Environmental Profile

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

Ecochain v3.5.80

Product:	3020606 - Wafix PP Bend 45° BK 90 S/S
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	4.05E-1	4.50E-3	1.45E-4	4.10E-1	5.53E-3	3.47E-1	2.60E-3	-2.77E-1	4.87E-1
GWP-f	kg CO2 eq	5.52E-1	4.50E-3	1.46E-4	5.57E-1	5.52E-3	1.83E-1	2.60E-3	-3.05E-1	4.42E-1
GWP-b	kg CO2 eq	-1.47E-1	2.73E-6	-1.54E-6	-1.47E-1	3.35E-6	1.64E-1	2.27E-6	2.85E-2	4.51E-2
GWP-luluc	kg CO2 eq	5.47E-4	1.59E-6	1.49E-7	5.49E-4	1.96E-6	3.25E-5	4.44E-8	-3.49E-4	2.34E-4
ODP	kg CFC11 eq	3.39E-8	1.04E-9	8.26E-12	3.50E-8	1.27E-9	4.75E-9	6.53E-11	-1.69E-8	2.42E-8
AP	mol H+ eq	2.30E-3	2.56E-5	1.47E-6	2.33E-3	3.15E-5	1.96E-4	1.56E-6	-1.02E-3	1.54E-3
EP-fw	kg P eq	1.32E-5	3.70E-8	8.24E-9	1.33E-5	4.55E-8	9.51E-7	2.04E-9	-6.71E-6	7.58E-6
EP-m	kg N eq	4.32E-4	9.17E-6	1.55E-7	4.41E-4	1.13E-5	5.94E-5	1.01E-6	-2.03E-4	3.10E-4
EP-T	mol N eq	4.73E-3	1.01E-4	1.85E-6	4.84E-3	1.24E-4	6.53E-4	6.33E-6	-2.29E-3	3.33E-3
POCP	kg NMVOC eq	1.92E-3	2.89E-5	6.28E-7	1.95E-3	3.55E-5	2.04E-4	2.37E-6	-9.19E-4	1.28E-3
ADP-mm	kg Sb eq	2.71E-5	1.16E-7	1.97E-8	2.72E-5	1.43E-7	7.70E-7	1.57E-9	-2.31E-6	2.58E-5
ADP-f	MJ	1.72E+1	6.91E-2	1.36E-3	1.73E+1	8.48E-2	5.87E-1	4.77E-3	-8.89E+0	9.07E+0
WDP	m3 depriv.	3.47E-1	2.12E-4	5.22E-5	3.48E-1	2.60E-4	1.09E-2	2.46E-5	-1.96E-1	1.63E-1
PM	disease inc.	2.45E-8	4.06E-10	9.08E-12	2.49E-8	4.99E-10	3.17E-9	3.28E-11	-1.19E-8	1.67E-8
IR	kBq U-235 eq	1.69E-2	3.02E-4	1.02E-6	1.72E-2	3.71E-4	1.84E-3	2.21E-5	-6.88E-3	1.26E-2
ETP-fw	CTUe	1.03E+1	5.61E-2	1.21E-2	1.04E+1	6.89E-2	6.90E-1	3.99E-3	-4.14E+0	7.04E+0
HTP-c	CTUh	2.72E-10	2.00E-12	6.17E-13	2.74E-10	2.45E-12	8.32E-11	1.17E-13	-1.17E-10	2.43E-10
HTP-nc	CTUh	5.83E-9	6.69E-11	1.57E-11	5.91E-9	8.21E-11	1.00E-9	2.57E-12	-2.22E-9	4.78E-9
SQP	Pt	1.52E+1	5.91E-2	2.24E-3	1.53E+1	7.25E-2	4.61E-1	1.22E-2	-1.65E+1	-6.28E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.20E+0	9.91E-4	2.40E-2	4.22E+0	1.22E-3	2.81E-2	1.84E-4	-2.72E+0	1.53E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.20E+0	9.91E-4	2.40E-2	4.22E+0	1.22E-3	2.81E-2	1.84E-4	-2.72E+0	1.53E+0
PENRE	MJ	1.85E+1	7.33E-2	1.44E-3	1.85E+1	9.00E-2	6.25E-1	5.06E-3	-9.58E+0	9.68E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.85E+1	7.33E-2	1.44E-3	1.85E+1	9.00E-2	6.25E-1	5.06E-3	-9.58E+0	9.68E+0
PET	MJ	2.27E+1	7.43E-2	2.55E-2	2.28E+1	9.12E-2	6.53E-1	5.24E-3	-1.23E+1	1.12E+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	6.29E-3	7.82E-6	1.46E-6	6.30E-3	9.60E-6	3.33E-4	5.88E-6	-3.53E-3	3.12E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.01E-6	1.77E-7	2.73E-13	5.19E-6	2.17E-7	1.00E-6	5.75E-9	-3.44E-6	2.98E-6
NHWD	kg	4.01E-2	4.28E-3	1.05E-6	4.44E-2	5.26E-3	2.95E-2	2.10E-2	-1.51E-2	8.50E-2
RWD	kg	1.83E-5	4.70E-7	1.10E-13	1.88E-5	5.77E-7	2.36E-6	3.11E-8	-6.61E-6	1.52E-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

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