Environmental Profile

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

Ecochain v3.5.80

Product:	3072534 - PVCU Bend 45° BR 400 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	2.52E+1	3.78E-1	1.45E-4	2.56E+1	4.49E-1	2.65E+1	1.23E-1	-1.72E+1	3.54E+1
GWP-f	kg CO2 eq	3.66E+1	3.78E-1	1.46E-4	3.70E+1	4.49E-1	1.35E+1	1.23E-1	-1.96E+1	3.15E+1
GWP-b	kg CO2 eq	-1.15E+1	2.29E-4	-1.54E-6	-1.15E+1	2.73E-4	1.29E+1	1.59E-4	2.51E+0	3.96E+0
GWP-luluc	kg CO2 eq	4.54E-2	1.34E-4	1.49E-7	4.55E-2	1.59E-4	5.25E-3	3.36E-6	-3.32E-2	1.77E-2
ODP	kg CFC11 eq	1.73E-5	8.71E-8	8.26E-12	1.73E-5	1.03E-7	1.42E-6	5.10E-9	-8.51E-6	1.04E-5
AP	mol H+ eq	1.69E-1	2.15E-3	1.47E-6	1.72E-1	2.56E-3	2.61E-2	1.22E-4	-8.30E-2	1.17E-1
EP-fw	kg P eq	1.61E-3	3.11E-6	8.24E-9	1.61E-3	3.70E-6	1.75E-4	1.51E-7	-8.80E-4	9.07E-4
EP-m	kg N eq	3.20E-2	7.70E-4	1.55E-7	3.28E-2	9.15E-4	6.66E-3	7.71E-5	-1.61E-2	2.43E-2
EP-T	mol N eq	3.43E-1	8.49E-3	1.85E-6	3.52E-1	1.01E-2	7.34E-2	4.87E-4	-1.79E-1	2.57E-1
POCP	kg NMVOC eq	1.16E-1	2.43E-3	6.28E-7	1.18E-1	2.88E-3	2.20E-2	1.65E-4	-5.78E-2	8.57E-2
ADP-mm	kg Sb eq	1.30E-3	9.77E-6	1.97E-8	1.31E-3	1.16E-5	1.02E-4	1.20E-7	-3.79E-4	1.05E-3
ADP-f	MJ	8.89E+2	5.80E+0	1.36E-3	8.94E+2	6.89E+0	6.98E+1	3.69E-1	-4.51E+2	5.20E+2
WDP	m3 depriv.	5.18E+1	1.78E-2	5.22E-5	5.18E+1	2.12E-2	2.57E+0	2.01E-3	-2.73E+1	2.71E+1
PM	disease inc.	1.55E-6	3.41E-8	9.08E-12	1.59E-6	4.05E-8	3.31E-7	2.52E-9	-8.13E-7	1.15E-6
IR	kBq U-235 eq	1.93E+0	2.54E-2	1.02E-6	1.95E+0	3.01E-2	2.46E-1	1.69E-3	-9.76E-1	1.25E+0
ETP-fw	CTUe	9.19E+2	4.71E+0	1.21E-2	9.24E+2	5.60E+0	4.89E+2	5.30E+0	-4.72E+2	9.52E+2
HTP-c	CTUh	2.75E-8	1.68E-10	6.17E-13	2.76E-8	1.99E-10	7.99E-9	9.43E-12	-1.33E-8	2.25E-8
HTP-nc	CTUh	7.49E-7	5.61E-9	1.57E-11	7.55E-7	6.67E-9	1.79E-7	1.02E-9	-3.78E-7	5.64E-7
SQP	Pt	1.22E+3	4.96E+0	2.24E-3	1.23E+3	5.90E+0	4.40E+1	9.32E-1	-1.16E+3	1.14E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.41E+2	8.32E-2	2.40E-2	2.41E+2	9.89E-2	4.81E+0	1.32E-2	-2.03E+2	4.28E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.41E+2	8.32E-2	2.40E-2	2.41E+2	9.89E-2	4.81E+0	1.32E-2	-2.03E+2	4.28E+1
PENRE	MJ	9.53E+2	6.16E+0	1.44E-3	9.60E+2	7.32E+0	7.43E+1	3.91E-1	-4.86E+2	5.55E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	9.53E+2	6.16E+0	1.44E-3	9.60E+2	7.32E+0	7.43E+1	3.91E-1	-4.86E+2	5.55E+2
PET	MJ	1.19E+3	6.24E+0	2.55E-2	1.20E+3	7.42E+0	7.91E+1	4.04E-1	-6.89E+2	5.98E+2
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	6.09E-1	6.56E-4	1.46E-6	6.10E-1	7.80E-4	7.24E-2	4.52E-4	-3.52E-1	3.31E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.60E-4	1.48E-5	2.73E-13	7.75E-4	1.76E-5	1.17E-4	4.43E-7	-4.25E-4	4.84E-4
NHWD	kg	4.01E+0	3.59E-1	1.05E-6	4.37E+0	4.27E-1	2.74E+0	1.73E+0	-1.80E+0	7.46E+0
RWD	kg	1.80E-3	3.94E-5	1.10E-13	1.84E-3	4.69E-5	2.71E-4	2.41E-6	-8.93E-4	1.26E-3
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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