

# Environmental Profile

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

Ecochain v3.5.64



Product: 3003579 - PE Bend 90° BK 110 S12,5  
 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 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	5.20E-1	6.93E-2	4.07E-2	6.30E-1	7.14E-3	3.25E-1	3.95E-3	-3.51E-1	6.15E-1
GWP-f	kg CO2 eq	5.90E-1	6.92E-2	3.48E-2	6.94E-1	7.13E-3	2.35E-1	3.95E-3	-3.86E-1	5.55E-1
GWP-b	kg CO2 eq	-7.03E-2	3.92E-5	2.94E-3	-6.74E-2	4.33E-6	8.94E-2	2.97E-6	3.55E-2	5.75E-2
GWP-luluc	kg CO2 eq	4.10E-4	2.54E-5	2.94E-3	3.37E-3	2.52E-6	4.12E-5	5.67E-8	-3.72E-4	3.05E-3
ODP	kg CFC11 eq	3.57E-8	1.59E-8	3.49E-9	5.51E-8	1.64E-9	5.80E-9	8.43E-11	-2.09E-8	4.17E-8
AP	mol H+ eq	2.31E-3	4.86E-4	1.40E-4	2.94E-3	4.06E-5	2.40E-4	2.01E-6	-1.22E-3	2.00E-3
EP-fw	kg P eq	1.19E-5	5.55E-7	5.41E-7	1.30E-5	5.87E-8	1.20E-6	2.61E-9	-8.08E-6	6.18E-6
EP-m	kg N eq	4.25E-4	1.62E-4	2.37E-5	6.11E-4	1.45E-5	7.15E-5	1.42E-6	-2.38E-4	4.60E-4
EP-T	mol N eq	4.70E-3	1.79E-3	2.66E-4	6.75E-3	1.60E-4	7.86E-4	8.17E-6	-2.68E-3	5.03E-3
POCP	kg NMVOC eq	2.04E-3	5.02E-4	8.28E-5	2.62E-3	4.58E-5	2.47E-4	3.20E-6	-1.12E-3	1.79E-3
ADP-mm	kg Sb eq	8.03E-6	1.73E-6	8.47E-7	1.06E-5	1.85E-7	9.52E-7	2.02E-9	-2.72E-6	9.03E-6
ADP-f	MJ	2.00E+1	1.05E+0	4.58E-1	2.15E+1	1.10E-1	7.34E-1	6.16E-3	-1.12E+1	1.12E+1
WDP	m3 depriv.	4.31E-1	3.16E-3	1.62E-1	5.97E-1	3.36E-4	1.40E-2	2.82E-5	-2.63E-1	3.48E-1
PM	disease inc.	2.40E-8	6.05E-9	1.41E-9	3.15E-8	6.44E-10	3.91E-9	4.23E-11	-1.26E-8	2.35E-8
IR	kBq U-235 eq	1.89E-2	4.60E-3	4.27E-4	2.39E-2	4.79E-4	2.27E-3	2.87E-5	-9.19E-3	1.75E-2
ETP-fw	CTUe	8.45E+0	8.48E-1	7.23E-1	1.00E+1	8.89E-2	8.59E-1	5.43E-3	-4.62E+0	6.35E+0
HTP-c	CTUh	2.06E-10	3.10E-11	3.85E-11	2.75E-10	3.16E-12	9.97E-11	1.50E-13	-1.22E-10	2.57E-10
HTP-nc	CTUh	4.30E-9	1.00E-9	7.99E-10	6.10E-9	1.06E-10	1.25E-9	3.45E-12	-2.60E-9	4.86E-9
SQP	Pt	8.49E+0	8.71E-1	8.34E-2	9.44E+0	9.37E-2	5.78E-1	1.58E-2	-1.21E+1	-1.97E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.51E+0	1.48E-2	1.58E+0	3.11E+0	1.57E-3	3.55E-2	2.44E-4	-2.12E+0	1.02E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.51E+0	1.48E-2	1.58E+0	3.11E+0	1.57E-3	3.55E-2	2.44E-4	-2.12E+0	1.02E+0
PENRE	MJ	2.14E+1	1.12E+0	5.00E-1	2.31E+1	1.16E-1	7.82E-1	6.53E-3	-1.21E+1	1.19E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.14E+1	1.12E+0	5.00E-1	2.31E+1	1.16E-1	7.82E-1	6.53E-3	-1.21E+1	1.19E+1
PET	MJ	2.29E+1	1.13E+0	2.08E+0	2.62E+1	1.18E-1	8.18E-1	6.78E-3	-1.42E+1	1.29E+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	6.86E-3	1.17E-4	3.85E-3	1.08E-2	1.24E-5	4.17E-4	7.61E-6	-4.64E-3	6.63E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.19E-6	2.62E-6	4.45E-7	7.26E-6	2.80E-7	1.24E-6	7.39E-9	-4.00E-6	4.79E-6
NHWD	kg	3.13E-2	6.28E-2	4.34E-3	9.84E-2	6.79E-3	3.59E-2	2.71E-2	-1.45E-2	1.54E-1
RWD	kg	2.06E-5	7.18E-6	4.75E-7	2.82E-5	7.45E-7	2.90E-6	4.03E-8	-8.71E-6	2.32E-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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