3.82E+2 | 8.62E+0  | 7.65E+1  | 5.26E-1  | -1.51E+2 | 3.16E+2 |
| HTP-c                | CTUh         | 1.40E-8 | 6.36E-10 | 8.19E-10 | 1.55E-8 | 3.07E-10 | 9.10E-9  | 1.45E-11 | -7.17E-9 | 1.77E-8 |
| HTP-nc               | CTUh         | 3.32E-7 | 2.05E-8  | 2.07E-8  | 3.74E-7 | 1.03E-8  | 1.15E-7  | 3.35E-10 | -1.60E-7 | 3.39E-7 |
| SQP                  | Pt           | 7.13E+1 | 1.79E+1  | 9.95E-1  | 9.02E+1 | 9.09E+0  | 5.39E+1  | 1.53E+0  | -3.29E+1 | 1.22E+2 |
| Resource use         | Unit         | A1      | A2       | A3       | A1-A3   | C2       | C3       | C4       | D        | Total   |
| PERE                 | MJ           | 3.03E+1 | 2.63E-1  | 4.55E+1  | 7.61E+1 | 1.52E-1  | 3.33E+0  | 2.36E-2  | -1.50E+1 | 6.46E+1 |
| PERM                 | MJ           | 0       | 0        | 0        | 0       | 0        | 0        | 0        | 0        | 0       |
| PERT                 | MJ           | 3.03E+1 | 2.63E-1  | 4.55E+1  | 7.61E+1 | 1.52E-1  | 3.33E+0  | 2.36E-2  | -1.50E+1 | 6.46E+1 |
| PENRE                | MJ           | 1.99E+3 | 2.29E+1  | 1.03E+1  | 2.03E+3 | 1.13E+1  | 7.18E+1  | 6.34E-1  | -1.12E+3 | 9.91E+2 |
| PENRM                | MJ           | 0       | 0        | 0        | 0       | 0        | 0        | 0        | 0        | 0       |
| PENRT                | MJ           | 1.99E+3 | 2.29E+1  | 1.03E+1  | 2.03E+3 | 1.13E+1  | 7.18E+1  | 6.34E-1  | -1.12E+3 | 9.91E+2 |
| PET                  | MJ           | 2.02E+3 | 2.31E+1  | 5.58E+1  | 2.10E+3 | 1.14E+1  | 7.52E+1  | 6.57E-1  | -1.13E+3 | 1.06E+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           | 6.16E-1 | 2.55E-3  | 1.18E-1  | 7.37E-1 | 1.20E-3  | 3.90E-2  | 7.38E-4  | -3.08E-1 | 4.70E-1 |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 2.53E-4 | 5.29E-5 | 1.69E-5 | 3.22E-4 | 2.72E-5 | 1.10E-4 | 7.17E-7 | -3.05E-4 | 1.55E-4 |
| NHWD                              | kg   | 1.75E+0 | 1.30E+0 | 2.09E-2 | 3.07E+0 | 6.58E-1 | 3.31E+0 | 2.63E+0 | -8.45E-1 | 8.83E+0 |
| RWD                               | kg   | 1.68E-3 | 1.42E-4 | 4.03E-5 | 1.87E-3 | 7.22E-5 | 2.57E-4 | 3.91E-6 | -5.81E-4 | 1.62E-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