Environmental Profile

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

Ecochain v4.3.1

Product:	3050946 - PPr Elbow 90°WT 75
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	9.85E-1	7.16E-2	2.78E-2	1.08E+0	2.33E-2	7.86E-1	1.10E-2	-5.44E-1	1.36E+0
GWP-f	kg CO2 eq	9.81E-1	7.15E-2	2.68E-2	1.08E+0	2.33E-2	7.50E-1	1.10E-2	-5.84E-1	1.28E+0
GWP-b	kg CO2 eq	3.57E-3	-1.30E-5	9.38E-4	4.50E-3	1.42E-5	3.59E-2	9.57E-6	4.03E-2	8.08E-2
GWP-luluc	kg CO2 eq	6.49E-4	4.57E-5	1.64E-5	7.11E-4	8.25E-6	1.34E-4	1.88E-7	-3.99E-4	4.54E-4
ODP	kg CFC11 eq	2.39E-8	1.46E-8	2.15E-9	4.07E-8	5.37E-9	1.83E-8	2.76E-10	-2.51E-8	3.96E-8
AP	mol H+ eq	4.01E-3	2.02E-3	1.71E-4	6.20E-3	1.33E-4	7.66E-4	6.58E-6	-1.73E-3	5.37E-3
EP-fw	kg P eq	1.78E-5	3.57E-7	2.14E-6	2.03E-5	1.92E-7	3.88E-6	8.60E-9	-9.64E-6	1.48E-5
EP-m	kg N eq	6.50E-4	5.03E-4	5.95E-5	1.21E-3	4.75E-5	2.27E-4	4.28E-6	-3.19E-4	1.17E-3
EP-T	mol N eq	7.12E-3	5.59E-3	4.03E-4	1.31E-2	5.24E-4	2.50E-3	2.67E-5	-3.56E-3	1.26E-2
POCP	kg NMVOC eq	3.12E-3	1.45E-3	1.32E-4	4.71E-3	1.50E-4	7.87E-4	1.00E-5	-1.52E-3	4.13E-3
ADP-f	MJ	3.35E+1	9.40E-1	2.66E-1	3.47E+1	3.58E-1	2.36E+0	2.01E-2	-1.78E+1	1.96E+1
ADP-mm	kg Sb eq	1.28E-5	7.37E-7	2.13E-6	1.57E-5	6.03E-7	3.03E-6	6.64E-9	-3.88E-6	1.54E-5
WDP	m3 depriv.	6.91E-1	1.73E-3	5.54E-2	7.49E-1	1.10E-3	4.54E-2	1.04E-4	-3.57E-1	4.38E-1
PM	disease inc.	3.36E-8	2.87E-9	2.34E-9	3.89E-8	2.11E-9	1.25E-8	1.38E-10	-1.67E-8	3.69E-8
IR	kBq U-235 eq	1.99E-2	4.01E-3	8.00E-4	2.48E-2	1.56E-3	7.23E-3	9.33E-5	-1.06E-2	2.30E-2
ETP-fw	CTUe	1.09E+1	6.48E-1	1.44E+0	1.30E+1	2.91E-1	2.74E+0	1.69E-2	-5.33E+0	1.07E+1
HTP-c	CTUh	3.12E-10	3.90E-11	8.78E-11	4.39E-10	1.03E-11	3.30E-10	4.94E-13	-1.16E-10	6.64E-10
HTP-nc	CTUh	7.21E-9	5.63E-10	1.55E-9	9.32E-9	3.47E-10	4.02E-9	1.09E-11	-3.41E-9	1.03E-8
SQP	Pt	3.15E+0	2.49E-1	3.56E-1	3.75E+0	3.06E-1	1.87E+0	5.17E-2	-8.03E+0	-2.05E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	8.81E-1	7.17E-3	4.84E+0	5.73E+0	5.14E-3	1.15E-1	7.78E-4	-1.59E+0	4.27E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	8.81E-1	7.17E-3	4.84E+0	5.73E+0	5.14E-3	1.15E-1	7.78E-4	-1.59E+0	4.27E+0
PENRE	MJ	3.59E+1	9.98E-1	2.83E-1	3.72E+1	3.80E-1	2.52E+0	2.14E-2	-1.92E+1	2.09E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.59E+1	9.98E-1	2.83E-1	3.72E+1	3.80E-1	2.52E+0	2.14E-2	-1.92E+1	2.09E+1
PET	MJ	3.68E+1	1.01E+0	5.13E+0	4.29E+1	3.85E-1	2.63E+0	2.21E-2	-2.08E+1	2.52E+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	1.12E-2	6.04E-5	1.33E-3	1.26E-2	4.05E-5	1.36E-3	2.48E-5	-6.03E-3	7.94E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.78E-6	1.15E-6	1.72E-6	8.65E-6	9.16E-7	3.94E-6	2.43E-8	-4.85E-6	8.67E-6
NHWD	kg	6.43E-2	1.24E-2	3.18E-2	1.08E-1	2.22E-2	1.18E-1	8.87E-2	-1.66E-2	3.21E-1
RWD	kg	1.78E-5	6.47E-6	9.79E-7	2.53E-5	2.43E-6	9.22E-6	1.31E-7	-9.74E-6	2.73E-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	1.16E+0	1.16E+0	0	0	0	0	1.16E+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