Environmental Profile

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

Ecochain v3.5.80

Product:	3017591 - PVCU Branch 87° BR 500x315 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	5.99E+1	5.18E-1	8.48E-2	6.05E+1	9.21E-1	3.31E+1	2.54E-1	-3.47E+1	6.01E+1
GWP-f	kg CO2 eq	6.57E+1	5.18E-1	8.57E-2	6.63E+1	9.20E-1	2.67E+1	2.54E-1	-3.45E+1	5.97E+1
GWP-b	kg CO2 eq	-5.87E+0	3.14E-4	-9.04E-4	-5.87E+0	5.58E-4	6.36E+0	3.25E-4	-2.27E-1	2.72E-1
GWP-luluc	kg CO2 eq	5.26E-2	1.83E-4	8.75E-5	5.29E-2	3.26E-4	1.05E-2	6.92E-6	-2.22E-2	4.15E-2
ODP	kg CFC11 eq	3.40E-5	1.19E-7	4.84E-9	3.42E-5	2.12E-7	2.78E-6	1.05E-8	-1.66E-5	2.06E-5
AP	mol H+ eq	2.99E-1	2.95E-3	8.64E-4	3.03E-1	5.24E-3	4.96E-2	2.49E-4	-1.28E-1	2.29E-1
EP-fw	kg P eq	2.78E-3	4.26E-6	4.83E-6	2.79E-3	7.57E-6	3.47E-4	3.11E-7	-1.22E-3	1.93E-3
EP-m	kg N eq	5.07E-2	1.06E-3	9.09E-5	5.19E-2	1.87E-3	1.23E-2	1.60E-4	-2.27E-2	4.35E-2
EP-T	mol N eq	5.54E-1	1.16E-2	1.09E-3	5.67E-1	2.07E-2	1.35E-1	9.99E-4	-2.46E-1	4.78E-1
POCP	kg NMVOC eq	1.95E-1	3.33E-3	3.68E-4	1.99E-1	5.91E-3	4.06E-2	3.39E-4	-8.32E-2	1.62E-1
ADP-mm	kg Sb eq	2.82E-3	1.34E-5	1.15E-5	2.85E-3	2.38E-5	1.93E-4	2.47E-7	-7.03E-4	2.36E-3
ADP-f	MJ	1.67E+3	7.95E+0	7.95E-1	1.68E+3	1.41E+1	1.36E+2	7.57E-1	-8.24E+2	1.00E+3
WDP	m3 depriv.	1.02E+2	2.44E-2	3.06E-2	1.02E+2	4.33E-2	5.17E+0	4.23E-3	-4.71E+1	5.99E+1
PM	disease inc.	2.37E-6	4.68E-8	5.32E-9	2.42E-6	8.30E-8	6.25E-7	5.17E-9	-8.42E-7	2.29E-6
IR	kBq U-235 eq	3.57E+0	3.47E-2	5.96E-4	3.60E+0	6.17E-2	4.71E-1	3.47E-3	-1.54E+0	2.60E+0
ETP-fw	CTUe	1.14E+3	6.46E+0	7.08E+0	1.15E+3	1.15E+1	9.78E+2	1.07E+1	-4.87E+2	1.66E+3
HTP-c	CTUh	4.57E-8	2.30E-10	3.61E-10	4.63E-8	4.08E-10	1.52E-8	1.94E-11	-1.78E-8	4.41E-8
HTP-nc	CTUh	1.39E-6	7.70E-9	9.17E-9	1.40E-6	1.37E-8	3.53E-7	2.07E-9	-6.10E-7	1.16E-6
SQP	Pt	8.00E+2	6.80E+0	1.31E+0	8.09E+2	1.21E+1	8.58E+1	1.91E+0	-2.09E+2	6.99E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.34E+2	1.14E-1	1.41E+1	2.48E+2	2.03E-1	9.57E+0	2.70E-2	-5.93E+1	1.98E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.34E+2	1.14E-1	1.41E+1	2.48E+2	2.03E-1	9.57E+0	2.70E-2	-5.93E+1	1.98E+2
PENRE	MJ	1.79E+3	8.44E+0	8.46E-1	1.80E+3	1.50E+1	1.44E+2	8.03E-1	-8.88E+2	1.07E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.79E+3	8.44E+0	8.46E-1	1.80E+3	1.50E+1	1.44E+2	8.03E-1	-8.88E+2	1.07E+3
PET	MJ	2.02E+3	8.55E+0	1.49E+1	2.05E+3	1.52E+1	1.54E+2	8.30E-1	-9.47E+2	1.27E+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	1.14E+0	9.00E-4	8.55E-4	1.14E+0	1.60E-3	1.45E-1	9.26E-4	-4.96E-1	7.89E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.33E-3	2.03E-5	1.60E-10	1.35E-3	3.61E-5	2.21E-4	9.10E-7	-6.97E-4	9.14E-4
NHWD	kg	6.42E+0	4.93E-1	6.18E-4	6.92E+0	8.75E-1	5.26E+0	3.55E+0	-2.57E+0	1.40E+1
RWD	kg	3.30E-3	5.41E-5	6.42E-11	3.35E-3	9.60E-5	5.10E-4	4.95E-6	-1.37E-3	2.59E-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