Environmental Profile

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

Ecochain v3.5.80

Product:	3072518 - PVCU Bend 45° BR 200 SN4 FIN
Unit:	1 piece
Manufacturer:	Wavin - PL -Buk - Extra products

PVC external sewage pipes with a solid wall are produced in two classes of circumferential stiffness (SN8, SN4), which enables optimal selection depending on the load conditions. A wide portfolio of system fittings facilitates the construction of many schemes of sewage networks, as well as connections with systems made of other materials. Diameter range DN/OD 110-500mm. The pipes meet the requirements of the PN-EN 1401-1 standard.

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	3.10E+0	5.67E-2	1.45E-4	3.16E+0	4.01E-2	2.43E+0	1.32E-2	-1.90E+0	3.74E+0
GWP-f	kg CO2 eq	3.90E+0	5.67E-2	1.46E-4	3.96E+0	4.01E-2	1.51E+0	1.32E-2	-2.09E+0	3.43E+0
GWP-b	kg CO2 eq	-8.03E-1	3.44E-5	-1.54E-6	-8.03E-1	2.43E-5	9.20E-1	1.65E-5	1.90E-1	3.07E-1
GWP-luluc	kg CO2 eq	4.62E-3	2.01E-5	1.49E-7	4.64E-3	1.42E-5	5.02E-4	3.41E-7	-2.89E-3	2.27E-3
ODP	kg CFC11 eq	1.78E-6	1.31E-8	8.26E-12	1.79E-6	9.23E-9	1.40E-7	4.85E-10	-8.92E-7	1.05E-6
AP	mol H+ eq	1.89E-2	3.23E-4	1.47E-6	1.92E-2	2.28E-4	2.45E-3	1.18E-5	-8.20E-3	1.37E-2
EP-fw	kg P eq	1.77E-4	4.66E-7	8.24E-9	1.78E-4	3.30E-7	1.68E-5	1.54E-8	-8.49E-5	1.10E-4
EP-m	kg N eq	3.44E-3	1.16E-4	1.55E-7	3.56E-3	8.17E-5	6.16E-4	8.00E-6	-1.57E-3	2.70E-3
EP-T	mol N eq	3.74E-2	1.27E-3	1.85E-6	3.87E-2	9.00E-4	6.79E-3	4.71E-5	-1.71E-2	2.93E-2
POCP	kg NMVOC eq	1.26E-2	3.64E-4	6.28E-7	1.30E-2	2.57E-4	2.02E-3	1.62E-5	-5.72E-3	9.55E-3
ADP-mm	kg Sb eq	3.01E-3	1.47E-6	1.97E-8	3.01E-3	1.04E-6	9.50E-6	1.18E-8	-4.00E-5	2.98E-3
ADP-f	MJ	9.45E+1	8.70E-1	1.36E-3	9.54E+1	6.15E-1	6.47E+0	3.54E-2	-4.79E+1	5.47E+1
WDP	m3 depriv.	5.50E+0	2.67E-3	5.22E-5	5.50E+0	1.89E-3	2.53E-1	2.25E-4	-2.75E+0	3.01E+0
PM	disease inc.	1.50E-7	5.12E-9	9.08E-12	1.55E-7	3.62E-9	3.01E-8	2.44E-10	-7.48E-8	1.14E-7
IR	kBq U-235 eq	2.12E-1	3.80E-3	1.02E-6	2.15E-1	2.69E-3	2.30E-2	1.63E-4	-9.72E-2	1.44E-1
ETP-fw	CTUe	1.15E+2	7.07E-1	1.21E-2	1.16E+2	4.99E-1	4.96E+1	5.45E-1	-4.20E+1	1.25E+2
HTP-c	CTUh	3.37E-9	2.51E-11	6.17E-13	3.40E-9	1.78E-11	7.48E-10	9.76E-13	-1.32E-9	2.85E-9
HTP-nc	CTUh	9.83E-8	8.42E-10	1.57E-11	9.92E-8	5.95E-10	1.75E-8	1.05E-10	-3.74E-8	7.99E-8
SQP	Pt	9.10E+1	7.44E-1	2.24E-3	9.18E+1	5.26E-1	3.96E+0	9.08E-2	-9.89E+1	-2.57E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.48E+1	1.25E-2	2.40E-2	2.48E+1	8.82E-3	4.62E-1	1.34E-3	-1.71E+1	8.25E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.48E+1	1.25E-2	2.40E-2	2.48E+1	8.82E-3	4.62E-1	1.34E-3	-1.71E+1	8.25E+0
PENRE	MJ	1.01E+2	9.24E-1	1.44E-3	1.02E+2	6.53E-1	6.88E+0	3.76E-2	-5.16E+1	5.83E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.01E+2	9.24E-1	1.44E-3	1.02E+2	6.53E-1	6.88E+0	3.76E-2	-5.16E+1	5.83E+1
PET	MJ	1.26E+2	9.36E-1	2.55E-2	1.27E+2	6.62E-1	7.35E+0	3.89E-2	-6.87E+1	6.65E+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	6.72E-2	9.85E-5	1.46E-6	6.73E-2	6.96E-5	7.17E-3	4.35E-5	-3.40E-2	4.06E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.36E-4	2.23E-6	2.73E-13	4.38E-4	1.57E-6	1.08E-5	4.31E-8	-4.47E-5	4.06E-4
NHWD	kg	4.20E-1	5.39E-2	1.05E-6	4.74E-1	3.81E-2	2.48E-1	1.56E-1	-1.79E-1	7.38E-1
RWD	kg	1.96E-4	5.92E-6	1.10E-13	2.01E-4	4.18E-6	2.49E-5	2.31E-7	-8.89E-5	1.42E-4
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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