Environmental Profile

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

Ecochain v4.3.1

Product:	3050934 - PPr Elbow 90°WT 20
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	5.04E-2	3.09E-3	9.47E-4	5.45E-2	9.48E-4	4.66E-2	4.45E-4	-2.66E-2	7.59E-2
GWP-f	kg CO2 eq	5.06E-2	3.09E-3	9.15E-4	5.46E-2	9.48E-4	4.50E-2	4.45E-4	-2.84E-2	7.26E-2
GWP-b	kg CO2 eq	-3.35E-4	-2.67E-7	3.20E-5	-3.04E-4	5.75E-7	1.61E-3	3.81E-7	1.81E-3	3.12E-3
GWP-luluc	kg CO2 eq	1.77E-4	1.84E-6	5.58E-7	1.79E-4	3.35E-7	5.55E-6	8.59E-9	-1.77E-5	1.67E-4
ODP	kg CFC11 eq	2.09E-9	6.38E-10	7.34E-11	2.80E-9	2.18E-10	7.88E-10	1.13E-11	-1.49E-9	2.32E-9
AP	mol H+ eq	2.86E-4	7.65E-5	5.82E-6	3.69E-4	5.40E-6	3.36E-5	2.73E-7	-7.51E-5	3.33E-4
EP-fw	kg P eq	1.23E-6	1.75E-8	7.31E-8	1.32E-6	7.80E-9	1.62E-7	3.80E-10	-4.17E-7	1.08E-6
EP-m	kg N eq	3.97E-5	1.93E-5	2.03E-6	6.10E-5	1.93E-6	1.03E-5	1.67E-7	-1.43E-5	5.91E-5
EP-T	mol N eq	4.15E-4	2.15E-4	1.37E-5	6.44E-4	2.13E-5	1.13E-4	1.10E-6	-1.59E-4	6.20E-4
POCP	kg NMVOC eq	1.75E-4	5.62E-5	4.48E-6	2.35E-4	6.08E-6	3.51E-5	4.11E-7	-6.68E-5	2.10E-4
ADP-f	MJ	1.56E+0	4.15E-2	9.08E-3	1.61E+0	1.45E-2	9.92E-2	8.26E-4	-8.05E-1	9.21E-1
ADP-mm	kg Sb eq	6.17E-7	3.88E-8	7.26E-8	7.28E-7	2.45E-8	1.27E-7	2.83E-10	-1.61E-7	7.19E-7
WDP	m3 depriv.	3.78E-2	8.78E-5	1.89E-3	3.97E-2	4.46E-5	1.88E-3	7.61E-6	-1.51E-2	2.65E-2
PM	disease inc.	1.98E-9	1.47E-10	7.99E-11	2.20E-9	8.55E-11	5.36E-10	5.68E-12	-7.13E-10	2.12E-9
IR	kBq U-235 eq	1.32E-3	1.76E-4	2.73E-5	1.52E-3	6.36E-5	3.06E-4	3.77E-6	-4.69E-4	1.43E-3
ETP-fw	CTUe	7.21E-1	3.00E-2	4.92E-2	8.00E-1	1.18E-2	1.17E-1	6.90E-4	-2.36E-1	6.93E-1
HTP-c	CTUh	2.85E-11	1.63E-12	2.99E-12	3.31E-11	4.20E-13	1.73E-11	2.27E-14	-5.16E-12	4.57E-11
HTP-nc	CTUh	4.99E-10	2.75E-11	5.28E-11	5.80E-10	1.41E-11	1.85E-10	4.60E-13	-1.47E-10	6.32E-10
SQP	Pt	2.21E-1	1.50E-2	1.21E-2	2.49E-1	1.24E-2	7.85E-2	2.10E-3	-3.60E-1	-1.83E-2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.56E-2	3.44E-4	1.65E-1	2.21E-1	2.09E-4	4.78E-3	3.00E-5	-7.04E-2	1.56E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.56E-2	3.44E-4	1.65E-1	2.21E-1	2.09E-4	4.78E-3	3.00E-5	-7.04E-2	1.56E-1
PENRE	MJ	1.67E+0	4.40E-2	9.66E-3	1.73E+0	1.54E-2	1.06E-1	8.76E-4	-8.70E-1	9.80E-1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.67E+0	4.40E-2	9.66E-3	1.73E+0	1.54E-2	1.06E-1	8.76E-4	-8.70E-1	9.80E-1
PET	MJ	1.73E+0	4.44E-2	1.75E-1	1.95E+0	1.57E-2	1.11E-1	9.06E-4	-9.40E-1	1.14E+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	7.12E-4	3.04E-6	4.53E-5	7.60E-4	1.65E-6	5.84E-5	1.00E-6	-2.59E-4	5.63E-4

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.13E-6	6.01E-8	5.85E-8	1.25E-6	3.72E-8	1.71E-7	1.02E-9	-2.88E-7	1.17E-6
NHWD	kg	6.61E-3	8.84E-4	1.08E-3	8.58E-3	9.02E-4	5.59E-3	3.60E-3	-7.22E-4	1.79E-2
RWD	kg	1.27E-6	2.83E-7	3.34E-8	1.59E-6	9.89E-8	3.92E-7	5.34E-9	-4.39E-7	1.65E-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	3.95E-2	3.95E-2	0	0	0	0	3.95E-2
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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