Environmental Profile

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

Ecochain v4.3.1

Product:	3040232 - PPr Clips GY 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	1.57E-2	8.64E-4	3.16E-4	1.69E-2	3.16E-4	1.49E-2	1.48E-4	-8.53E-3	2.38E-2
GWP-f	kg CO2 eq	1.57E-2	8.63E-4	3.05E-4	1.69E-2	3.16E-4	1.44E-2	1.48E-4	-9.13E-3	2.27E-2
GWP-b	kg CO2 eq	-1.72E-5	-1.29E-7	1.07E-5	-6.69E-6	1.92E-7	5.38E-4	1.26E-7	6.04E-4	1.14E-3
GWP-luluc	kg CO2 eq	1.03E-5	5.39E-7	1.86E-7	1.11E-5	1.12E-7	1.85E-6	3.05E-9	-5.87E-6	7.15E-6
ODP	kg CFC11 eq	5.70E-10	1.77E-10	2.45E-11	7.71E-10	7.28E-11	2.61E-10	3.77E-12	-4.64E-10	6.45E-10
AP	mol H+ eq	6.82E-5	2.33E-5	1.94E-6	9.35E-5	1.80E-6	1.11E-5	9.21E-8	-2.48E-5	8.17E-5
EP-fw	kg P eq	3.53E-7	4.51E-9	2.44E-8	3.82E-7	2.60E-9	5.38E-8	1.32E-10	-1.38E-7	3.00E-7
EP-m	kg N eq	1.14E-5	5.84E-6	6.76E-7	1.79E-5	6.44E-7	3.37E-6	5.46E-8	-4.69E-6	1.73E-5
EP-T	mol N eq	1.32E-4	6.49E-5	4.58E-6	2.02E-4	7.09E-6	3.71E-5	3.68E-7	-5.22E-5	1.94E-4
POCP	kg NMVOC eq	5.17E-5	1.69E-5	1.49E-6	7.01E-5	2.03E-6	1.16E-5	1.38E-7	-2.19E-5	6.19E-5
ADP-f	MJ	4.73E-1	1.14E-2	3.03E-3	4.88E-1	4.85E-3	3.30E-2	2.77E-4	-2.63E-1	2.63E-1
ADP-mm	kg Sb eq	4.39E-7	9.56E-9	2.42E-8	4.73E-7	8.17E-9	4.24E-8	9.70E-11	-5.37E-8	4.70E-7
WDP	m3 depriv.	1.12E-2	2.21E-5	6.29E-4	1.19E-2	1.49E-5	6.24E-4	3.18E-6	-5.01E-3	7.52E-3
PM	disease inc.	5.96E-10	3.68E-11	2.66E-11	6.60E-10	2.85E-11	1.77E-10	1.90E-12	-2.37E-10	6.31E-10
IR	kBq U-235 eq	3.54E-4	4.87E-5	9.09E-6	4.12E-4	2.12E-5	1.01E-4	1.25E-6	-1.54E-4	3.82E-4
ETP-fw	CTUe	2.29E-1	8.01E-3	1.64E-2	2.53E-1	3.94E-3	3.89E-2	2.31E-4	-7.83E-2	2.18E-1
HTP-c	CTUh	5.33E-12	4.66E-13	9.97E-13	6.79E-12	1.40E-13	6.04E-12	8.09E-15	-1.70E-12	1.13E-11
HTP-nc	CTUh	1.43E-10	7.10E-12	1.76E-11	1.68E-10	4.69E-12	6.20E-11	1.57E-13	-4.87E-11	1.86E-10
SQP	Pt	6.01E-2	3.42E-3	4.04E-3	6.75E-2	4.15E-3	2.61E-2	7.02E-4	-1.20E-1	-2.13E-2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.54E-2	8.98E-5	5.51E-2	7.05E-2	6.96E-5	1.59E-3	9.71E-6	-2.34E-2	4.87E-2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.54E-2	8.98E-5	5.51E-2	7.05E-2	6.96E-5	1.59E-3	9.71E-6	-2.34E-2	4.87E-2
PENRE	MJ	5.08E-1	1.21E-2	3.22E-3	5.23E-1	5.15E-3	3.51E-2	2.94E-4	-2.84E-1	2.80E-1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.08E-1	1.21E-2	3.22E-3	5.23E-1	5.15E-3	3.51E-2	2.94E-4	-2.84E-1	2.80E-1
PET	MJ	5.23E-1	1.22E-2	5.83E-2	5.94E-1	5.22E-3	3.67E-2	3.03E-4	-3.07E-1	3.29E-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	2.08E-4	7.70E-7	1.51E-5	2.24E-4	5.49E-7	1.93E-5	3.33E-7	-8.56E-5	1.58E-4

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.15E-7	1.48E-8	1.95E-8	1.50E-7	1.24E-8	5.71E-8	3.49E-10	-8.96E-8	1.30E-7
NHWD	kg	1.09E-3	1.83E-4	3.61E-4	1.64E-3	3.01E-4	1.84E-3	1.20E-3	-2.38E-4	4.74E-3
RWD	kg	3.13E-7	7.85E-8	1.11E-8	4.03E-7	3.30E-8	1.30E-7	1.78E-9	-1.44E-7	4.24E-7
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	1.32E-2	1.32E-2	0	0	0	0	1.32E-2
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