

# Environmental Profile

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

Ecochain v3.5.64



Product: 3079984 - AS+ Branch DN 100x70 45°  
 Unit: 1 piece  
 Manufacturer: Wavin Germany Twist  
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 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	1.52E+0	5.55E-2	7.61E-2	1.65E+0	2.36E-2	7.95E-1	4.90E-3	-9.11E-1	1.56E+0
GWP-f	kg CO2 eq	1.52E+0	5.55E-2	6.21E-2	1.64E+0	2.36E-2	7.56E-1	4.89E-3	-9.92E-1	1.43E+0
GWP-b	kg CO2 eq	-2.72E-3	2.56E-5	9.30E-3	6.61E-3	1.43E-5	3.97E-2	9.52E-6	8.11E-2	1.27E-1
GWP-luluc	kg CO2 eq	1.39E-3	2.03E-5	4.77E-3	6.17E-3	8.34E-6	1.94E-4	1.95E-7	-7.96E-4	5.58E-3
ODP	kg CFC11 eq	1.25E-7	1.22E-8	7.09E-9	1.45E-7	5.43E-9	4.62E-8	2.84E-10	-3.31E-8	1.64E-7
AP	mol H+ eq	6.74E-3	3.22E-4	2.99E-4	7.37E-3	1.34E-4	1.10E-3	6.76E-6	-3.33E-3	5.27E-3
EP-fw	kg P eq	4.19E-5	5.60E-7	9.45E-7	4.34E-5	1.94E-7	9.71E-6	8.87E-9	-1.91E-5	3.43E-5
EP-m	kg N eq	1.29E-3	1.13E-4	7.84E-5	1.48E-3	4.80E-5	2.89E-4	4.18E-6	-5.96E-4	1.22E-3
EP-T	mol N eq	1.45E-2	1.25E-3	8.29E-4	1.65E-2	5.29E-4	3.19E-3	2.75E-5	-6.65E-3	1.36E-2
POCP	kg NMVOC eq	4.96E-3	3.57E-4	2.38E-4	5.56E-3	1.51E-4	9.79E-4	8.82E-6	-2.88E-3	3.81E-3
ADP-mm	kg Sb eq	1.35E-4	1.41E-6	1.28E-6	1.38E-4	6.09E-7	3.86E-6	6.86E-9	-8.79E-6	1.34E-4
ADP-f	MJ	3.24E+1	8.37E-1	7.83E-1	3.40E+1	3.62E-1	3.39E+0	2.07E-2	-3.25E+1	5.21E+0
WDP	m3 depriv.	1.49E+0	2.99E-3	4.64E-1	1.95E+0	1.11E-3	7.71E-2	1.20E-4	-7.05E-1	1.33E+0
PM	disease inc.	6.17E-8	4.98E-9	4.05E-9	7.07E-8	2.13E-9	1.77E-8	1.42E-10	-3.31E-8	5.76E-8
IR	kBq U-235 eq	6.02E-2	3.51E-3	1.04E-3	6.48E-2	1.58E-3	1.20E-2	9.51E-5	-2.06E-2	5.78E-2
ETP-fw	CTUe	3.63E+2	7.46E-1	1.19E+0	3.65E+2	2.94E-1	8.10E+0	1.73E-2	-1.05E+1	3.63E+2
HTP-c	CTUh	6.09E-10	2.42E-11	5.11E-11	6.84E-10	1.04E-11	4.50E-10	5.10E-13	-2.21E-10	9.25E-10
HTP-nc	CTUh	1.72E-7	8.16E-10	1.26E-9	1.74E-7	3.50E-10	5.86E-9	1.03E-11	-6.65E-9	1.73E-7
SQP	Pt	7.82E+0	7.26E-1	7.60E-2	8.62E+0	3.09E-1	2.35E+0	5.31E-2	-1.61E+1	-4.74E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.79E+0	1.05E-2	2.57E+0	4.38E+0	5.19E-3	3.02E-1	7.70E-4	-3.18E+0	1.51E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.79E+0	1.05E-2	2.57E+0	4.38E+0	5.19E-3	3.02E-1	7.70E-4	-3.18E+0	1.51E+0
PENRE	MJ	3.46E+1	8.89E-1	8.53E-1	3.64E+1	3.84E-1	3.61E+0	2.20E-2	-3.50E+1	5.42E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.46E+1	8.89E-1	8.53E-1	3.64E+1	3.84E-1	3.61E+0	2.20E-2	-3.50E+1	5.42E+0
PET	MJ	3.64E+1	8.99E-1	3.42E+0	4.08E+1	3.89E-1	3.91E+0	2.27E-2	-3.82E+1	6.92E+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	3.39E-2	1.02E-4	1.09E-2	4.50E-2	4.09E-5	2.40E-3	2.54E-5	-1.19E-2	3.56E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.64E-5	2.12E-6	9.62E-7	1.95E-5	9.25E-7	7.50E-6	2.51E-8	-6.31E-6	2.16E-5
NHWD	kg	1.36E-1	5.31E-2	3.92E-3	1.93E-1	2.24E-2	1.63E-1	9.12E-2	-3.21E-2	4.38E-1
RWD	kg	6.55E-5	5.50E-6	1.38E-6	7.24E-5	2.46E-6	1.51E-5	1.35E-7	-1.87E-5	7.15E-5
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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