Environmental Profile

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

Ecochain v3.5.80

Product:	3020609 - Wafix PP Bend 88° 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	3.73E-1	2.60E-3	1.45E-4	3.76E-1	5.74E-3	4.03E-1	2.70E-3	-2.94E-1	4.93E-1
GWP-f	kg CO2 eq	5.69E-1	2.59E-3	1.46E-4	5.72E-1	5.73E-3	1.89E-1	2.70E-3	-3.22E-1	4.47E-1
GWP-b	kg CO2 eq	-1.96E-1	1.58E-6	-1.54E-6	-1.96E-1	3.48E-6	2.14E-1	2.35E-6	2.87E-2	4.61E-2
GWP-luluc	kg CO2 eq	5.55E-4	9.18E-7	1.49E-7	5.56E-4	2.03E-6	3.39E-5	4.61E-8	-3.80E-4	2.12E-4
ODP	kg CFC11 eq	2.88E-8	5.98E-10	8.26E-12	2.94E-8	1.32E-9	4.98E-9	6.78E-11	-1.81E-8	1.76E-8
AP	mol H+ eq	2.33E-3	1.48E-5	1.47E-6	2.34E-3	3.27E-5	2.05E-4	1.62E-6	-1.10E-3	1.49E-3
EP-fw	kg P eq	1.31E-5	2.14E-8	8.24E-9	1.32E-5	4.72E-8	9.91E-7	2.11E-9	-7.20E-6	7.01E-6
EP-m	kg N eq	4.39E-4	5.29E-6	1.55E-7	4.44E-4	1.17E-5	6.23E-5	1.05E-6	-2.21E-4	2.99E-4
EP-T	mol N eq	4.81E-3	5.83E-5	1.85E-6	4.87E-3	1.29E-4	6.86E-4	6.57E-6	-2.50E-3	3.19E-3
POCP	kg NMVOC eq	1.97E-3	1.67E-5	6.28E-7	1.98E-3	3.68E-5	2.14E-4	2.46E-6	-9.98E-4	1.24E-3
ADP-mm	kg Sb eq	1.81E-5	6.71E-8	1.97E-8	1.82E-5	1.48E-7	8.05E-7	1.63E-9	-2.49E-6	1.67E-5
ADP-f	MJ	1.78E+1	3.98E-2	1.36E-3	1.79E+1	8.80E-2	6.13E-1	4.95E-3	-9.32E+0	9.26E+0
WDP	m3 depriv.	3.56E-1	1.22E-4	5.22E-5	3.56E-1	2.70E-4	1.14E-2	2.54E-5	-2.04E-1	1.64E-1
PM	disease inc.	2.47E-8	2.34E-10	9.08E-12	2.49E-8	5.18E-10	3.31E-9	3.40E-11	-1.31E-8	1.57E-8
IR	kBq U-235 eq	1.52E-2	1.74E-4	1.02E-6	1.54E-2	3.85E-4	1.92E-3	2.29E-5	-7.39E-3	1.03E-2
ETP-fw	CTUe	9.90E+0	3.23E-2	1.21E-2	9.95E+0	7.15E-2	7.20E-1	4.14E-3	-4.44E+0	6.31E+0
HTP-c	CTUh	2.97E-10	1.15E-12	6.17E-13	2.99E-10	2.54E-12	8.69E-11	1.21E-13	-1.36E-10	2.52E-10
HTP-nc	CTUh	6.06E-9	3.86E-11	1.57E-11	6.12E-9	8.52E-11	1.04E-9	2.67E-12	-2.38E-9	4.87E-9
SQP	Pt	1.91E+1	3.41E-2	2.24E-3	1.91E+1	7.53E-2	4.82E-1	1.27E-2	-2.01E+1	-3.74E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.07E+0	5.71E-4	2.40E-2	5.09E+0	1.26E-3	2.93E-2	1.91E-4	-3.27E+0	1.86E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.07E+0	5.71E-4	2.40E-2	5.09E+0	1.26E-3	2.93E-2	1.91E-4	-3.27E+0	1.86E+0
PENRE	MJ	1.91E+1	4.23E-2	1.44E-3	1.92E+1	9.35E-2	6.53E-1	5.25E-3	-1.00E+1	9.88E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.91E+1	4.23E-2	1.44E-3	1.92E+1	9.35E-2	6.53E-1	5.25E-3	-1.00E+1	9.88E+0
PET	MJ	2.42E+1	4.29E-2	2.55E-2	2.43E+1	9.47E-2	6.82E-1	5.44E-3	-1.33E+1	1.17E+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	6.24E-3	4.51E-6	1.46E-6	6.24E-3	9.96E-6	3.47E-4	6.10E-6	-3.69E-3	2.91E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.95E-6	1.02E-7	2.73E-13	5.05E-6	2.25E-7	1.05E-6	5.97E-9	-3.81E-6	2.52E-6
NHWD	kg	3.93E-2	2.47E-3	1.05E-6	4.18E-2	5.46E-3	3.07E-2	2.18E-2	-1.74E-2	8.24E-2
RWD	kg	1.58E-5	2.71E-7	1.10E-13	1.61E-5	5.99E-7	2.48E-6	3.23E-8	-7.16E-6	1.20E-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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