Environmental Profile

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

Ecochain v3.5.80

Product:	3020578 - Wafix PP Bend 45° BK 32 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	4.56E-2	3.90E-4	1.45E-4	4.61E-2	6.69E-4	7.48E-2	3.15E-4	-3.79E-2	8.40E-2
GWP-f	kg CO2 eq	9.47E-2	3.90E-4	1.46E-4	9.52E-2	6.69E-4	2.31E-2	3.15E-4	-4.27E-2	7.66E-2
GWP-b	kg CO2 eq	-4.92E-2	2.37E-7	-1.54E-6	-4.92E-2	4.06E-7	5.17E-2	2.75E-7	4.79E-3	7.36E-3
GWP-luluc	kg CO2 eq	1.07E-4	1.38E-7	1.49E-7	1.07E-4	2.37E-7	4.08E-6	5.28E-9	-6.70E-5	4.42E-5
ODP	kg CFC11 eq	8.07E-9	8.98E-11	8.26E-12	8.16E-9	1.54E-10	6.39E-10	7.90E-12	-2.52E-9	6.44E-9
AP	mol H+ eq	4.44E-4	2.22E-6	1.47E-6	4.48E-4	3.81E-6	2.62E-5	1.88E-7	-1.60E-4	3.18E-4
EP-fw	kg P eq	2.64E-6	3.21E-9	8.24E-9	2.65E-6	5.50E-9	1.21E-7	2.43E-10	-1.14E-6	1.64E-6
EP-m	kg N eq	8.47E-5	7.94E-7	1.55E-7	8.57E-5	1.36E-6	8.09E-6	1.23E-7	-3.40E-5	6.12E-5
EP-T	mol N eq	9.58E-4	8.75E-6	1.85E-6	9.68E-4	1.50E-5	8.92E-5	7.65E-7	-3.89E-4	6.84E-4
POCP	kg NMVOC eq	3.65E-4	2.50E-6	6.28E-7	3.68E-4	4.29E-6	2.75E-5	2.87E-7	-1.51E-4	2.49E-4
ADP-mm	kg Sb eq	7.27E-6	1.01E-8	1.97E-8	7.30E-6	1.73E-8	1.02E-7	1.89E-10	-3.56E-7	7.07E-6
ADP-f	MJ	2.60E+0	5.98E-3	1.36E-3	2.61E+0	1.03E-2	7.56E-2	5.76E-4	-1.17E+0	1.52E+0
WDP	m3 depriv.	5.69E-2	1.84E-5	5.22E-5	5.69E-2	3.15E-5	1.36E-3	2.64E-6	-2.68E-2	3.16E-2
PM	disease inc.	4.99E-9	3.52E-11	9.08E-12	5.04E-9	6.04E-11	4.16E-10	3.96E-12	-2.16E-9	3.36E-9
IR	kBq U-235 eq	3.53E-3	2.61E-5	1.02E-6	3.56E-3	4.49E-5	2.43E-4	2.68E-6	-1.11E-3	2.74E-3
ETP-fw	CTUe	1.93E+0	4.86E-3	1.21E-2	1.95E+0	8.33E-3	8.99E-2	4.83E-4	-7.46E-1	1.30E+0
HTP-c	CTUh	6.82E-11	1.73E-13	6.17E-13	6.90E-11	2.97E-13	1.07E-11	1.39E-14	-2.61E-11	5.39E-11
HTP-nc	CTUh	1.24E-9	5.79E-12	1.57E-11	1.26E-9	9.93E-12	1.29E-10	3.09E-13	-3.06E-10	1.09E-9
SQP	Pt	4.62E+0	5.12E-3	2.24E-3	4.63E+0	8.78E-3	5.93E-2	1.48E-3	-4.45E+0	2.53E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.16E-1	8.58E-5	2.40E-2	9.40E-1	1.47E-4	3.56E-3	2.25E-5	-7.05E-1	2.38E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.16E-1	8.58E-5	2.40E-2	9.40E-1	1.47E-4	3.56E-3	2.25E-5	-7.05E-1	2.38E-1
PENRE	MJ	2.79E+0	6.35E-3	1.44E-3	2.79E+0	1.09E-2	8.05E-2	6.12E-4	-1.26E+0	1.62E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.79E+0	6.35E-3	1.44E-3	2.79E+0	1.09E-2	8.05E-2	6.12E-4	-1.26E+0	1.62E+0
PET	MJ	3.70E+0	6.44E-3	2.55E-2	3.73E+0	1.10E-2	8.41E-2	6.34E-4	-1.97E+0	1.86E+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	1.17E-3	6.77E-7	1.46E-6	1.17E-3	1.16E-6	4.23E-5	7.12E-7	-5.18E-4	6.97E-4

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.34E-6	1.53E-8	2.73E-13	1.36E-6	2.62E-8	1.33E-7	6.92E-10	-6.57E-7	8.59E-7
NHWD	kg	1.20E-2	3.71E-4	1.05E-6	1.24E-2	6.36E-4	3.83E-3	2.54E-3	-3.20E-3	1.62E-2
RWD	kg	4.00E-6	4.07E-8	1.10E-13	4.04E-6	6.98E-8	3.16E-7	3.77E-9	-1.12E-6	3.32E-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

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