Environmental Profile

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

Ecochain v3.5.80

Product:	3020640 - Wafix PP Branch 88° BK 40x40x40 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	8.09E-2	9.44E-4	1.45E-4	8.20E-2	1.59E-3	1.59E-1	7.49E-4	-8.93E-2	1.54E-1
GWP-f	kg CO2 eq	1.79E-1	9.43E-4	1.46E-4	1.80E-1	1.59E-3	5.57E-2	7.49E-4	-9.77E-2	1.40E-1
GWP-b	kg CO2 eq	-9.83E-2	5.73E-7	-1.54E-6	-9.83E-2	9.65E-7	1.03E-1	6.52E-7	8.58E-3	1.38E-2
GWP-luluc	kg CO2 eq	1.92E-4	3.34E-7	1.49E-7	1.93E-4	5.63E-7	9.58E-6	1.28E-8	-1.32E-4	7.05E-5
ODP	kg CFC11 eq	1.13E-8	2.17E-10	8.26E-12	1.15E-8	3.66E-10	1.46E-9	1.88E-11	-6.09E-9	7.27E-9
AP	mol H+ eq	7.66E-4	5.37E-6	1.47E-6	7.73E-4	9.06E-6	6.01E-5	4.49E-7	-3.51E-4	4.92E-4
EP-fw	kg P eq	4.45E-6	7.76E-9	8.24E-9	4.47E-6	1.31E-8	2.82E-7	5.88E-10	-2.38E-6	2.39E-6
EP-m	kg N eq	1.46E-4	1.92E-6	1.55E-7	1.48E-4	3.24E-6	1.85E-5	2.91E-7	-7.35E-5	9.67E-5
EP-T	mol N eq	1.62E-3	2.12E-5	1.85E-6	1.64E-3	3.57E-5	2.03E-4	1.82E-6	-8.38E-4	1.04E-3
POCP	kg NMVOC eq	6.52E-4	6.06E-6	6.28E-7	6.59E-4	1.02E-5	6.30E-5	6.84E-7	-3.29E-4	4.04E-4
ADP-mm	kg Sb eq	7.42E-6	2.44E-8	1.97E-8	7.46E-6	4.11E-8	2.33E-7	4.53E-10	-8.01E-7	6.94E-6
ADP-f	MJ	5.40E+0	1.45E-2	1.36E-3	5.42E+0	2.44E-2	1.76E-1	1.37E-3	-2.72E+0	2.90E+0
WDP	m3 depriv.	1.10E-1	4.44E-5	5.22E-5	1.10E-1	7.49E-5	3.20E-3	7.24E-6	-6.00E-2	5.30E-2
PM	disease inc.	8.67E-9	8.51E-11	9.08E-12	8.76E-9	1.44E-10	9.59E-10	9.44E-12	-4.52E-9	5.35E-9
IR	kBq U-235 eq	5.47E-3	6.33E-5	1.02E-6	5.54E-3	1.07E-4	5.59E-4	6.36E-6	-2.40E-3	3.81E-3
ETP-fw	CTUe	3.15E+0	1.18E-2	1.21E-2	3.18E+0	1.98E-2	2.07E-1	1.15E-3	-1.49E+0	1.91E+0
HTP-c	CTUh	1.14E-10	4.18E-13	6.17E-13	1.15E-10	7.05E-13	2.55E-11	3.38E-14	-5.43E-11	8.71E-11
HTP-nc	CTUh	2.03E-9	1.40E-11	1.57E-11	2.06E-9	2.36E-11	3.01E-10	7.41E-13	-7.21E-10	1.66E-9
SQP	Pt	9.00E+0	1.24E-2	2.24E-3	9.01E+0	2.09E-2	1.38E-1	3.52E-3	-8.79E+0	3.87E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.80E+0	2.08E-4	2.40E-2	1.83E+0	3.50E-4	8.31E-3	5.30E-5	-1.40E+0	4.39E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.80E+0	2.08E-4	2.40E-2	1.83E+0	3.50E-4	8.31E-3	5.30E-5	-1.40E+0	4.39E-1
PENRE	MJ	5.79E+0	1.54E-2	1.44E-3	5.81E+0	2.59E-2	1.87E-1	1.46E-3	-2.93E+0	3.09E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.79E+0	1.54E-2	1.44E-3	5.81E+0	2.59E-2	1.87E-1	1.46E-3	-2.93E+0	3.09E+0
PET	MJ	7.60E+0	1.56E-2	2.55E-2	7.64E+0	2.63E-2	1.95E-1	1.51E-3	-4.33E+0	3.53E+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	2.02E-3	1.64E-6	1.46E-6	2.02E-3	2.76E-6	9.91E-5	1.69E-6	-1.11E-3	1.01E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.95E-6	3.70E-8	2.73E-13	1.99E-6	6.24E-8	3.06E-7	1.66E-9	-1.40E-6	9.57E-7
NHWD	kg	1.52E-2	8.97E-4	1.05E-6	1.61E-2	1.51E-3	8.96E-3	6.05E-3	-6.69E-3	2.59E-2
RWD	kg	5.95E-6	9.84E-8	1.10E-13	6.05E-6	1.66E-7	7.24E-7	8.96E-9	-2.39E-6	4.56E-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

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777