Environmental Profile

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

Ecochain v3.5.80

Product:	3072522 - PVCU Branch 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	6.90E+0	1.34E-1	1.45E-4	7.03E+0	8.97E-2	5.71E+0	2.94E-2	-4.17E+0	8.69E+0
GWP-f	kg CO2 eq	8.91E+0	1.34E-1	1.46E-4	9.05E+0	8.96E-2	3.33E+0	2.94E-2	-4.79E+0	7.70E+0
GWP-b	kg CO2 eq	-2.03E+0	8.11E-5	-1.54E-6	-2.03E+0	5.44E-5	2.38E+0	3.68E-5	6.30E-1	9.88E-1
GWP-luluc	kg CO2 eq	1.16E-2	4.73E-5	1.49E-7	1.16E-2	3.17E-5	1.13E-3	7.61E-7	-8.02E-3	4.78E-3
ODP	kg CFC11 eq	4.01E-6	3.08E-8	8.26E-12	4.04E-6	2.06E-8	3.17E-7	1.08E-9	-2.01E-6	2.37E-6
AP	mol H+ eq	4.32E-2	7.61E-4	1.47E-6	4.40E-2	5.10E-4	5.59E-3	2.63E-5	-1.95E-2	3.06E-2
EP-fw	kg P eq	4.10E-4	1.10E-6	8.24E-9	4.11E-4	7.37E-7	3.79E-5	3.45E-8	-2.09E-4	2.40E-4
EP-m	kg N eq	8.08E-3	2.72E-4	1.55E-7	8.35E-3	1.83E-4	1.42E-3	1.77E-5	-3.78E-3	6.20E-3
EP-T	mol N eq	8.73E-2	3.00E-3	1.85E-6	9.03E-2	2.01E-3	1.56E-2	1.05E-4	-4.15E-2	6.66E-2
POCP	kg NMVOC eq	2.90E-2	8.58E-4	6.28E-7	2.98E-2	5.75E-4	4.65E-3	3.62E-5	-1.37E-2	2.14E-2
ADP-mm	kg Sb eq	6.81E-3	3.46E-6	1.97E-8	6.81E-3	2.32E-6	2.17E-5	2.64E-8	-9.09E-5	6.74E-3
ADP-f	MJ	2.13E+2	2.05E+0	1.36E-3	2.16E+2	1.38E+0	1.47E+1	7.91E-2	-1.09E+2	1.23E+2
WDP	m3 depriv.	1.24E+1	6.29E-3	5.22E-5	1.24E+1	4.22E-3	5.68E-1	5.03E-4	-6.46E+0	6.47E+0
PM	disease inc.	3.52E-7	1.21E-8	9.08E-12	3.64E-7	8.09E-9	6.90E-8	5.44E-10	-1.91E-7	2.51E-7
IR	kBq U-235 eq	4.81E-1	8.96E-3	1.02E-6	4.90E-1	6.01E-3	5.25E-2	3.64E-4	-2.32E-1	3.17E-1
ETP-fw	CTUe	2.85E+2	1.67E+0	1.21E-2	2.86E+2	1.12E+0	1.11E+2	1.22E+0	-1.11E+2	2.90E+2
HTP-c	CTUh	7.76E-9	5.93E-11	6.17E-13	7.82E-9	3.97E-11	1.70E-9	2.18E-12	-3.15E-9	6.41E-9
HTP-nc	CTUh	2.24E-7	1.99E-9	1.57E-11	2.26E-7	1.33E-9	3.95E-8	2.35E-10	-8.85E-8	1.79E-7
SQP	Pt	2.31E+2	1.75E+0	2.24E-3	2.33E+2	1.18E+0	8.98E+0	2.02E-1	-2.75E+2	-3.13E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	6.05E+1	2.94E-2	2.40E-2	6.05E+1	1.97E-2	1.04E+0	2.98E-3	-4.74E+1	1.43E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	6.05E+1	2.94E-2	2.40E-2	6.05E+1	1.97E-2	1.04E+0	2.98E-3	-4.74E+1	1.43E+1
PENRE	MJ	2.29E+2	2.18E+0	1.44E-3	2.31E+2	1.46E+0	1.56E+1	8.39E-2	-1.18E+2	1.31E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.29E+2	2.18E+0	1.44E-3	2.31E+2	1.46E+0	1.56E+1	8.39E-2	-1.18E+2	1.31E+2
PET	MJ	2.89E+2	2.21E+0	2.55E-2	2.92E+2	1.48E+0	1.67E+1	8.69E-2	-1.65E+2	1.45E+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	1.52E-1	2.32E-4	1.46E-6	1.53E-1	1.56E-4	1.61E-2	9.69E-5	-8.41E-2	8.49E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	9.93E-4	5.24E-6	2.73E-13	9.98E-4	3.52E-6	2.48E-5	9.62E-8	-1.03E-4	9.23E-4
NHWD	kg	9.83E-1	1.27E-1	1.05E-6	1.11E+0	8.52E-2	5.63E-1	3.47E-1	-4.25E-1	1.68E+0
RWD	kg	4.44E-4	1.39E-5	1.10E-13	4.58E-4	9.35E-6	5.71E-5	5.15E-7	-2.13E-4	3.13E-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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