Environmental Profile

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

Ecochain v3.5.80

Product:	3020607 - Wafix PP Bend 45° BK 90 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	3.36E-1	2.50E-3	1.45E-4	3.39E-1	4.95E-3	3.22E-1	2.33E-3	-2.49E-1	4.20E-1
GWP-f	kg CO2 eq	4.83E-1	2.49E-3	1.46E-4	4.86E-1	4.94E-3	1.60E-1	2.33E-3	-2.73E-1	3.81E-1
GWP-b	kg CO2 eq	-1.47E-1	1.51E-6	-1.54E-6	-1.47E-1	3.00E-6	1.62E-1	2.03E-6	2.44E-2	3.92E-2
GWP-luluc	kg CO2 eq	4.66E-4	8.83E-7	1.49E-7	4.67E-4	1.75E-6	2.91E-5	3.99E-8	-3.14E-4	1.83E-4
ODP	kg CFC11 eq	2.54E-8	5.75E-10	8.26E-12	2.60E-8	1.14E-9	4.25E-9	5.85E-11	-1.53E-8	1.61E-8
AP	mol H+ eq	1.97E-3	1.42E-5	1.47E-6	1.99E-3	2.82E-5	1.76E-4	1.40E-6	-9.23E-4	1.27E-3
EP-fw	kg P eq	1.11E-5	2.05E-8	8.24E-9	1.11E-5	4.07E-8	8.51E-7	1.83E-9	-6.04E-6	5.97E-6
EP-m	kg N eq	3.70E-4	5.08E-6	1.55E-7	3.76E-4	1.01E-5	5.31E-5	9.06E-7	-1.84E-4	2.56E-4
EP-T	mol N eq	4.06E-3	5.60E-5	1.85E-6	4.11E-3	1.11E-4	5.85E-4	5.66E-6	-2.08E-3	2.74E-3
POCP	kg NMVOC eq	1.66E-3	1.60E-5	6.28E-7	1.68E-3	3.17E-5	1.82E-4	2.13E-6	-8.34E-4	1.06E-3
ADP-mm	kg Sb eq	1.67E-5	6.45E-8	1.97E-8	1.67E-5	1.28E-7	6.90E-7	1.41E-9	-2.10E-6	1.55E-5
ADP-f	MJ	1.52E+1	3.83E-2	1.36E-3	1.53E+1	7.59E-2	5.26E-1	4.27E-3	-7.95E+0	7.92E+0
WDP	m3 depriv.	3.04E-1	1.17E-4	5.22E-5	3.04E-1	2.33E-4	9.79E-3	2.23E-5	-1.75E-1	1.39E-1
PM	disease inc.	2.09E-8	2.25E-10	9.08E-12	2.11E-8	4.46E-10	2.84E-9	2.94E-11	-1.08E-8	1.36E-8
IR	kBq U-235 eq	1.33E-2	1.67E-4	1.02E-6	1.34E-2	3.32E-4	1.65E-3	1.98E-5	-6.21E-3	9.21E-3
ETP-fw	CTUe	8.40E+0	3.11E-2	1.21E-2	8.44E+0	6.16E-2	6.17E-1	3.57E-3	-3.71E+0	5.42E+0
HTP-c	CTUh	2.40E-10	1.11E-12	6.17E-13	2.41E-10	2.19E-12	7.44E-11	1.05E-13	-1.09E-10	2.09E-10
HTP-nc	CTUh	5.01E-9	3.71E-11	1.57E-11	5.06E-9	7.35E-11	8.94E-10	2.30E-12	-2.00E-9	4.03E-9
SQP	Pt	1.46E+1	3.27E-2	2.24E-3	1.46E+1	6.49E-2	4.13E-1	1.10E-2	-1.57E+1	-5.44E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.91E+0	5.49E-4	2.40E-2	3.93E+0	1.09E-3	2.51E-2	1.65E-4	-2.57E+0	1.38E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.91E+0	5.49E-4	2.40E-2	3.93E+0	1.09E-3	2.51E-2	1.65E-4	-2.57E+0	1.38E+0
PENRE	MJ	1.63E+1	4.06E-2	1.44E-3	1.64E+1	8.06E-2	5.60E-1	4.53E-3	-8.56E+0	8.45E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.63E+1	4.06E-2	1.44E-3	1.64E+1	8.06E-2	5.60E-1	4.53E-3	-8.56E+0	8.45E+0
PET	MJ	2.02E+1	4.12E-2	2.55E-2	2.03E+1	8.17E-2	5.85E-1	4.69E-3	-1.11E+1	9.84E+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	5.32E-3	4.33E-6	1.46E-6	5.33E-3	8.59E-6	2.98E-4	5.26E-6	-3.14E-3	2.49E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.15E-6	9.79E-8	2.73E-13	4.25E-6	1.94E-7	8.99E-7	5.15E-9	-3.12E-6	2.22E-6
NHWD	kg	3.29E-2	2.37E-3	1.05E-6	3.53E-2	4.70E-3	2.63E-2	1.88E-2	-1.41E-2	7.09E-2
RWD	kg	1.39E-5	2.60E-7	1.10E-13	1.42E-5	5.16E-7	2.12E-6	2.79E-8	-5.98E-6	1.09E-5
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