Environmental Profile

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

Ecochain v3.5.80

Product:	3072536 - PVCU Branch 45° BR 315x250 SN4 UD 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	2.37E+1	3.53E-1	1.45E-4	2.40E+1	4.11E-1	2.45E+1	1.14E-1	-1.58E+1	3.32E+1
GWP-f	kg CO2 eq	3.40E+1	3.53E-1	1.46E-4	3.43E+1	4.10E-1	1.27E+1	1.14E-1	-1.83E+1	2.92E+1
GWP-b	kg CO2 eq	-1.03E+1	2.14E-4	-1.54E-6	-1.03E+1	2.49E-4	1.17E+1	1.46E-4	2.52E+0	3.95E+0
GWP-luluc	kg CO2 eq	4.28E-2	1.25E-4	1.49E-7	4.29E-2	1.45E-4	4.79E-3	3.11E-6	-3.22E-2	1.57E-2
ODP	kg CFC11 eq	1.59E-5	8.13E-8	8.26E-12	1.60E-5	9.46E-8	1.30E-6	4.68E-9	-7.84E-6	9.51E-6
AP	mol H+ eq	1.58E-1	2.01E-3	1.47E-6	1.60E-1	2.34E-3	2.38E-2	1.12E-4	-7.74E-2	1.09E-1
EP-fw	kg P eq	1.49E-3	2.90E-6	8.24E-9	1.49E-3	3.38E-6	1.59E-4	1.40E-7	-8.29E-4	8.24E-4
EP-m	kg N eq	2.99E-2	7.19E-4	1.55E-7	3.06E-2	8.37E-4	6.11E-3	7.14E-5	-1.51E-2	2.25E-2
EP-T	mol N eq	3.20E-1	7.92E-3	1.85E-6	3.28E-1	9.22E-3	6.73E-2	4.47E-4	-1.67E-1	2.38E-1
POCP	kg NMVOC eq	1.09E-1	2.26E-3	6.28E-7	1.11E-1	2.64E-3	2.01E-2	1.52E-4	-5.42E-2	7.96E-2
ADP-mm	kg Sb eq	1.28E-3	9.13E-6	1.97E-8	1.29E-3	1.06E-5	9.31E-5	1.11E-7	-3.53E-4	1.04E-3
ADP-f	MJ	8.26E+2	5.41E+0	1.36E-3	8.32E+2	6.30E+0	6.39E+1	3.39E-1	-4.19E+2	4.83E+2
WDP	m3 depriv.	4.74E+1	1.66E-2	5.22E-5	4.74E+1	1.93E-2	2.35E+0	1.93E-3	-2.54E+1	2.44E+1
PM	disease inc.	1.43E-6	3.18E-8	9.08E-12	1.46E-6	3.71E-8	3.03E-7	2.32E-9	-7.72E-7	1.03E-6
IR	kBq U-235 eq	1.80E+0	2.37E-2	1.02E-6	1.83E+0	2.75E-2	2.25E-1	1.55E-3	-9.12E-1	1.17E+0
ETP-fw	CTUe	8.74E+2	4.40E+0	1.21E-2	8.79E+2	5.12E+0	4.46E+2	4.83E+0	-4.48E+2	8.86E+2
HTP-c	CTUh	2.53E-8	1.56E-10	6.17E-13	2.55E-8	1.82E-10	7.34E-9	8.73E-12	-1.25E-8	2.05E-8
HTP-nc	CTUh	6.89E-7	5.24E-9	1.57E-11	6.95E-7	6.10E-9	1.64E-7	9.34E-10	-3.51E-7	5.14E-7
SQP	Pt	1.11E+3	4.63E+0	2.24E-3	1.11E+3	5.39E+0	4.03E+1	8.56E-1	-1.14E+3	2.30E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.19E+2	7.77E-2	2.40E-2	2.19E+2	9.04E-2	4.39E+0	1.21E-2	-1.97E+2	2.58E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.19E+2	7.77E-2	2.40E-2	2.19E+2	9.04E-2	4.39E+0	1.21E-2	-1.97E+2	2.58E+1
PENRE	MJ	8.86E+2	5.75E+0	1.44E-3	8.92E+2	6.69E+0	6.80E+1	3.59E-1	-4.52E+2	5.16E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.86E+2	5.75E+0	1.44E-3	8.92E+2	6.69E+0	6.80E+1	3.59E-1	-4.52E+2	5.16E+2
PET	MJ	1.10E+3	5.83E+0	2.55E-2	1.11E+3	6.78E+0	7.23E+1	3.71E-1	-6.49E+2	5.41E+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	5.63E-1	6.13E-4	1.46E-6	5.64E-1	7.13E-4	6.62E-2	4.15E-4	-3.32E-1	2.99E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.12E-4	1.38E-5	2.73E-13	7.26E-4	1.61E-5	1.07E-4	4.08E-7	-3.98E-4	4.51E-4
NHWD	kg	3.75E+0	3.36E-1	1.05E-6	4.08E+0	3.91E-1	2.51E+0	1.58E+0	-1.69E+0	6.87E+0
RWD	kg	1.70E-3	3.68E-5	1.10E-13	1.74E-3	4.29E-5	2.48E-4	2.21E-6	-8.36E-4	1.20E-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

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777