

# Environmental Profile

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

Ecochain v3.5.64



Product: 3070633 - PE Branch Reduced S12,5 45° 200x110  
 Unit: 1 piece  
 Manufacturer: Wavin - IT - SM Maddalena

LCA standard: EN15804+A2 (2019)  
 Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
 Externally verified: Yes  
 Issue date: 24-11-2022  
 End of validity: 24-11-2027  
 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 - IT - SM Maddalena (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 non-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	5.68E+0	7.40E-1	4.35E-1	6.86E+0	7.64E-2	3.47E+0	4.23E-2	-3.71E+0	6.73E+0
GWP-f	kg CO2 eq	6.38E+0	7.39E-1	3.72E-1	7.49E+0	7.63E-2	2.52E+0	4.23E-2	-4.16E+0	5.97E+0
GWP-b	kg CO2 eq	-7.00E-1	4.19E-4	3.15E-2	-6.68E-1	4.64E-5	9.40E-1	3.18E-5	4.60E-1	7.33E-1
GWP-luluc	kg CO2 eq	4.81E-3	2.71E-4	3.14E-2	3.65E-2	2.70E-5	4.43E-4	6.07E-7	-4.52E-3	3.25E-2
ODP	kg CFC11 eq	3.91E-7	1.69E-7	3.74E-8	5.97E-7	1.76E-8	6.31E-8	9.02E-10	-2.29E-7	4.50E-7
AP	mol H+ eq	2.51E-2	5.19E-3	1.50E-3	3.18E-2	4.35E-4	2.60E-3	2.15E-5	-1.34E-2	2.14E-2
EP-fw	kg P eq	1.32E-4	5.93E-6	5.79E-6	1.44E-4	6.28E-7	1.29E-5	2.80E-8	-9.32E-5	6.42E-5
EP-m	kg N eq	4.67E-3	1.73E-3	2.54E-4	6.65E-3	1.56E-4	7.79E-4	1.52E-5	-2.62E-3	4.98E-3
EP-T	mol N eq	5.14E-2	1.91E-2	2.85E-3	7.33E-2	1.71E-3	8.56E-3	8.74E-5	-2.95E-2	5.42E-2
POCP	kg NMVOC eq	2.20E-2	5.36E-3	8.86E-4	2.83E-2	4.90E-4	2.69E-3	3.43E-5	-1.22E-2	1.92E-2
ADP-mm	kg Sb eq	8.68E-5	1.84E-5	9.07E-6	1.14E-4	1.97E-6	1.03E-5	2.16E-8	-2.95E-5	9.71E-5
ADP-f	MJ	2.15E+2	1.13E+1	4.90E+0	2.31E+2	1.17E+0	7.93E+0	6.59E-2	-1.20E+2	1.20E+2
WDP	m3 depriv.	4.64E+0	3.37E-2	1.73E+0	6.41E+0	3.60E-3	1.50E-1	3.02E-4	-2.93E+0	3.63E+0
PM	disease inc.	2.62E-7	6.46E-8	1.50E-8	3.42E-7	6.89E-9	4.24E-8	4.53E-10	-1.41E-7	2.50E-7
IR	kBq U-235 eq	2.05E-1	4.92E-2	4.57E-3	2.59E-1	5.12E-3	2.46E-2	3.07E-4	-1.03E-1	1.86E-1
ETP-fw	CTUe	1.00E+2	9.06E+0	7.73E+0	1.17E+2	9.52E-1	9.34E+0	5.81E-2	-5.54E+1	7.20E+1
HTP-c	CTUh	2.22E-9	3.31E-10	4.12E-10	2.96E-9	3.39E-11	1.08E-9	1.60E-12	-1.33E-9	2.75E-9
HTP-nc	CTUh	4.70E-8	1.07E-8	8.55E-9	6.62E-8	1.13E-9	1.35E-8	3.69E-11	-2.93E-8	5.16E-8
SQP	Pt	8.98E+1	9.30E+0	8.93E-1	1.00E+2	1.00E+0	6.23E+0	1.69E-1	-1.40E+2	-3.30E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.62E+1	1.58E-1	1.70E+1	3.33E+1	1.68E-2	3.82E-1	2.61E-3	-2.48E+1	8.91E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.62E+1	1.58E-1	1.70E+1	3.33E+1	1.68E-2	3.82E-1	2.61E-3	-2.48E+1	8.91E+0
PENRE	MJ	2.30E+2	1.20E+1	5.35E+0	2.48E+2	1.24E+0	8.44E+0	6.99E-2	-1.30E+2	1.28E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.30E+2	1.20E+1	5.35E+0	2.48E+2	1.24E+0	8.44E+0	6.99E-2	-1.30E+2	1.28E+2
PET	MJ	2.47E+2	1.21E+1	2.23E+1	2.81E+2	1.26E+0	8.82E+0	7.25E-2	-1.55E+2	1.37E+2
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	7.44E-2	1.24E-3	4.12E-2	1.17E-1	1.33E-4	4.49E-3	8.14E-5	-5.26E-2	6.89E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.60E-5	2.80E-5	4.76E-6	7.88E-5	3.00E-6	1.34E-5	7.91E-8	-4.35E-5	5.18E-5
NHWD	kg	3.47E-1	6.70E-1	4.64E-2	1.06E+0	7.26E-2	3.87E-1	2.90E-1	-1.59E-1	1.65E+0
RWD	kg	2.23E-4	7.66E-5	5.08E-6	3.05E-4	7.97E-6	3.15E-5	4.31E-7	-9.75E-5	2.48E-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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