Environmental Profile

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

Ecochain v3.5.80

Product:	3025901 - Gutter Angle 90° Sand 25
Unit:	1 piece
Manufacturer:	Wavin - PL -Buk - Extra products

LCA standard:	EN15804+A2 (2019)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	08-06-2023
End of validity:	08-06-2028
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 - PL -Buk - Extra products (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 EN15804+A2 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF EN15804+A2 Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF EN15804+A2 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

Results

Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	3.27E-1	8.94E-3	1.45E-4	3.36E-1	4.77E-3	4.44E-1	1.51E-3	-2.12E-1	5.74E-1
GWP-f	kg CO2 eq	5.54E-1	8.93E-3	1.46E-4	5.63E-1	4.76E-3	1.75E-1	1.51E-3	-2.94E-1	4.50E-1
GWP-b	kg CO2 eq	-2.28E-1	5.42E-6	-1.54E-6	-2.28E-1	2.89E-6	2.70E-1	1.85E-6	8.26E-2	1.25E-1
GWP-luluc	kg CO2 eq	9.76E-4	3.16E-6	1.49E-7	9.79E-4	1.69E-6	6.02E-5	4.15E-8	-8.25E-4	2.16E-4
ODP	kg CFC11 eq	2.10E-7	2.06E-9	8.26E-12	2.12E-7	1.10E-9	1.69E-8	5.60E-11	-1.12E-7	1.18E-7
AP	mol H+ eq	3.17E-3	5.09E-5	1.47E-6	3.22E-3	2.71E-5	3.19E-4	1.37E-6	-1.37E-3	2.21E-3
EP-fw	kg P eq	2.68E-5	7.35E-8	8.24E-9	2.69E-5	3.92E-8	2.02E-6	1.84E-9	-1.61E-5	1.29E-5
EP-m	kg N eq	5.76E-4	1.82E-5	1.55E-7	5.94E-4	9.71E-6	8.50E-5	8.20E-7	-2.82E-4	4.08E-4
EP-T	mol N eq	6.11E-3	2.01E-4	1.85E-6	6.31E-3	1.07E-4	9.36E-4	5.44E-6	-3.15E-3	4.21E-3
POCP	kg NMVOC eq	1.94E-3	5.73E-5	6.28E-7	2.00E-3	3.06E-5	2.79E-4	1.87E-6	-9.96E-4	1.31E-3
ADP-mm	kg Sb eq	4.94E-4	2.31E-7	1.97E-8	4.94E-4	1.23E-7	1.25E-6	1.39E-9	-5.15E-6	4.90E-4
ADP-f	MJ	1.22E+1	1.37E-1	1.36E-3	1.23E+1	7.31E-2	8.27E-1	4.10E-3	-6.46E+0	6.75E+0
WDP	m3 depriv.	6.84E-1	4.21E-4	5.22E-5	6.85E-1	2.24E-4	2.93E-2	3.49E-5	-4.16E-1	2.98E-1
PM	disease inc.	2.62E-8	8.06E-10	9.08E-12	2.71E-8	4.30E-10	4.08E-9	2.82E-11	-1.69E-8	1.47E-8
IR	kBq U-235 eq	2.82E-2	5.99E-4	1.02E-6	2.88E-2	3.20E-4	2.99E-3	1.87E-5	-1.60E-2	1.61E-2
ETP-fw	CTUe	2.34E+1	1.11E-1	1.21E-2	2.35E+1	5.94E-2	5.68E+0	6.08E-2	-1.00E+1	1.93E+1
HTP-c	CTUh	5.93E-10	3.96E-12	6.17E-13	5.98E-10	2.11E-12	1.05E-10	1.18E-13	-2.39E-10	4.67E-10
HTP-nc	CTUh	1.44E-8	1.33E-10	1.57E-11	1.45E-8	7.08E-11	2.14E-9	1.18E-11	-6.01E-9	1.07E-8
SQP	Pt	2.46E+1	1.17E-1	2.24E-3	2.47E+1	6.26E-2	5.13E-1	1.04E-2	-3.19E+1	-6.64E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.24E+0	1.97E-3	2.40E-2	5.26E+0	1.05E-3	5.54E-2	1.47E-4	-5.39E+0	-6.93E-2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.24E+0	1.97E-3	2.40E-2	5.26E+0	1.05E-3	5.54E-2	1.47E-4	-5.39E+0	-6.93E-2
PENRE	MJ	1.31E+1	1.45E-1	1.44E-3	1.32E+1	7.76E-2	8.80E-1	4.35E-3	-6.95E+0	7.22E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.31E+1	1.45E-1	1.44E-3	1.32E+1	7.76E-2	8.80E-1	4.35E-3	-6.95E+0	7.22E+0
PET	MJ	1.83E+1	1.47E-1	2.55E-2	1.85E+1	7.87E-2	9.35E-1	4.49E-3	-1.23E+1	7.15E+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	9.55E-3	1.55E-5	1.46E-6	9.57E-3	8.28E-6	8.25E-4	4.98E-6	-6.42E-3	3.99E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.20E-5	3.50E-7	2.73E-13	7.23E-5	1.87E-7	1.44E-6	5.06E-9	-6.71E-6	6.72E-5
NHWD	kg	8.67E-2	8.49E-3	1.05E-6	9.52E-2	4.53E-3	3.28E-2	1.81E-2	-3.10E-2	1.20E-1
RWD	kg	2.60E-5	9.32E-7	1.10E-13	2.69E-5	4.97E-7	3.36E-6	2.65E-8	-1.50E-5	1.58E-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