Environmental Profile

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

Ecochain v3.5.80

Product:	3043877 - Wafix PP Bend 15° GY 40 S/SP
Unit:	1 piece
Manufacturer:	Wavin - PL -Buk - Extra products

Wafix PP is a versatile, uncomplicated solution for your indoor drainage. You can easily install the impact-resistant pipes even in frost. Their excellent chemical resistance makes them ideal for cast-in applications.

LCA standard:	EN15804+A2 (2019)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	08-06-2023
End of validity:	08-06-2028
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 - PL -Buk - Extra products (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-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	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.62E-2	5.13E-4	1.45E-4	5.69E-2	8.75E-4	8.71E-2	4.12E-4	-5.03E-2	9.49E-2
GWP-f	kg CO2 eq	1.05E-1	5.12E-4	1.46E-4	1.06E-1	8.74E-4	3.48E-2	4.12E-4	-5.63E-2	8.56E-2
GWP-b	kg CO2 eq	-4.91E-2	3.11E-7	-1.54E-6	-4.91E-2	5.31E-7	5.23E-2	3.57E-7	6.08E-3	9.32E-3
GWP-luluc	kg CO2 eq	1.12E-4	1.81E-7	1.49E-7	1.13E-4	3.09E-7	5.31E-6	7.18E-9	-7.87E-5	3.95E-5
ODP	kg CFC11 eq	5.89E-9	1.18E-10	8.26E-12	6.02E-9	2.01E-10	8.22E-10	1.03E-11	-3.85E-9	3.20E-9
AP	mol H+ eq	4.66E-4	2.92E-6	1.47E-6	4.70E-4	4.98E-6	3.40E-5	2.47E-7	-1.97E-4	3.13E-4
EP-fw	kg P eq	2.76E-6	4.22E-9	8.24E-9	2.77E-6	7.19E-9	1.57E-7	3.27E-10	-1.40E-6	1.54E-6
EP-m	kg N eq	8.69E-5	1.04E-6	1.55E-7	8.81E-5	1.78E-6	1.05E-5	1.59E-7	-4.12E-5	5.93E-5
EP-T	mol N eq	9.66E-4	1.15E-5	1.85E-6	9.79E-4	1.96E-5	1.16E-4	1.00E-6	-4.69E-4	6.48E-4
POCP	kg NMVOC eq	3.83E-4	3.29E-6	6.28E-7	3.87E-4	5.61E-6	3.58E-5	3.76E-7	-1.82E-4	2.46E-4
ADP-mm	kg Sb eq	4.41E-6	1.33E-8	1.97E-8	4.44E-6	2.26E-8	1.31E-7	2.51E-10	-4.45E-7	4.15E-6
ADP-f	MJ	3.06E+0	7.87E-3	1.36E-3	3.07E+0	1.34E-2	9.79E-2	7.56E-4	-1.54E+0	1.64E+0
WDP	m3 depriv.	6.52E-2	2.41E-5	5.22E-5	6.53E-2	4.12E-5	1.77E-3	4.42E-6	-3.51E-2	3.20E-2
PM	disease inc.	4.95E-9	4.63E-11	9.08E-12	5.00E-9	7.89E-11	5.39E-10	5.20E-12	-2.52E-9	3.11E-9
IR	kBq U-235 eq	2.97E-3	3.44E-5	1.02E-6	3.00E-3	5.86E-5	3.13E-4	3.49E-6	-1.39E-3	1.99E-3
ETP-fw	CTUe	2.11E+0	6.39E-3	1.21E-2	2.13E+0	1.09E-2	1.17E-1	6.32E-4	-8.99E-1	1.36E+0
HTP-c	CTUh	7.42E-11	2.27E-13	6.17E-13	7.50E-11	3.88E-13	1.48E-11	1.89E-14	-2.91E-11	6.11E-11
HTP-nc	CTUh	1.42E-9	7.61E-12	1.57E-11	1.44E-9	1.30E-11	1.72E-10	4.10E-13	-3.96E-10	1.23E-9
SQP	Pt	4.63E+0	6.73E-3	2.24E-3	4.64E+0	1.15E-2	7.68E-2	1.94E-3	-4.69E+0	3.21E-2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.30E+0	1.13E-4	2.40E-2	1.32E+0	1.92E-4	4.62E-3	2.89E-5	-7.53E-1	5.72E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.30E+0	1.13E-4	2.40E-2	1.32E+0	1.92E-4	4.62E-3	2.89E-5	-7.53E-1	5.72E-1
PENRE	MJ	3.28E+0	8.35E-3	1.44E-3	3.29E+0	1.42E-2	1.04E-1	8.02E-4	-1.66E+0	1.75E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.28E+0	8.35E-3	1.44E-3	3.29E+0	1.42E-2	1.04E-1	8.02E-4	-1.66E+0	1.75E+0
PET	MJ	4.58E+0	8.46E-3	2.55E-2	4.61E+0	1.44E-2	1.09E-1	8.31E-4	-2.41E+0	2.32E+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	1.23E-3	8.90E-7	1.46E-6	1.24E-3	1.52E-6	5.56E-5	9.29E-7	-6.57E-4	6.38E-4

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.11E-6	2.01E-8	2.73E-13	1.13E-6	3.43E-8	1.72E-7	9.16E-10	-8.26E-7	5.09E-7
NHWD	kg	8.92E-3	4.88E-4	1.05E-6	9.41E-3	8.31E-4	5.16E-3	3.32E-3	-3.62E-3	1.51E-2
RWD	kg	3.05E-6	5.35E-8	1.10E-13	3.10E-6	9.12E-8	4.05E-7	4.92E-9	-1.37E-6	2.23E-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	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