Environmental Profile

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

Ecochain v3.5.80

Product:	3020608 - Wafix PP Bend 88° 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	4.47E-1	4.53E-3	1.45E-4	4.51E-1	6.50E-3	4.25E-1	3.06E-3	-3.29E-1	5.57E-1
GWP-f	kg CO2 eq	6.42E-1	4.52E-3	1.46E-4	6.47E-1	6.50E-3	2.11E-1	3.06E-3	-3.57E-1	5.11E-1
GWP-b	kg CO2 eq	-1.96E-1	2.75E-6	-1.54E-6	-1.96E-1	3.95E-6	2.14E-1	2.66E-6	2.86E-2	4.61E-2
GWP-luluc	kg CO2 eq	6.12E-4	1.60E-6	1.49E-7	6.14E-4	2.30E-6	3.82E-5	5.24E-8	-3.87E-4	2.67E-4
ODP	kg CFC11 eq	3.81E-8	1.04E-9	8.26E-12	3.92E-8	1.50E-9	5.53E-9	7.68E-11	-1.99E-8	2.63E-8
AP	mol H+ eq	2.67E-3	2.58E-5	1.47E-6	2.70E-3	3.70E-5	2.29E-4	1.83E-6	-1.20E-3	1.77E-3
EP-fw	kg P eq	1.50E-5	3.72E-8	8.24E-9	1.51E-5	5.35E-8	1.11E-6	2.40E-9	-7.62E-6	8.64E-6
EP-m	kg N eq	4.97E-4	9.22E-6	1.55E-7	5.06E-4	1.32E-5	6.91E-5	1.19E-6	-2.38E-4	3.52E-4
EP-T	mol N eq	5.46E-3	1.02E-4	1.85E-6	5.57E-3	1.46E-4	7.61E-4	7.44E-6	-2.69E-3	3.79E-3
POCP	kg NMVOC eq	2.24E-3	2.90E-5	6.28E-7	2.27E-3	4.17E-5	2.38E-4	2.79E-6	-1.09E-3	1.46E-3
ADP-mm	kg Sb eq	2.87E-5	1.17E-7	1.97E-8	2.88E-5	1.68E-7	8.98E-7	1.85E-9	-2.74E-6	2.71E-5
ADP-f	MJ	2.01E+1	6.94E-2	1.36E-3	2.02E+1	9.97E-2	6.87E-1	5.61E-3	-1.04E+1	1.06E+1
WDP	m3 depriv.	4.02E-1	2.13E-4	5.22E-5	4.03E-1	3.06E-4	1.28E-2	2.94E-5	-2.25E-1	1.91E-1
PM	disease inc.	2.84E-8	4.08E-10	9.08E-12	2.89E-8	5.87E-10	3.70E-9	3.86E-11	-1.39E-8	1.93E-8
IR	kBq U-235 eq	1.91E-2	3.03E-4	1.02E-6	1.94E-2	4.36E-4	2.15E-3	2.60E-5	-7.94E-3	1.41E-2
ETP-fw	CTUe	1.14E+1	5.64E-2	1.21E-2	1.15E+1	8.10E-2	8.04E-1	4.70E-3	-4.59E+0	7.76E+0
HTP-c	CTUh	3.30E-10	2.01E-12	6.17E-13	3.33E-10	2.88E-12	9.74E-11	1.38E-13	-1.43E-10	2.90E-10
HTP-nc	CTUh	6.91E-9	6.72E-11	1.57E-11	6.99E-9	9.66E-11	1.17E-9	3.03E-12	-2.56E-9	5.70E-9
SQP	Pt	1.95E+1	5.94E-2	2.24E-3	1.96E+1	8.53E-2	5.41E-1	1.44E-2	-2.01E+1	1.36E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.41E+0	9.96E-4	2.40E-2	5.43E+0	1.43E-3	3.29E-2	2.17E-4	-3.28E+0	2.18E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.41E+0	9.96E-4	2.40E-2	5.43E+0	1.43E-3	3.29E-2	2.17E-4	-3.28E+0	2.18E+0
PENRE	MJ	2.16E+1	7.37E-2	1.44E-3	2.17E+1	1.06E-1	7.32E-1	5.95E-3	-1.12E+1	1.13E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.16E+1	7.37E-2	1.44E-3	2.17E+1	1.06E-1	7.32E-1	5.95E-3	-1.12E+1	1.13E+1
PET	MJ	2.70E+1	7.47E-2	2.55E-2	2.71E+1	1.07E-1	7.65E-1	6.17E-3	-1.45E+1	1.34E+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	7.19E-3	7.85E-6	1.46E-6	7.20E-3	1.13E-5	3.90E-4	6.91E-6	-3.99E-3	3.61E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.78E-6	1.78E-7	2.73E-13	5.96E-6	2.55E-7	1.17E-6	6.77E-9	-4.08E-6	3.30E-6
NHWD	kg	4.58E-2	4.30E-3	1.05E-6	5.01E-2	6.18E-3	3.44E-2	2.47E-2	-1.83E-2	9.70E-2
RWD	kg	2.06E-5	4.72E-7	1.10E-13	2.11E-5	6.78E-7	2.76E-6	3.66E-8	-7.66E-6	1.69E-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