

# Environmental Profile

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

Ecochain v3.5.64



Product: 3080000 - AS+ Branch DN 70x70 45°  
 Unit: 1 piece  
 Manufacturer: Wavin Germany Twist  
 Address: Industriestraße 20  
 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

A1 Raw material supply A2 Transport A3 Manufacturing

## Construction process stage

A4 Transport gate to site  
 A5 Assembly / Construction installation process

## Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment  
 B6 Operational energy use B7 Operational water use

## End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing  
 C4 Disposal

## Benefits and loads beyond the system boundaries

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	8.05E-1	2.87E-2	3.87E-2	8.72E-1	1.21E-2	4.31E-1	2.59E-3	-4.68E-1	8.50E-1
GWP-f	kg CO2 eq	8.06E-1	2.86E-2	3.15E-2	8.66E-1	1.21E-2	4.06E-1	2.58E-3	-5.20E-1	7.67E-1
GWP-b	kg CO2 eq	-1.63E-3	1.32E-5	4.72E-3	3.11E-3	7.34E-6	2.49E-2	4.93E-6	5.21E-2	8.01E-2
GWP-luluc	kg CO2 eq	7.83E-4	1.05E-5	2.42E-3	3.22E-3	4.28E-6	9.92E-5	1.01E-7	-4.81E-4	2.84E-3
ODP	kg CFC11 eq	7.02E-8	6.32E-9	3.60E-9	8.02E-8	2.79E-9	2.37E-8	1.47E-10	-1.87E-8	8.81E-8
AP	mol H+ eq	3.62E-3	1.66E-4	1.52E-4	3.93E-3	6.89E-5	5.69E-4	3.50E-6	-1.76E-3	2.82E-3
EP-fw	kg P eq	2.28E-5	2.89E-7	4.80E-7	2.35E-5	9.95E-8	4.95E-6	4.59E-9	-1.07E-5	1.79E-5
EP-m	kg N eq	6.93E-4	5.85E-5	3.98E-5	7.91E-4	2.46E-5	1.50E-4	2.24E-6	-3.17E-4	6.51E-4
EP-T	mol N eq	7.76E-3	6.45E-4	4.21E-4	8.83E-3	2.72E-4	1.66E-3	1.42E-5	-3.55E-3	7.23E-3
POCP	kg NMVOC eq	2.67E-3	1.84E-4	1.21E-4	2.97E-3	7.76E-5	5.08E-4	4.58E-6	-1.51E-3	2.05E-3
ADP-mm	kg Sb eq	7.72E-5	7.26E-7	6.49E-7	7.86E-5	3.13E-7	1.99E-6	3.55E-9	-4.80E-6	7.61E-5
ADP-f	MJ	1.73E+1	4.32E-1	3.98E-1	1.81E+1	1.86E-1	1.74E+0	1.07E-2	-1.68E+1	3.21E+0
WDP	m3 depriv.	7.75E-1	1.55E-3	2.36E-1	1.01E+0	5.70E-4	3.95E-2	6.23E-5	-3.75E-1	6.77E-1
PM	disease inc.	3.38E-8	2.57E-9	2.06E-9	3.84E-8	1.09E-9	9.08E-9	7.37E-11	-1.79E-8	3.07E-8
IR	kBq U-235 eq	3.30E-2	1.81E-3	5.31E-4	3.53E-2	8.11E-4	6.15E-3	4.92E-5	-1.13E-2	3.11E-2
ETP-fw	CTUe	1.86E+2	3.85E-1	6.06E-1	1.87E+2	1.51E-1	4.17E+0	9.16E-3	-6.18E+0	1.85E+2
HTP-c	CTUh	3.27E-10	1.25E-11	2.60E-11	3.65E-10	5.36E-12	2.31E-10	2.64E-13	-1.19E-10	4.83E-10
HTP-nc	CTUh	8.75E-8	4.21E-10	6.38E-10	8.86E-8	1.80E-10	3.02E-9	5.41E-12	-3.61E-9	8.82E-8
SQP	Pt	4.54E+0	3.75E-1	3.86E-2	4.95E+0	1.59E-1	1.20E+0	2.75E-2	-1.01E+1	-3.78E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.03E+0	5.41E-3	1.31E+0	2.34E+0	2.66E-3	1.54E-1	3.99E-4	-1.97E+0	5.28E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.03E+0	5.41E-3	1.31E+0	2.34E+0	2.66E-3	1.54E-1	3.99E-4	-1.97E+0	5.28E-1
PENRE	MJ	1.85E+1	4.59E-1	4.33E-1	1.94E+1	1.97E-1	1.85E+0	1.14E-2	-1.81E+1	3.35E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.85E+1	4.59E-1	4.33E-1	1.94E+1	1.97E-1	1.85E+0	1.14E-2	-1.81E+1	3.35E+0
PET	MJ	1.95E+1	4.64E-1	1.74E+0	2.17E+1	2.00E-1	2.00E+0	1.18E-2	-2.01E+1	3.88E+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	1.77E-2	5.26E-5	5.56E-3	2.34E-2	2.10E-5	1.25E-3	1.31E-5	-6.47E-3	1.82E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	8.91E-6	1.09E-6	4.89E-7	1.05E-5	4.75E-7	3.86E-6	1.30E-8	-3.53E-6	1.13E-5
NHWD	kg	7.30E-2	2.74E-2	1.99E-3	1.02E-1	1.15E-2	8.41E-2	4.72E-2	-1.73E-2	2.28E-1
RWD	kg	3.64E-5	2.84E-6	7.00E-7	3.99E-5	1.26E-6	7.78E-6	6.97E-8	-1.03E-5	3.87E-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



Ecochain Technologies BV  
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands  
<https://www.ecochain.com>  
+31 20 3035 777