Environmental Profile

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

Ecochain v3.5.80

Product:	3024120 - PP-R Plastic Clip GN 32 EK
Unit:	1 piece
Manufacturer:	Wavin - CZ - Kostelec - Verified

Use the Ekoplastik System when you prefer an all plastic welded system or when you need pipes with larger diameters. The Ekoplastik system offers a maximum pipe diameter of 250 mm. Join pipes and fittings using a homogenous weld for secure and permanent connections.

LCA standard:	NMD Bepalingsmethode 1.1 (2022)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	27-01-2023
End of validity:	27-01-2028
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 - CZ - Kostelec - Verified (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

ECI = Environmental Costs Indicator [euro]; **ADPE** = Abiotic depletion potential for non-fossil resources [kg Sb-eq]; **ADPF** = Abiotic depletion potential for fossil resources [kg Sb-eq]; **GWP** = Global warming potential [kg CO2-eq]; **ODP** = Depletion potential of the stratospheric ozone layer [kg CFC-11-eq]; **POCP** = Formation potential of tropospheric ozone photochemical oxidants [kg ethene-eq]; **AP** = Acidification potential of land and water [kg SO2-eq]; **EP** = Eutrophication potential [kg PO4 3−-eq]; **HTP** = Human toxicity potential [kg 1,4-DB-eq]; **FAETP** = Freshwater aquatic ecotoxicity potential [kg 1,4-DB-eq]; **MAETP** = Marine aquatic ecotoxicity potential [kg 1,4-DB-eq]; **TETP** = Terrestrial ecotoxicity potential [kg 1,4-DB-eq]; **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-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **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 SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0	0	0	0	0	0	0	-0	0
ADPE	kg Sb-eq	2.86E-7	4.14E-9	8.90E-8	3.79E-7	4.77E-9	2.26E-8	5.21E-11	-5.71E-8	3.50E-7
ADPF	kg Sb-eq	2.43E-4	1.17E-6	6.71E-6	2.51E-4	1.34E-6	8.80E-6	7.33E-8	-1.35E-4	1.26E-4
GWP	kg CO2-eq	1.43E-2	1.59E-4	1.21E-3	1.57E-2	1.83E-4	6.08E-3	7.42E-5	-8.73E-3	1.33E-2
ODP	kg CFC-11-eq	3.54E-10	2.95E-11	2.07E-9	2.46E-9	3.39E-11	1.16E-10	1.76E-12	-3.45E-10	2.26E-9
POCP	kg ethene-eq	1.19E-5	9.53E-8	8.74E-7	1.29E-5	1.10E-7	8.77E-7	1.69E-8	-5.60E-6	8.30E-6
AP	kg SO2-eq	4.72E-5	6.84E-7	8.32E-6	5.62E-5	7.87E-7	4.48E-6	3.86E-8	-2.04E-5	4.11E-5
EP	kg PO4 3−-eq	4.44E-6	1.37E-7	1.07E-6	5.65E-6	1.57E-7	7.92E-7	1.70E-8	-1.88E-6	4.73E-6
HTP	kg 1,4-DB-eq	2.43E-3	6.80E-5	1.47E-3	3.97E-3	7.82E-5	1.80E-3	5.84E-6	-1.01E-3	4.84E-3
FAETP	kg 1,4-DB-eq	6.94E-5	1.99E-6	5.31E-5	1.25E-4	2.29E-6	4.27E-5	6.39E-6	-2.01E-5	1.56E-4
MAETP	kg 1,4-DB-eq	1.75E-1	7.11E-3	1.48E-1	3.30E-1	8.18E-3	9.37E-2	6.36E-3	-6.11E-2	3.78E-1
TETP	kg 1,4-DB-eq	1.01E-5	2.41E-7	7.68E-5	8.71E-5	2.77E-7	5.51E-6	9.35E-9	-4.11E-6	8.88E-5
