Environmental Profile

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

Ecochain v3.5.80

Product:	4001068 - PVCU Branch 45° BR 500x200 SN4 UD
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	5.97E+1	5.27E-1	1.98E-1	6.04E+1	9.19E-1	3.26E+1	2.53E-1	-3.47E+1	5.95E+1
GWP-f	kg CO2 eq	6.54E+1	5.26E-1	2.00E-1	6.61E+1	9.18E-1	2.63E+1	2.53E-1	-3.44E+1	5.92E+1
GWP-b	kg CO2 eq	-5.78E+0	3.20E-4	-2.11E-3	-5.78E+0	5.57E-4	6.29E+0	3.25E-4	-2.29E-1	2.81E-1
GWP-luluc	kg CO2 eq	5.24E-2	1.86E-4	2.05E-4	5.27E-2	3.25E-4	1.05E-2	6.90E-6	-2.23E-2	4.13E-2
ODP	kg CFC11 eq	3.41E-5	1.21E-7	1.13E-8	3.43E-5	2.12E-7	2.79E-6	1.04E-8	-1.67E-5	2.06E-5
AP	mol H+ eq	2.97E-1	3.00E-3	2.02E-3	3.02E-1	5.23E-3	4.97E-2	2.49E-4	-1.29E-1	2.28E-1
EP-fw	kg P eq	2.78E-3	4.33E-6	1.13E-5	2.79E-3	7.55E-6	3.48E-4	3.10E-7	-1.23E-3	1.92E-3
EP-m	kg N eq	5.04E-2	1.07E-3	2.13E-4	5.17E-2	1.87E-3	1.23E-2	1.58E-4	-2.28E-2	4.32E-2
EP-T	mol N eq	5.49E-1	1.18E-2	2.54E-3	5.64E-1	2.06E-2	1.35E-1	9.96E-4	-2.47E-1	4.74E-1
POCP	kg NMVOC eq	1.93E-1	3.38E-3	8.60E-4	1.97E-1	5.89E-3	4.06E-2	3.38E-4	-8.34E-2	1.61E-1
ADP-mm	kg Sb eq	2.60E-3	1.36E-5	2.70E-5	2.64E-3	2.38E-5	1.94E-4	2.46E-7	-7.01E-4	2.16E-3
ADP-f	MJ	1.66E+3	8.08E+0	1.86E+0	1.67E+3	1.41E+1	1.36E+2	7.54E-1	-8.25E+2	9.96E+2
WDP	m3 depriv.	1.02E+2	2.48E-2	7.15E-2	1.02E+2	4.32E-2	5.19E+0	4.20E-3	-4.74E+1	6.00E+1
PM	disease inc.	2.33E-6	4.75E-8	1.24E-8	2.39E-6	8.29E-8	6.26E-7	5.16E-9	-8.45E-7	2.26E-6
IR	kBq U-235 eq	3.54E+0	3.53E-2	1.40E-3	3.58E+0	6.16E-2	4.73E-1	3.46E-3	-1.55E+0	2.57E+0
ETP-fw	CTUe	1.13E+3	6.56E+0	1.66E+1	1.15E+3	1.14E+1	9.84E+2	1.08E+1	-4.89E+2	1.67E+3
HTP-c	CTUh	4.54E-8	2.33E-10	8.45E-10	4.64E-8	4.07E-10	1.52E-8	1.93E-11	-1.78E-8	4.42E-8
HTP-nc	CTUh	1.38E-6	7.82E-9	2.15E-8	1.41E-6	1.36E-8	3.54E-7	2.08E-9	-6.13E-7	1.17E-6
SQP	Pt	7.90E+2	6.91E+0	3.07E+0	8.00E+2	1.21E+1	8.59E+1	1.91E+0	-2.08E+2	6.92E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.31E+2	1.16E-1	3.29E+1	2.64E+2	2.02E-1	9.60E+0	2.69E-2	-5.92E+1	2.14E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.31E+2	1.16E-1	3.29E+1	2.64E+2	2.02E-1	9.60E+0	2.69E-2	-5.92E+1	2.14E+2
PENRE	MJ	1.78E+3	8.58E+0	1.98E+0	1.79E+3	1.50E+1	1.45E+2	8.00E-1	-8.89E+2	1.06E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.78E+3	8.58E+0	1.98E+0	1.79E+3	1.50E+1	1.45E+2	8.00E-1	-8.89E+2	1.06E+3
PET	MJ	2.01E+3	8.69E+0	3.49E+1	2.06E+3	1.52E+1	1.54E+2	8.27E-1	-9.49E+2	1.28E+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	1.13E+0	9.14E-4	2.00E-3	1.14E+0	1.59E-3	1.45E-1	9.24E-4	-4.99E-1	7.85E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.33E-3	2.07E-5	3.74E-10	1.35E-3	3.60E-5	2.21E-4	9.07E-7	-6.97E-4	9.07E-4
NHWD	kg	6.35E+0	5.01E-1	1.44E-3	6.85E+0	8.73E-1	5.25E+0	3.53E+0	-2.58E+0	1.39E+1
RWD	kg	3.25E-3	5.49E-5	1.50E-10	3.31E-3	9.58E-5	5.11E-4	4.94E-6	-1.37E-3	2.55E-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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