

# Environmental Profile

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

Ecochain v3.5.64



Product: 3067709 - SiTech+ Bend STB 15° 40  
Unit: 1 piece  
Manufacturer: Wavin - IT - SM Maddalena

Wavin SiTech+ is a waste water system made of mineral- reinforced polypropylene (PP), which offers increased durability, but more importantly is quiet and easy to install.

LCA standard: EN15804+A2 (2019)  
Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
Externally verified: Yes  
Issue date: 24-11-2022  
End of validity: 24-11-2027  
Verifier: Martijn van Hövell - 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 - IT - SM Maddalena (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 - IT - SM Maddalena. These materials may be printed or (photo) copied or otherwise used only with the written consent of Wavin - IT - SM Maddalena.

# Results

| Environmental impact | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
|----------------------|--------------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| GWP-total            | kg CO2 eq    | 9.81E-2  | 2.47E-3  | 6.45E-3  | 1.07E-1  | 1.21E-3  | 6.80E-2  | 6.02E-4  | -5.75E-2  | 1.19E-1  |
| GWP-f                | kg CO2 eq    | 1.13E-1  | 2.47E-3  | 5.52E-3  | 1.21E-1  | 1.21E-3  | 4.98E-2  | 6.02E-4  | -6.54E-2  | 1.07E-1  |
| GWP-b                | kg CO2 eq    | -1.45E-2 | 1.50E-6  | 4.66E-4  | -1.40E-2 | 7.36E-7  | 1.83E-2  | 5.35E-7  | 8.01E-3   | 1.22E-2  |
| GWP-luluc            | kg CO2 eq    | 8.83E-5  | 8.74E-7  | 4.66E-4  | 5.55E-4  | 4.29E-7  | 6.74E-6  | 1.03E-8  | -7.47E-5  | 4.88E-4  |
| ODP                  | kg CFC11 eq  | 6.65E-9  | 5.69E-10 | 5.54E-10 | 7.78E-9  | 2.79E-10 | 9.97E-10 | 1.52E-11 | -3.54E-9  | 5.53E-9  |
| AP                   | mol H+ eq    | 4.52E-4  | 1.41E-5  | 2.23E-5  | 4.89E-4  | 6.91E-6  | 4.19E-5  | 3.65E-7  | -2.06E-4  | 3.32E-4  |
| EP-fw                | kg P eq      | 2.41E-6  | 2.03E-8  | 8.58E-8  | 2.51E-6  | 9.98E-9  | 1.98E-7  | 4.74E-10 | -1.40E-6  | 1.32E-6  |
| EP-m                 | kg N eq      | 8.30E-5  | 5.03E-6  | 3.76E-6  | 9.18E-5  | 2.47E-6  | 1.28E-5  | 2.97E-7  | -4.03E-5  | 6.70E-5  |
| EP-T                 | mol N eq     | 9.13E-4  | 5.55E-5  | 4.23E-5  | 1.01E-3  | 2.72E-5  | 1.40E-4  | 1.48E-6  | -4.53E-4  | 7.27E-4  |
| POCP                 | kg NMVOC eq  | 3.87E-4  | 1.59E-5  | 1.31E-5  | 4.16E-4  | 7.79E-6  | 4.34E-5  | 5.53E-7  | -1.81E-4  | 2.87E-4  |
| ADP-mm               | kg Sb eq     | 7.65E-6  | 6.39E-8  | 1.34E-7  | 7.85E-6  | 3.14E-8  | 1.60E-7  | 3.65E-10 | -6.48E-7  | 7.39E-6  |
| ADP-f                | MJ           | 3.72E+0  | 3.79E-2  | 7.27E-2  | 3.83E+0  | 1.86E-2  | 1.22E-1  | 1.11E-3  | -1.88E+0  | 2.09E+0  |
| WDP                  | m3 depriv.   | 7.43E-2  | 1.16E-4  | 2.57E-2  | 1.00E-1  | 5.71E-5  | 2.44E-3  | 5.10E-6  | -4.15E-2  | 6.11E-2  |
| PM                   | disease inc. | 4.73E-9  | 2.23E-10 | 2.23E-10 | 5.18E-9  | 1.09E-10 | 6.56E-10 | 7.65E-12 | -2.31E-9  | 3.64E-9  |
| IR                   | kBq U-235 eq | 3.46E-3  | 1.66E-4  | 6.78E-5  | 3.69E-3  | 8.14E-5  | 3.80E-4  | 5.20E-6  | -1.45E-3  | 2.71E-3  |
| ETP-fw               | CTUe         | 1.86E+0  | 3.08E-2  | 1.15E-1  | 2.00E+0  | 1.51E-2  | 1.68E-1  | 1.11E-3  | -8.98E-1  | 1.29E+0  |
| HTP-c                | CTUh         | 3.83E-11 | 1.10E-12 | 6.11E-12 | 4.55E-11 | 5.38E-13 | 1.64E-11 | 2.72E-14 | -1.95E-11 | 4.30E-11 |
| HTP-nc               | CTUh         | 9.09E-10 | 3.67E-11 | 1.27E-10 | 1.07E-9  | 1.80E-11 | 2.12E-10 | 6.41E-13 | -4.66E-10 | 8.37E-10 |
| SQP                  | Pt           | 1.76E+0  | 3.24E-2  | 1.32E-2  | 1.81E+0  | 1.59E-2  | 9.49E-2  | 2.86E-3  | -2.55E+0  | -6.31E-1 |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
| PERE                 | MJ           | 3.08E-1  | 5.44E-4  | 2.51E-1  | 5.60E-1  | 2.67E-4  | 5.86E-3  | 4.44E-5  | -4.42E-1  | 1.24E-1  |
| PERM                 | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PERT                 | MJ           | 3.08E-1  | 5.44E-4  | 2.51E-1  | 5.60E-1  | 2.67E-4  | 5.86E-3  | 4.44E-5  | -4.42E-1  | 1.24E-1  |
| PENRE                | MJ           | 3.98E+0  | 4.02E-2  | 7.93E-2  | 4.10E+0  | 1.98E-2  | 1.30E-1  | 1.18E-3  | -2.03E+0  | 2.23E+0  |
| PENRM                | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PENRT                | MJ           | 3.98E+0  | 4.02E-2  | 7.93E-2  | 4.10E+0  | 1.98E-2  | 1.30E-1  | 1.18E-3  | -2.03E+0  | 2.23E+0  |
| PET                  | MJ           | 4.29E+0  | 4.08E-2  | 3.31E-1  | 4.66E+0  | 2.00E-2  | 1.36E-1  | 1.23E-3  | -2.47E+0  | 2.35E+0  |
| 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           | 1.29E-3  | 4.29E-6  | 6.11E-4  | 1.90E-3  | 2.11E-6  | 8.84E-5  | 1.38E-6  | -7.67E-4  | 1.23E-3  |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 8.81E-7 | 9.69E-8 | 7.06E-8 | 1.05E-6 | 4.76E-8 | 2.17E-7 | 1.34E-9 | -6.96E-7 | 6.18E-7 |
| NHWD                              | kg   | 6.91E-3 | 2.35E-3 | 6.88E-4 | 9.95E-3 | 1.15E-3 | 6.21E-3 | 4.91E-3 | -2.57E-3 | 1.97E-2 |
| RWD                               | kg   | 3.78E-6 | 2.58E-7 | 7.54E-8 | 4.12E-6 | 1.27E-7 | 4.87E-7 | 7.29E-9 | -1.39E-6 | 3.35E-6 |
| 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