Environmental Profile

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

Ecochain v3.5.80

Product:	4001045 - PVCU Bend 30° BR 500 SN4
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	5.22E+1	4.63E-1	9.96E-2	5.28E+1	8.03E-1	2.90E+1	2.21E-1	-3.04E+1	5.23E+1
GWP-f	kg CO2 eq	5.74E+1	4.63E-1	1.01E-1	5.80E+1	8.03E-1	2.33E+1	2.21E-1	-3.02E+1	5.21E+1
GWP-b	kg CO2 eq	-5.25E+0	2.81E-4	-1.06E-3	-5.25E+0	4.87E-4	5.68E+0	2.84E-4	-1.99E-1	2.38E-1
GWP-luluc	kg CO2 eq	4.60E-2	1.64E-4	1.03E-4	4.63E-2	2.84E-4	9.19E-3	6.00E-6	-1.94E-2	3.63E-2
ODP	kg CFC11 eq	2.98E-5	1.07E-7	5.69E-9	2.99E-5	1.85E-7	2.44E-6	9.12E-9	-1.45E-5	1.80E-5
AP	mol H+ eq	2.60E-1	2.63E-3	1.02E-3	2.63E-1	4.57E-3	4.35E-2	2.17E-4	-1.12E-1	1.99E-1
EP-fw	kg P eq	2.43E-3	3.81E-6	5.67E-6	2.44E-3	6.61E-6	3.05E-4	2.71E-7	-1.07E-3	1.69E-3
EP-m	kg N eq	4.42E-2	9.43E-4	1.07E-4	4.53E-2	1.64E-3	1.08E-2	1.39E-4	-1.99E-2	3.79E-2
EP-T	mol N eq	4.81E-1	1.04E-2	1.28E-3	4.93E-1	1.80E-2	1.19E-1	8.70E-4	-2.16E-1	4.14E-1
POCP	kg NMVOC eq	1.69E-1	2.97E-3	4.32E-4	1.73E-1	5.15E-3	3.55E-2	2.95E-4	-7.30E-2	1.41E-1
ADP-mm	kg Sb eq	2.26E-3	1.20E-5	1.35E-5	2.29E-3	2.08E-5	1.70E-4	2.15E-7	-6.12E-4	1.87E-3
ADP-f	MJ	1.46E+3	7.10E+0	9.34E-1	1.46E+3	1.23E+1	1.19E+2	6.59E-1	-7.22E+2	8.74E+2
WDP	m3 depriv.	8.94E+1	2.18E-2	3.59E-2	8.94E+1	3.78E-2	4.54E+0	3.60E-3	-4.13E+1	5.27E+1
PM	disease inc.	2.05E-6	4.18E-8	6.25E-9	2.10E-6	7.25E-8	5.48E-7	4.51E-9	-7.39E-7	1.99E-6
IR	kBq U-235 eq	3.09E+0	3.10E-2	7.01E-4	3.12E+0	5.39E-2	4.13E-1	3.02E-3	-1.35E+0	2.24E+0
ETP-fw	CTUe	9.87E+2	5.77E+0	8.32E+0	1.00E+3	1.00E+1	8.60E+2	9.43E+0	-4.27E+2	1.45E+3
HTP-c	CTUh	3.96E-8	2.05E-10	4.24E-10	4.02E-8	3.56E-10	1.33E-8	1.68E-11	-1.56E-8	3.83E-8
HTP-nc	CTUh	1.21E-6	6.87E-9	1.08E-8	1.23E-6	1.19E-8	3.10E-7	1.82E-9	-5.35E-7	1.02E-6
SQP	Pt	7.05E+2	6.07E+0	1.54E+0	7.13E+2	1.05E+1	7.51E+1	1.67E+0	-1.85E+2	6.15E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.05E+2	1.02E-1	1.65E+1	2.22E+2	1.77E-1	8.40E+0	2.35E-2	-5.24E+1	1.78E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.05E+2	1.02E-1	1.65E+1	2.22E+2	1.77E-1	8.40E+0	2.35E-2	-5.24E+1	1.78E+2
PENRE	MJ	1.56E+3	7.54E+0	9.94E-1	1.57E+3	1.31E+1	1.27E+2	7.00E-1	-7.78E+2	9.32E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.56E+3	7.54E+0	9.94E-1	1.57E+3	1.31E+1	1.27E+2	7.00E-1	-7.78E+2	9.32E+2
PET	MJ	1.77E+3	7.64E+0	1.75E+1	1.79E+3	1.33E+1	1.35E+2	7.23E-1	-8.31E+2	1.11E+3
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	9.95E-1	8.03E-4	1.00E-3	9.97E-1	1.39E-3	1.27E-1	8.08E-4	-4.35E-1	6.91E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.14E-3	1.82E-5	1.88E-10	1.16E-3	3.15E-5	1.93E-4	7.92E-7	-6.11E-4	7.77E-4
NHWD	kg	5.50E+0	4.40E-1	7.26E-4	5.94E+0	7.64E-1	4.61E+0	3.09E+0	-2.25E+0	1.21E+1
RWD	kg	2.83E-3	4.83E-5	7.54E-11	2.88E-3	8.38E-5	4.47E-4	4.31E-6	-1.20E-3	2.22E-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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