Environmental Profile

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

Ecochain v3.5.80

Product:	3072520 - PVCU Branch 45° BR 200x160 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	5.24E+0	1.11E-1	1.45E-4	5.35E+0	7.15E-2	5.02E+0	2.35E-2	-3.29E+0	7.17E+0
GWP-f	kg CO2 eq	7.26E+0	1.10E-1	1.46E-4	7.37E+0	7.14E-2	2.64E+0	2.35E-2	-3.92E+0	6.19E+0
GWP-b	kg CO2 eq	-2.04E+0	6.71E-5	-1.54E-6	-2.04E+0	4.34E-5	2.38E+0	2.94E-5	6.35E-1	9.83E-1
GWP-luluc	kg CO2 eq	1.02E-2	3.91E-5	1.49E-7	1.02E-2	2.53E-5	9.04E-4	6.07E-7	-7.52E-3	3.62E-3
ODP	kg CFC11 eq	3.23E-6	2.55E-8	8.26E-12	3.25E-6	1.65E-8	2.55E-7	8.64E-10	-1.62E-6	1.90E-6
AP	mol H+ eq	3.53E-2	6.29E-4	1.47E-6	3.59E-2	4.07E-4	4.53E-3	2.10E-5	-1.65E-2	2.44E-2
EP-fw	kg P eq	3.36E-4	9.09E-7	8.24E-9	3.37E-4	5.88E-7	3.04E-5	2.75E-8	-1.81E-4	1.87E-4
EP-m	kg N eq	6.75E-3	2.25E-4	1.55E-7	6.97E-3	1.46E-4	1.16E-3	1.42E-5	-3.25E-3	5.04E-3
EP-T	mol N eq	7.26E-2	2.48E-3	1.85E-6	7.51E-2	1.60E-3	1.28E-2	8.39E-5	-3.59E-2	5.37E-2
POCP	kg NMVOC eq	2.39E-2	7.09E-4	6.28E-7	2.46E-2	4.59E-4	3.79E-3	2.89E-5	-1.17E-2	1.72E-2
ADP-mm	kg Sb eq	5.35E-3	2.86E-6	1.97E-8	5.35E-3	1.85E-6	1.76E-5	2.11E-8	-7.45E-5	5.30E-3
ADP-f	MJ	1.72E+2	1.70E+0	1.36E-3	1.74E+2	1.10E+0	1.19E+1	6.31E-2	-8.87E+1	9.83E+1
WDP	m3 depriv.	9.88E+0	5.20E-3	5.22E-5	9.88E+0	3.37E-3	4.54E-1	4.00E-4	-5.35E+0	4.99E+0
PM	disease inc.	2.99E-7	9.97E-9	9.08E-12	3.09E-7	6.45E-9	5.61E-8	4.34E-10	-1.72E-7	2.00E-7
IR	kBq U-235 eq	3.92E-1	7.41E-3	1.02E-6	4.00E-1	4.79E-3	4.25E-2	2.91E-4	-1.95E-1	2.52E-1
ETP-fw	CTUe	2.44E+2	1.38E+0	1.21E-2	2.45E+2	8.91E-1	8.90E+1	9.72E-1	-9.98E+1	2.36E+2
HTP-c	CTUh	6.39E-9	4.90E-11	6.17E-13	6.44E-9	3.17E-11	1.38E-9	1.74E-12	-2.74E-9	5.11E-9
HTP-nc	CTUh	1.81E-7	1.64E-9	1.57E-11	1.82E-7	1.06E-9	3.17E-8	1.87E-10	-7.44E-8	1.41E-7
SQP	Pt	2.25E+2	1.45E+0	2.24E-3	2.27E+2	9.38E-1	7.24E+0	1.62E-1	-2.73E+2	-3.78E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.37E+1	2.43E-2	2.40E-2	5.38E+1	1.57E-2	8.33E-1	2.38E-3	-4.65E+1	8.06E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.37E+1	2.43E-2	2.40E-2	5.38E+1	1.57E-2	8.33E-1	2.38E-3	-4.65E+1	8.06E+0
PENRE	MJ	1.85E+2	1.80E+0	1.44E-3	1.87E+2	1.16E+0	1.26E+1	6.70E-2	-9.56E+1	1.05E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.85E+2	1.80E+0	1.44E-3	1.87E+2	1.16E+0	1.26E+1	6.70E-2	-9.56E+1	1.05E+2
PET	MJ	2.39E+2	1.82E+0	2.55E-2	2.40E+2	1.18E+0	1.34E+1	6.94E-2	-1.42E+2	1.13E+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	1.23E-1	1.92E-4	1.46E-6	1.23E-1	1.24E-4	1.29E-2	7.74E-5	-7.24E-2	6.38E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.86E-4	4.34E-6	2.73E-13	7.90E-4	2.80E-6	2.01E-5	7.68E-8	-8.60E-5	7.27E-4
NHWD	kg	8.24E-1	1.05E-1	1.05E-6	9.29E-1	6.80E-2	4.54E-1	2.77E-1	-3.66E-1	1.36E+0
RWD	kg	3.66E-4	1.15E-5	1.10E-13	3.77E-4	7.46E-6	4.64E-5	4.11E-7	-1.80E-4	2.51E-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

Ecochain

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