

Environmental Profile

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

Ecochain v3.5.64



Product: 3080063 - AS+ Pipe LGY DN50 L=3 S/PL
 Unit: 1 piece
 Manufacturer: Wavin Germany Twist
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 49767 Twist
 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: 08-04-2022
 End of validity: 08-04-2027
 Verifier: Harry van Ewijk - SGS Search



This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard.

Wavin AS+ is a mineral-reinforced polypropylene (PP) low noise soil and waste solution. The AS+ has a unique material composition for optimal noise reduction.

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin Germany Twist (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 B6 Operational energy use B7 Operational water use | | | | | | | C1 De-construction demolition C2 Transport C3 Waste processing C4 Disposal | | | | |
| Construction process stage | | | | | Benefits and loads beyond the system boundaries | | | | | | | | | | | |
| A4 Transport gate to site 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]

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Results

| Environmental impact | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|----------------------|--------------|----------|----------|----------|---------|----------|---------|----------|-----------|---------|
| GWP-total | kg CO2 eq | 3.48E+0 | 9.85E-2 | 1.88E-1 | 3.77E+0 | 6.62E-2 | 1.76E+0 | 1.27E-2 | -2.32E+0 | 3.29E+0 |
| GWP-f | kg CO2 eq | 3.48E+0 | 9.85E-2 | 1.56E-1 | 3.74E+0 | 6.61E-2 | 1.76E+0 | 1.27E-2 | -2.31E+0 | 3.27E+0 |
| GWP-b | kg CO2 eq | -6.26E-3 | 4.55E-5 | 2.31E-2 | 1.69E-2 | 4.02E-5 | 6.61E-3 | 2.33E-5 | -9.26E-3 | 1.43E-2 |
| GWP-luluc | kg CO2 eq | 2.02E-3 | 3.61E-5 | 9.18E-3 | 1.12E-2 | 2.34E-5 | 5.10E-4 | 4.84E-7 | -5.09E-4 | 1.13E-2 |
| ODP | kg CFC11 eq | 2.30E-7 | 2.17E-8 | 1.89E-8 | 2.71E-7 | 1.52E-8 | 1.12E-7 | 7.48E-10 | -6.21E-8 | 3.37E-7 |
| AP | mol H+ eq | 1.46E-2 | 5.71E-4 | 7.13E-4 | 1.59E-2 | 3.77E-4 | 2.79E-3 | 1.75E-5 | -7.24E-3 | 1.18E-2 |
| EP-fw | kg P eq | 8.36E-5 | 9.93E-7 | 2.19E-6 | 8.68E-5 | 5.44E-7 | 2.40E-5 | 2.20E-8 | -2.91E-5 | 8.22E-5 |
| EP-m | kg N eq | 2.66E-3 | 2.01E-4 | 2.10E-4 | 3.07E-3 | 1.35E-4 | 7.24E-4 | 1.01E-5 | -1.24E-3 | 2.70E-3 |
| EP-T | mol N eq | 3.03E-2 | 2.22E-3 | 2.19E-3 | 3.48E-2 | 1.49E-3 | 8.00E-3 | 7.14E-5 | -1.38E-2 | 3.06E-2 |
| POCP | kg NMVOC eq | 1.11E-2 | 6.33E-4 | 6.27E-4 | 1.23E-2 | 4.25E-4 | 2.48E-3 | 2.29E-5 | -6.46E-3 | 8.80E-3 |
| ADP-mm | kg Sb eq | 2.50E-4 | 2.49E-6 | 2.57E-6 | 2.56E-4 | 1.71E-6 | 9.99E-6 | 1.76E-8 | -1.78E-5 | 2.49E-4 |
| ADP-f | MJ | 8.08E+1 | 1.49E+0 | 2.01E+0 | 8.43E+1 | 1.02E+0 | 8.83E+0 | 5.41E-2 | -7.79E+1 | 1.63E+1 |
| WDP | m3 depriv. | 3.45E+0 | 5.31E-3 | 1.10E+0 | 4.55E+0 | 3.12E-3 | 1.97E-1 | 2.68E-4 | -1.44E+0 | 3.31E+0 |
| PM | disease inc. | 1.25E-7 | 8.84E-9 | 1.10E-8 | 1.45E-7 | 5.97E-9 | 4.54E-8 | 3.70E-10 | -6.18E-8 | 1.35E-7 |
| IR | kBq U-235 eq | 1.23E-1 | 6.22E-3 | 2.89E-3 | 1.32E-1 | 4.44E-3 | 3.04E-2 | 2.48E-4 | -3.78E-2 | 1.29E-1 |
| ETP-fw | CTUe | 7.98E+2 | 1.32E+0 | 2.59E+0 | 8.02E+2 | 8.25E-1 | 1.92E+1 | 4.25E-2 | -1.03E+1 | 8.12E+2 |
| HTP-c | CTUh | 1.25E-9 | 4.30E-11 | 1.15E-10 | 1.41E-9 | 2.93E-11 | 1.13E-9 | 1.24E-12 | -4.20E-10 | 2.15E-9 |
| HTP-nc | CTUh | 3.86E-7 | 1.45E-9 | 2.67E-9 | 3.90E-7 | 9.83E-10 | 1.49E-8 | 2.57E-11 | -1.23E-8 | 3.94E-7 |
| SQP | Pt | 9.62E+0 | 1.29E+0 | 2.19E-1 | 1.11E+1 | 8.69E-1 | 6.31E+0 | 1.37E-1 | -2.14E+0 | 1.63E+1 |
| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| PERE | MJ | 2.51E+0 | 1.86E-2 | 4.95E+0 | 7.48E+0 | 1.46E-2 | 7.42E-1 | 1.92E-3 | -1.04E+0 | 7.20E+0 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 2.51E+0 | 1.86E-2 | 4.95E+0 | 7.48E+0 | 1.46E-2 | 7.42E-1 | 1.92E-3 | -1.04E+0 | 7.20E+0 |
| PENRE | MJ | 8.66E+1 | 1.58E+0 | 2.19E+0 | 9.04E+1 | 1.08E+0 | 9.39E+0 | 5.74E-2 | -8.38E+1 | 1.71E+1 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 8.66E+1 | 1.58E+0 | 2.19E+0 | 9.04E+1 | 1.08E+0 | 9.39E+0 | 5.74E-2 | -8.38E+1 | 1.71E+1 |
| PET | MJ | 8.91E+1 | 1.60E+0 | 7.14E+0 | 9.78E+1 | 1.09E+0 | 1.01E+1 | 5.93E-2 | -8.49E+1 | 2.43E+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 | 7.56E-2 | 1.81E-4 | 2.58E-2 | 1.02E-1 | 1.15E-4 | 5.89E-3 | 6.64E-5 | -2.16E-2 | 8.61E-2 |

| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD | kg | 3.16E-5 | 3.76E-6 | 2.73E-6 | 3.81E-5 | 2.60E-6 | 1.85E-5 | 6.49E-8 | -1.23E-5 | 4.70E-5 |
| NHWD | kg | 2.68E-1 | 9.42E-2 | 1.14E-2 | 3.73E-1 | 6.29E-2 | 4.24E-1 | 2.52E-1 | -6.25E-2 | 1.05E+0 |
| RWD | kg | 1.30E-4 | 9.75E-6 | 3.98E-6 | 1.44E-4 | 6.91E-6 | 3.83E-5 | 3.54E-7 | -3.32E-5 | 1.56E-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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