Environmental Profile

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

Ecochain v4.3.1

Product:	3040123 - PPr Elbow 45°GY 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	2.55E-1	1.79E-2	6.82E-3	2.79E-1	5.74E-3	2.20E-1	2.70E-3	-1.40E-1	3.68E-1
GWP-f	kg CO2 eq	2.54E-1	1.79E-2	6.59E-3	2.79E-1	5.74E-3	2.08E-1	2.70E-3	-1.52E-1	3.43E-1
GWP-b	kg CO2 eq	5.93E-4	-2.92E-6	2.30E-4	8.20E-4	3.48E-6	1.13E-2	2.35E-6	1.28E-2	2.49E-2
GWP-luluc	kg CO2 eq	1.51E-4	1.13E-5	4.02E-6	1.66E-4	2.03E-6	3.32E-5	4.70E-8	-1.18E-4	8.31E-5
ODP	kg CFC11 eq	6.48E-9	3.65E-9	5.28E-10	1.07E-8	1.32E-9	4.65E-9	6.79E-11	-7.11E-9	9.59E-9
AP	mol H+ eq	9.63E-4	4.92E-4	4.19E-5	1.50E-3	3.27E-5	1.95E-4	1.62E-6	-4.46E-4	1.28E-3
EP-fw	kg P eq	4.82E-6	9.15E-8	5.26E-7	5.44E-6	4.72E-8	9.67E-7	2.14E-9	-2.63E-6	3.82E-6
EP-m	kg N eq	1.71E-4	1.23E-4	1.46E-5	3.09E-4	1.17E-5	5.85E-5	1.05E-6	-8.34E-5	2.97E-4
EP-T	mol N eq	1.91E-3	1.37E-3	9.90E-5	3.37E-3	1.29E-4	6.44E-4	6.58E-6	-9.30E-4	3.22E-3
POCP	kg NMVOC eq	8.12E-4	3.56E-4	3.23E-5	1.20E-3	3.68E-5	2.02E-4	2.47E-6	-3.90E-4	1.05E-3
ADP-f	MJ	8.51E+0	2.36E-1	6.54E-2	8.81E+0	8.81E-2	5.91E-1	4.96E-3	-4.53E+0	4.97E+0
ADP-mm	kg Sb eq	4.00E-6	1.92E-7	5.23E-7	4.72E-6	1.48E-7	7.62E-7	1.64E-9	-9.77E-7	4.65E-6
WDP	m3 depriv.	1.76E-1	4.46E-4	1.36E-2	1.90E-1	2.70E-4	1.13E-2	2.85E-5	-9.25E-2	1.09E-1
PM	disease inc.	8.77E-9	7.42E-10	5.76E-10	1.01E-8	5.18E-10	3.16E-9	3.41E-11	-4.41E-9	9.38E-9
IR	kBq U-235 eq	5.20E-3	1.01E-3	1.96E-4	6.40E-3	3.85E-4	1.82E-3	2.29E-5	-2.83E-3	5.80E-3
ETP-fw	CTUe	3.18E+0	1.64E-1	3.54E-1	3.70E+0	7.15E-2	6.93E-1	4.15E-3	-1.54E+0	2.93E+0
HTP-c	CTUh	6.64E-11	9.69E-12	2.15E-11	9.76E-11	2.55E-12	8.67E-11	1.24E-13	-3.07E-11	1.56E-10
HTP-nc	CTUh	1.83E-9	1.44E-10	3.80E-10	2.36E-9	8.53E-11	1.03E-9	2.69E-12	-9.03E-10	2.57E-9
SQP	Pt	9.17E-1	6.71E-2	8.73E-2	1.07E+0	7.54E-2	4.66E-1	1.27E-2	-2.49E+0	-8.63E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.48E-1	1.83E-3	1.19E+0	1.44E+0	1.26E-3	2.86E-2	1.90E-4	-4.83E-1	9.86E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.48E-1	1.83E-3	1.19E+0	1.44E+0	1.26E-3	2.86E-2	1.90E-4	-4.83E-1	9.86E-1
PENRE	MJ	9.13E+0	2.51E-1	6.95E-2	9.45E+0	9.35E-2	6.29E-1	5.26E-3	-4.89E+0	5.30E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	9.13E+0	2.51E-1	6.95E-2	9.45E+0	9.35E-2	6.29E-1	5.26E-3	-4.89E+0	5.30E+0
PET	MJ	9.38E+0	2.52E-1	1.26E+0	1.09E+1	9.48E-2	6.58E-1	5.45E-3	-5.37E+0	6.28E+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	2.91E-3	1.56E-5	3.26E-4	3.25E-3	9.97E-6	3.41E-4	6.10E-6	-1.60E-3	2.01E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.38E-6	2.99E-7	4.21E-7	2.10E-6	2.25E-7	9.98E-7	6.01E-9	-1.37E-6	1.96E-6
NHWD	kg	1.32E-2	3.49E-3	7.81E-3	2.45E-2	5.46E-3	3.05E-2	2.18E-2	-4.36E-3	7.79E-2
RWD	kg	4.58E-6	1.62E-6	2.40E-7	6.44E-6	5.99E-7	2.33E-6	3.23E-8	-2.62E-6	6.78E-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	2.85E-1	2.85E-1	0	0	0	0	2.85E-1
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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