Environmental Profile

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

Ecochain v3.5.80

Product:	3043809 - Wafix PP Bend 30° GY 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	4.30E-2	3.96E-4	1.45E-4	4.36E-2	6.16E-4	7.87E-2	2.90E-4	-3.88E-2	8.44E-2
GWP-f	kg CO2 eq	9.21E-2	3.95E-4	1.46E-4	9.27E-2	6.16E-4	2.70E-2	2.90E-4	-4.35E-2	7.70E-2
GWP-b	kg CO2 eq	-4.92E-2	2.40E-7	-1.54E-6	-4.92E-2	3.74E-7	5.17E-2	2.51E-7	4.80E-3	7.37E-3
GWP-luluc	kg CO2 eq	1.03E-4	1.40E-7	1.49E-7	1.03E-4	2.18E-7	3.83E-6	5.14E-9	-6.72E-5	4.03E-5
ODP	kg CFC11 eq	5.89E-9	9.11E-11	8.26E-12	5.99E-9	1.42E-10	6.15E-10	7.29E-12	-3.30E-9	3.46E-9
AP	mol H+ eq	4.19E-4	2.25E-6	1.47E-6	4.22E-4	3.51E-6	2.54E-5	1.75E-7	-1.57E-4	2.95E-4
EP-fw	kg P eq	2.49E-6	3.25E-9	8.24E-9	2.50E-6	5.07E-9	1.14E-7	2.33E-10	-1.15E-6	1.47E-6
EP-m	kg N eq	7.86E-5	8.06E-7	1.55E-7	7.95E-5	1.26E-6	7.99E-6	1.12E-7	-3.38E-5	5.51E-5
EP-T	mol N eq	8.82E-4	8.88E-6	1.85E-6	8.93E-4	1.38E-5	8.80E-5	7.08E-7	-3.86E-4	6.10E-4
POCP	kg NMVOC eq	3.42E-4	2.54E-6	6.28E-7	3.45E-4	3.95E-6	2.70E-5	2.65E-7	-1.47E-4	2.29E-4
ADP-mm	kg Sb eq	4.56E-6	1.02E-8	1.97E-8	4.59E-6	1.59E-8	9.66E-8	1.78E-10	-3.57E-7	4.35E-6
ADP-f	MJ	2.61E+0	6.07E-3	1.36E-3	2.61E+0	9.46E-3	7.16E-2	5.33E-4	-1.15E+0	1.55E+0
WDP	m3 depriv.	5.77E-2	1.86E-5	5.22E-5	5.78E-2	2.90E-5	1.27E-3	3.40E-6	-2.67E-2	3.24E-2
PM	disease inc.	4.55E-9	3.57E-11	9.08E-12	4.60E-9	5.56E-11	3.99E-10	3.67E-12	-2.11E-9	2.94E-9
IR	kBq U-235 eq	2.83E-3	2.65E-5	1.02E-6	2.86E-3	4.13E-5	2.32E-4	2.46E-6	-1.13E-3	2.01E-3
ETP-fw	CTUe	1.81E+0	4.93E-3	1.21E-2	1.83E+0	7.68E-3	8.62E-2	4.46E-4	-7.52E-1	1.17E+0
HTP-c	CTUh	6.42E-11	1.75E-13	6.17E-13	6.50E-11	2.73E-13	1.13E-11	1.36E-14	-2.64E-11	5.01E-11
HTP-nc	CTUh	1.16E-9	5.88E-12	1.57E-11	1.18E-9	9.15E-12	1.27E-10	2.90E-13	-3.13E-10	1.01E-9
SQP	Pt	4.55E+0	5.19E-3	2.24E-3	4.56E+0	8.09E-3	5.61E-2	1.37E-3	-4.45E+0	1.75E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.18E-1	8.71E-5	2.40E-2	9.42E-1	1.36E-4	3.34E-3	2.02E-5	-7.05E-1	2.40E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.18E-1	8.71E-5	2.40E-2	9.42E-1	1.36E-4	3.34E-3	2.02E-5	-7.05E-1	2.40E-1
PENRE	MJ	2.79E+0	6.44E-3	1.44E-3	2.80E+0	1.00E-2	7.62E-2	5.66E-4	-1.24E+0	1.65E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.79E+0	6.44E-3	1.44E-3	2.80E+0	1.00E-2	7.62E-2	5.66E-4	-1.24E+0	1.65E+0
PET	MJ	3.71E+0	6.53E-3	2.55E-2	3.74E+0	1.02E-2	7.96E-2	5.86E-4	-1.94E+0	1.89E+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	1.13E-3	6.87E-7	1.46E-6	1.13E-3	1.07E-6	4.06E-5	6.54E-7	-5.10E-4	6.66E-4

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.10E-6	1.55E-8	2.73E-13	1.12E-6	2.42E-8	1.28E-7	6.49E-10	-7.20E-7	5.53E-7
NHWD	kg	9.04E-3	3.76E-4	1.05E-6	9.42E-3	5.86E-4	3.87E-3	2.34E-3	-3.22E-3	1.30E-2
RWD	kg	2.98E-6	4.13E-8	1.10E-13	3.03E-6	6.43E-8	3.02E-7	3.47E-9	-1.14E-6	2.26E-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