

# Environmental Profile

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

Ecochain v3.5.64



Product: 3079964 - AS+ Bend DN 200 87°  
 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	☑	☑	☑	☑
<b>Product stage</b>					<b>Use stage</b>							<b>End-of-Life stage</b>				
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				
<b>Construction process stage</b>					<b>Benefits and loads beyond the system boundaries</b>											
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]

## 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	4.04E+0	1.48E-1	2.00E-1	4.39E+0	6.18E-2	2.10E+0	1.27E-2	-2.34E+0	4.23E+0
GWP-f	kg CO2 eq	4.04E+0	1.48E-1	1.63E-1	4.35E+0	6.17E-2	1.95E+0	1.27E-2	-2.65E+0	3.73E+0
GWP-b	kg CO2 eq	-4.92E-3	6.82E-5	2.45E-2	1.96E-2	3.75E-5	1.48E-1	2.48E-5	3.14E-1	4.82E-1
GWP-luluc	kg CO2 eq	4.17E-3	5.41E-5	1.26E-2	1.68E-2	2.18E-5	5.13E-4	5.09E-7	-2.79E-3	1.45E-2
ODP	kg CFC11 eq	3.30E-7	3.26E-8	1.87E-8	3.82E-7	1.42E-8	1.23E-7	7.41E-10	-9.25E-8	4.27E-7
AP	mol H+ eq	1.80E-2	8.57E-4	7.87E-4	1.96E-2	3.52E-4	2.94E-3	1.77E-5	-9.22E-3	1.37E-2
EP-fw	kg P eq	1.15E-4	1.49E-6	2.49E-6	1.19E-4	5.08E-7	2.56E-5	2.32E-8	-5.89E-5	8.63E-5
EP-m	kg N eq	3.51E-3	3.02E-4	2.06E-4	4.02E-3	1.26E-4	7.74E-4	1.07E-5	-1.67E-3	3.26E-3
EP-T	mol N eq	3.92E-2	3.33E-3	2.18E-3	4.47E-2	1.39E-3	8.56E-3	7.18E-5	-1.87E-2	3.60E-2
POCP	kg NMVOC eq	1.32E-2	9.50E-4	6.25E-4	1.48E-2	3.96E-4	2.63E-3	2.30E-5	-7.88E-3	9.94E-3
ADP-mm	kg Sb eq	3.39E-4	3.74E-6	3.37E-6	3.46E-4	1.60E-6	1.03E-5	1.79E-8	-2.32E-5	3.35E-4
ADP-f	MJ	8.53E+1	2.23E+0	2.06E+0	8.96E+1	9.47E-1	9.00E+0	5.40E-2	-8.62E+1	1.33E+1
WDP	m3 depriv.	3.92E+0	7.97E-3	1.22E+0	5.15E+0	2.91E-3	2.03E-1	3.15E-4	-2.00E+0	3.36E+0
PM	disease inc.	1.67E-7	1.33E-8	1.07E-8	1.91E-7	5.57E-9	4.71E-8	3.72E-10	-9.63E-8	1.47E-7
IR	kBq U-235 eq	1.59E-1	9.33E-3	2.75E-3	1.71E-1	4.14E-3	3.19E-2	2.48E-4	-6.03E-2	1.47E-1
ETP-fw	CTUe	9.66E+2	1.99E+0	3.14E+0	9.71E+2	7.69E-1	2.14E+1	4.46E-2	-3.51E+1	9.58E+2
HTP-c	CTUh	1.63E-9	6.44E-11	1.35E-10	1.83E-9	2.74E-11	1.20E-9	1.33E-12	-6.37E-10	2.41E-9
HTP-nc	CTUh	4.52E-7	2.17E-9	3.31E-9	4.57E-7	9.17E-10	1.55E-8	2.68E-11	-1.94E-8	4.55E-7
SQP	Pt	2.43E+1	1.93E+0	2.00E-1	2.65E+1	8.11E-1	6.23E+0	1.39E-1	-6.03E+1	-2.67E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.51E+0	2.79E-2	6.77E+0	1.23E+1	1.36E-2	7.95E-1	2.01E-3	-1.16E+1	1.49E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.51E+0	2.79E-2	6.77E+0	1.23E+1	1.36E-2	7.95E-1	2.01E-3	-1.16E+1	1.49E+0
PENRE	MJ	9.13E+1	2.37E+0	2.24E+0	9.59E+1	1.01E+0	9.58E+0	5.73E-2	-9.27E+1	1.39E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	9.13E+1	2.37E+0	2.24E+0	9.59E+1	1.01E+0	9.58E+0	5.73E-2	-9.27E+1	1.39E+1
PET	MJ	9.68E+1	2.39E+0	9.01E+0	1.08E+2	1.02E+0	1.04E+1	5.93E-2	-1.04E+2	1.54E+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	8.97E-2	2.71E-4	2.88E-2	1.19E-1	1.07E-4	6.30E-3	6.63E-5	-3.50E-2	9.03E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.42E-5	5.65E-6	2.53E-6	5.24E-5	2.42E-6	1.99E-5	6.55E-8	-1.75E-5	5.73E-5
NHWD	kg	3.70E-1	1.41E-1	1.03E-2	5.21E-1	5.87E-2	4.33E-1	2.38E-1	-9.22E-2	1.16E+0
RWD	kg	1.71E-4	1.46E-5	3.63E-6	1.90E-4	6.44E-6	4.04E-5	3.52E-7	-5.47E-5	1.82E-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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