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.50E-2	1.60E-4	1.43E-3	1.66E-2	1.84E-4	6.11E-3	8.69E-5	-9.05E-3	1.39E-2
GWP-f	kg CO2 eq	1.49E-2	1.60E-4	1.16E-3	1.63E-2	1.84E-4	6.11E-3	8.69E-5	-9.04E-3	1.36E-2
GWP-b	kg CO2 eq	4.07E-5	9.73E-8	2.59E-4	2.99E-4	1.12E-7	3.63E-6	7.58E-8	-5.00E-6	2.98E-4
GWP-luluc	kg CO2 eq	4.89E-6	5.67E-8	1.82E-5	2.31E-5	6.52E-8	1.04E-6	1.46E-9	-1.85E-6	2.24E-5
ODP	kg CFC11 eq	3.43E-10	3.69E-11	1.16E-9	1.54E-9	4.25E-11	1.37E-10	2.18E-12	-3.67E-10	1.35E-9
AP	mol H+ eq	5.68E-5	9.12E-7	1.05E-5	6.83E-5	1.05E-6	5.79E-6	5.18E-8	-2.45E-5	5.06E-5
EP-fw	kg P eq	2.47E-7	1.32E-9	3.83E-8	2.87E-7	1.52E-9	3.00E-8	6.71E-11	-9.74E-8	2.21E-7
EP-m	kg N eq	9.27E-6	3.26E-7	1.95E-6	1.15E-5	3.76E-7	1.70E-6	3.40E-8	-4.39E-6	9.26E-6
EP-T	mol N eq	1.07E-4	3.60E-6	2.41E-5	1.34E-4	4.14E-6	1.87E-5	2.11E-7	-4.86E-5	1.09E-4
POCP	kg NMVOC eq	4.68E-5	1.03E-6	5.60E-6	5.34E-5	1.18E-6	5.89E-6	7.91E-8	-2.22E-5	3.83E-5
ADP-mm	kg Sb eq	2.86E-7	4.14E-9	8.90E-8	3.79E-7	4.77E-9	2.26E-8	5.21E-11	-5.71E-8	3.50E-7
ADP-f	MJ	5.08E-1	2.46E-3	2.93E-1	8.04E-1	2.83E-3	1.81E-2	1.59E-4	-2.78E-1	5.46E-1
WDP	m3 depriv.	1.06E-2	7.55E-6	5.11E-3	1.57E-2	8.68E-6	3.55E-4	7.27E-7	-4.74E-3	1.14E-2
PM	disease inc.	4.90E-10	1.45E-11	8.69E-11	5.92E-10	1.66E-11	9.46E-11	1.09E-12	-2.05E-10	4.99E-10
IR	kBq U-235 eq	2.87E-4	1.07E-5	3.43E-3	3.73E-3	1.24E-5	5.47E-5	7.38E-7	-1.30E-4	3.66E-3
ETP-fw	CTUe	1.04E-1	2.00E-3	9.81E-2	2.04E-1	2.30E-3	2.06E-2	1.33E-4	-3.59E-2	1.91E-1
HTP-c	CTUh	3.93E-12	7.10E-14	2.12E-12	6.13E-12	8.17E-14	2.50E-12	3.83E-15	-1.47E-12	7.24E-12
HTP-nc	CTUh	1.08E-10	2.38E-12	6.70E-11	1.77E-10	2.74E-12	3.09E-11	8.53E-14	-4.14E-11	1.70E-10
SQP	Pt	2.44E-2	2.10E-3	8.02E-2	1.07E-1	2.42E-3	1.45E-2	4.08E-4	-1.20E-2	1.12E-1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	8.51E-3	3.53E-5	4.14E-2	4.99E-2	4.06E-5	8.91E-4	6.19E-6	-4.20E-3	4.67E-2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	8.51E-3	3.53E-5	4.14E-2	4.99E-2	4.06E-5	8.91E-4	6.19E-6	-4.20E-3	4.67E-2
PENRE	MJ	5.45E-1	2.61E-3	2.94E-1	8.42E-1	3.00E-3	1.93E-2	1.69E-4	-3.00E-1	5.64E-1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.45E-1	2.61E-3	2.94E-1	8.42E-1	3.00E-3	1.93E-2	1.69E-4	-3.00E-1	5.64E-1
PET	MJ	5.54E-1	2.65E-3	3.35E-1	8.92E-1	3.04E-3	2.02E-2	1.75E-4	-3.04E-1	6.11E-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	1.70E-4	2.78E-7	1.64E-4	3.35E-4	3.20E-7	1.05E-5	1.96E-7	-7.16E-5	2.74E-4
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.71E-8	6.29E-9	5.73E-9	8.91E-8	7.23E-9	2.96E-8	1.91E-10	-7.19E-8	5.43E-8
NHWD	kg	7.08E-4	1.52E-4	1.64E-4	1.02E-3	1.75E-4	9.19E-4	7.01E-4	-2.13E-4	2.61E-3
RWD	kg	2.49E-7	1.67E-8	8.58E-9	2.75E-7	1.92E-8	6.94E-8	1.04E-9	-1.18E-7	2.47E-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	0	0	0	0	0	0	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