Environmental Profile

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

Ecochain v4.3.1

Product:	3050942 - PPr Elbow 90°WT 50
Unit:	1 piece
Manufacturer:	Wavin - TR - Adana
Location:	Güzelevler Mahallesi
Address:	Girne Bulvarı 294 01321 Adana Turkey

LCA standard:	EN15804+A2 (2019)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	04-10-2022
End of validity:	04-10-2027
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 - TR - Adana (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-f** = EF Resource use, fossils [MJ]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **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	3.23E-1	2.25E-2	8.40E-3	3.54E-1	7.17E-3	2.74E-1	3.37E-3	-1.75E-1	4.63E-1
GWP-f	kg CO2 eq	3.23E-1	2.25E-2	8.11E-3	3.53E-1	7.16E-3	2.60E-1	3.37E-3	-1.90E-1	4.34E-1
GWP-b	kg CO2 eq	4.96E-4	-3.64E-6	2.84E-4	7.76E-4	4.35E-6	1.35E-2	2.93E-6	1.52E-2	2.94E-2
GWP-luluc	kg CO2 eq	3.31E-4	1.42E-5	4.95E-6	3.51E-4	2.53E-6	4.14E-5	5.82E-8	-1.42E-4	2.52E-4
ODP	kg CFC11 eq	8.75E-9	4.60E-9	6.50E-10	1.40E-8	1.65E-9	5.78E-9	8.47E-11	-8.87E-9	1.26E-8
AP	mol H+ eq	1.37E-3	6.18E-4	5.16E-5	2.04E-3	4.08E-5	2.43E-4	2.02E-6	-5.54E-4	1.77E-3
EP-fw	kg P eq	6.35E-6	1.15E-7	6.48E-7	7.11E-6	5.89E-8	1.20E-6	2.66E-9	-3.22E-6	5.15E-6
EP-m	kg N eq	2.22E-4	1.54E-4	1.80E-5	3.95E-4	1.46E-5	7.28E-5	1.31E-6	-1.03E-4	3.80E-4
EP-T	mol N eq	2.42E-3	1.72E-3	1.22E-4	4.26E-3	1.61E-4	8.01E-4	8.21E-6	-1.15E-3	4.07E-3
POCP	kg NMVOC eq	1.05E-3	4.47E-4	3.97E-5	1.53E-3	4.60E-5	2.51E-4	3.08E-6	-4.85E-4	1.35E-3
ADP-f	MJ	1.08E+1	2.97E-1	8.05E-2	1.11E+1	1.10E-1	7.36E-1	6.19E-3	-5.66E+0	6.34E+0
ADP-mm	kg Sb eq	4.13E-6	2.42E-7	6.44E-7	5.02E-6	1.85E-7	9.48E-7	2.05E-9	-1.21E-6	4.94E-6
WDP	m3 depriv.	2.28E-1	5.63E-4	1.67E-2	2.45E-1	3.37E-4	1.41E-2	3.41E-5	-1.14E-1	1.45E-1
PM	disease inc.	1.14E-8	9.36E-10	7.09E-10	1.30E-8	6.46E-10	3.93E-9	4.25E-11	-5.44E-9	1.22E-8
IR	kBq U-235 eq	6.89E-3	1.27E-3	2.42E-4	8.40E-3	4.80E-4	2.26E-3	2.86E-5	-3.49E-3	7.69E-3
ETP-fw	CTUe	4.01E+0	2.07E-1	4.36E-1	4.65E+0	8.92E-2	8.62E-1	5.18E-3	-1.86E+0	3.75E+0
HTP-c	CTUh	1.10E-10	1.22E-11	2.65E-11	1.49E-10	3.18E-12	1.07E-10	1.53E-13	-3.80E-11	2.21E-10
HTP-nc	CTUh	2.48E-9	1.82E-10	4.68E-10	3.13E-9	1.06E-10	1.28E-9	3.35E-12	-1.11E-9	3.40E-9
SQP	Pt	1.18E+0	8.49E-2	1.08E-1	1.38E+0	9.40E-2	5.81E-1	1.59E-2	-2.97E+0	-9.02E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.19E-1	2.30E-3	1.46E+0	1.79E+0	1.58E-3	3.56E-2	2.38E-4	-5.78E-1	1.25E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.19E-1	2.30E-3	1.46E+0	1.79E+0	1.58E-3	3.56E-2	2.38E-4	-5.78E-1	1.25E+0
PENRE	MJ	1.16E+1	3.15E-1	8.56E-2	1.20E+1	1.17E-1	7.84E-1	6.56E-3	-6.10E+0	6.76E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.16E+1	3.15E-1	8.56E-2	1.20E+1	1.17E-1	7.84E-1	6.56E-3	-6.10E+0	6.76E+0
PET	MJ	1.19E+1	3.17E-1	1.55E+0	1.37E+1	1.18E-1	8.20E-1	6.80E-3	-6.68E+0	8.01E+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	3.83E-3	1.96E-5	4.01E-4	4.25E-3	1.24E-5	4.25E-4	7.61E-6	-1.97E-3	2.73E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.52E-6	3.76E-7	5.18E-7	3.42E-6	2.81E-7	1.24E-6	7.48E-9	-1.71E-6	3.23E-6
NHWD	kg	2.35E-2	4.42E-3	9.61E-3	3.75E-2	6.81E-3	3.80E-2	2.72E-2	-5.38E-3	1.04E-1
RWD	kg	6.21E-6	2.04E-6	2.96E-7	8.55E-6	7.47E-7	2.89E-6	4.03E-8	-3.22E-6	9.01E-6
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	3.50E-1	3.50E-1	0	0	0	0	3.50E-1
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