Environmental Profile

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

Ecochain v3.5.80

Product:	3020659 - Wafix PP Branch 45° BK 90x90x90 S/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	6.44E-1	4.97E-3	1.45E-4	6.49E-1	9.66E-3	6.34E-1	4.55E-3	-4.85E-1	8.13E-1
GWP-f	kg CO2 eq	9.37E-1	4.97E-3	1.46E-4	9.43E-1	9.66E-3	3.11E-1	4.55E-3	-5.33E-1	7.35E-1
GWP-b	kg CO2 eq	-2.94E-1	3.02E-6	-1.54E-6	-2.94E-1	5.86E-6	3.23E-1	3.96E-6	4.82E-2	7.76E-2
GWP-luluc	kg CO2 eq	9.07E-4	1.76E-6	1.49E-7	9.09E-4	3.42E-6	5.69E-5	7.77E-8	-6.20E-4	3.48E-4
ODP	kg CFC11 eq	4.97E-8	1.15E-9	8.26E-12	5.08E-8	2.23E-9	8.31E-9	1.14E-10	-2.95E-8	3.20E-8
AP	mol H+ eq	3.79E-3	2.83E-5	1.47E-6	3.82E-3	5.50E-5	3.43E-4	2.72E-6	-1.81E-3	2.41E-3
EP-fw	kg P eq	2.13E-5	4.09E-8	8.24E-9	2.14E-5	7.95E-8	1.66E-6	3.56E-9	-1.19E-5	1.13E-5
EP-m	kg N eq	7.18E-4	1.01E-5	1.55E-7	7.29E-4	1.97E-5	1.04E-4	1.77E-6	-3.61E-4	4.93E-4
EP-T	mol N eq	7.86E-3	1.12E-4	1.85E-6	7.98E-3	2.17E-4	1.14E-3	1.11E-5	-4.08E-3	5.26E-3
POCP	kg NMVOC eq	3.22E-3	3.19E-5	6.28E-7	3.25E-3	6.20E-5	3.56E-4	4.15E-6	-1.64E-3	2.04E-3
ADP-mm	kg Sb eq	3.22E-5	1.29E-7	1.97E-8	3.23E-5	2.50E-7	1.35E-6	2.75E-9	-4.11E-6	2.98E-5
ADP-f	MJ	2.97E+1	7.63E-2	1.36E-3	2.98E+1	1.48E-1	1.03E+0	8.34E-3	-1.55E+1	1.54E+1
WDP	m3 depriv.	5.89E-1	2.34E-4	5.22E-5	5.90E-1	4.55E-4	1.91E-2	4.28E-5	-3.42E-1	2.67E-1
PM	disease inc.	4.05E-8	4.49E-10	9.08E-12	4.10E-8	8.72E-10	5.54E-9	5.73E-11	-2.13E-8	2.62E-8
IR	kBq U-235 eq	2.60E-2	3.33E-4	1.02E-6	2.63E-2	6.48E-4	3.22E-3	3.86E-5	-1.22E-2	1.80E-2
ETP-fw	CTUe	1.60E+1	6.19E-2	1.21E-2	1.61E+1	1.20E-1	1.21E+0	6.98E-3	-7.30E+0	1.01E+1
HTP-c	CTUh	4.48E-10	2.20E-12	6.17E-13	4.51E-10	4.28E-12	1.45E-10	2.04E-13	-2.16E-10	3.84E-10
HTP-nc	CTUh	9.19E-9	7.38E-11	1.57E-11	9.28E-9	1.43E-10	1.74E-9	4.49E-12	-3.92E-9	7.25E-9
SQP	Pt	2.90E+1	6.53E-2	2.24E-3	2.91E+1	1.27E-1	8.07E-1	2.14E-2	-3.12E+1	-1.12E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	6.79E+0	1.09E-3	2.40E-2	6.82E+0	2.13E-3	4.91E-2	3.22E-4	-5.12E+0	1.75E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	6.79E+0	1.09E-3	2.40E-2	6.82E+0	2.13E-3	4.91E-2	3.22E-4	-5.12E+0	1.75E+0
PENRE	MJ	3.18E+1	8.10E-2	1.44E-3	3.19E+1	1.57E-1	1.09E+0	8.84E-3	-1.67E+1	1.65E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.18E+1	8.10E-2	1.44E-3	3.19E+1	1.57E-1	1.09E+0	8.84E-3	-1.67E+1	1.65E+1
PET	MJ	3.86E+1	8.21E-2	2.55E-2	3.87E+1	1.59E-1	1.14E+0	9.17E-3	-2.18E+1	1.82E+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	1.03E-2	8.63E-6	1.46E-6	1.03E-2	1.68E-5	5.81E-4	1.03E-5	-6.16E-3	4.76E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	8.18E-6	1.95E-7	2.73E-13	8.37E-6	3.79E-7	1.76E-6	1.01E-8	-6.11E-6	4.41E-6
NHWD	kg	6.47E-2	4.73E-3	1.05E-6	6.95E-2	9.19E-3	5.12E-2	3.67E-2	-2.78E-2	1.39E-1
RWD	kg	2.74E-5	5.19E-7	1.10E-13	2.79E-5	1.01E-6	4.14E-6	5.44E-8	-1.17E-5	2.14E-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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