Environmental Profile

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

Ecochain v3.5.80

Product:	3020660 - Wafix PP Branch 45° BK 90x90x90 S/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	7.23E-1	6.98E-3	1.45E-4	7.31E-1	1.05E-2	6.60E-1	4.92E-3	-5.20E-1	8.86E-1
GWP-f	kg CO2 eq	1.02E+0	6.97E-3	1.46E-4	1.02E+0	1.04E-2	3.34E-1	4.93E-3	-5.71E-1	8.02E-1
GWP-b	kg CO2 eq	-2.94E-1	4.24E-6	-1.54E-6	-2.94E-1	6.34E-6	3.25E-1	4.29E-6	5.20E-2	8.33E-2
GWP-luluc	kg CO2 eq	9.93E-4	2.47E-6	1.49E-7	9.96E-4	3.70E-6	6.14E-5	8.39E-8	-6.57E-4	4.04E-4
ODP	kg CFC11 eq	5.84E-8	1.61E-9	8.26E-12	6.00E-8	2.41E-9	8.95E-9	1.24E-10	-3.11E-8	4.03E-8
AP	mol H+ eq	4.16E-3	3.97E-5	1.47E-6	4.20E-3	5.95E-5	3.69E-4	2.95E-6	-1.93E-3	2.70E-3
EP-fw	kg P eq	2.36E-5	5.74E-8	8.24E-9	2.37E-5	8.60E-8	1.80E-6	3.85E-9	-1.26E-5	1.29E-5
EP-m	kg N eq	7.85E-4	1.42E-5	1.55E-7	7.99E-4	2.13E-5	1.12E-4	1.92E-6	-3.84E-4	5.50E-4
EP-T	mol N eq	8.60E-3	1.57E-4	1.85E-6	8.75E-3	2.35E-4	1.23E-3	1.20E-5	-4.34E-3	5.89E-3
POCP	kg NMVOC eq	3.51E-3	4.48E-5	6.28E-7	3.56E-3	6.71E-5	3.84E-4	4.49E-6	-1.74E-3	2.27E-3
ADP-mm	kg Sb eq	4.28E-5	1.80E-7	1.97E-8	4.30E-5	2.70E-7	1.45E-6	2.97E-9	-4.38E-6	4.03E-5
ADP-f	MJ	3.21E+1	1.07E-1	1.36E-3	3.22E+1	1.60E-1	1.11E+0	9.02E-3	-1.67E+1	1.68E+1
WDP	m3 depriv.	6.40E-1	3.29E-4	5.22E-5	6.40E-1	4.92E-4	2.07E-2	4.59E-5	-3.68E-1	2.94E-1
PM	disease inc.	4.45E-8	6.30E-10	9.08E-12	4.51E-8	9.43E-10	5.97E-9	6.20E-11	-2.25E-8	2.95E-8
IR	kBq U-235 eq	2.98E-2	4.68E-4	1.02E-6	3.03E-2	7.01E-4	3.47E-3	4.18E-5	-1.30E-2	2.15E-2
ETP-fw	CTUe	1.80E+1	8.69E-2	1.21E-2	1.81E+1	1.30E-1	1.30E+0	7.55E-3	-7.76E+0	1.18E+1
HTP-c	CTUh	4.82E-10	3.09E-12	6.17E-13	4.86E-10	4.63E-12	1.56E-10	2.21E-13	-2.25E-10	4.22E-10
HTP-nc	CTUh	1.01E-8	1.04E-10	1.57E-11	1.02E-8	1.55E-10	1.88E-9	4.86E-12	-4.18E-9	8.07E-9
SQP	Pt	2.97E+1	9.16E-2	2.24E-3	2.98E+1	1.37E-1	8.71E-1	2.31E-2	-3.20E+1	-1.19E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	7.13E+0	1.54E-3	2.40E-2	7.15E+0	2.30E-3	5.30E-2	3.49E-4	-5.27E+0	1.94E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	7.13E+0	1.54E-3	2.40E-2	7.15E+0	2.30E-3	5.30E-2	3.49E-4	-5.27E+0	1.94E+0
PENRE	MJ	3.44E+1	1.14E-1	1.44E-3	3.45E+1	1.70E-1	1.18E+0	9.57E-3	-1.80E+1	1.79E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.44E+1	1.14E-1	1.44E-3	3.45E+1	1.70E-1	1.18E+0	9.57E-3	-1.80E+1	1.79E+1
PET	MJ	4.15E+1	1.15E-1	2.55E-2	4.17E+1	1.73E-1	1.23E+0	9.92E-3	-2.33E+1	1.98E+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	1.13E-2	1.21E-5	1.46E-6	1.14E-2	1.81E-5	6.27E-4	1.11E-5	-6.62E-3	5.40E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	9.08E-6	2.74E-7	2.73E-13	9.35E-6	4.10E-7	1.89E-6	1.09E-8	-6.43E-6	5.23E-6
NHWD	kg	7.20E-2	6.64E-3	1.05E-6	7.86E-2	9.94E-3	5.51E-2	3.97E-2	-2.91E-2	1.54E-1
RWD	kg	3.19E-5	7.28E-7	1.10E-13	3.27E-5	1.09E-6	4.46E-6	5.89E-8	-1.25E-5	2.58E-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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