Environmental Profile

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

Ecochain v3.5.80

Product:	3072533 - PVCU Bend 15° BR 400 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	2.51E+1	3.79E-1	1.45E-4	2.55E+1	4.43E-1	2.61E+1	1.23E-1	-1.71E+1	3.52E+1
GWP-f	kg CO2 eq	3.64E+1	3.78E-1	1.46E-4	3.67E+1	4.42E-1	1.34E+1	1.22E-1	-1.95E+1	3.12E+1
GWP-b	kg CO2 eq	-1.13E+1	2.30E-4	-1.54E-6	-1.13E+1	2.69E-4	1.27E+1	1.58E-4	2.51E+0	3.96E+0
GWP-luluc	kg CO2 eq	4.51E-2	1.34E-4	1.49E-7	4.52E-2	1.57E-4	5.20E-3	3.32E-6	-3.31E-2	1.75E-2
ODP	kg CFC11 eq	1.72E-5	8.72E-8	8.26E-12	1.72E-5	1.02E-7	1.41E-6	5.04E-9	-8.46E-6	1.03E-5
AP	mol H+ eq	1.68E-1	2.15E-3	1.47E-6	1.70E-1	2.52E-3	2.58E-2	1.20E-4	-8.25E-2	1.16E-1
EP-fw	kg P eq	1.60E-3	3.11E-6	8.24E-9	1.60E-3	3.64E-6	1.73E-4	1.50E-7	-8.76E-4	8.99E-4
EP-m	kg N eq	3.18E-2	7.71E-4	1.55E-7	3.25E-2	9.02E-4	6.59E-3	7.64E-5	-1.60E-2	2.41E-2
EP-T	mol N eq	3.41E-1	8.49E-3	1.85E-6	3.49E-1	9.93E-3	7.26E-2	4.81E-4	-1.78E-1	2.54E-1
POCP	kg NMVOC eq	1.15E-1	2.43E-3	6.28E-7	1.18E-1	2.84E-3	2.17E-2	1.63E-4	-5.75E-2	8.48E-2
ADP-mm	kg Sb eq	1.29E-3	9.78E-6	1.97E-8	1.30E-3	1.14E-5	1.01E-4	1.19E-7	-3.77E-4	1.04E-3
ADP-f	MJ	8.83E+2	5.81E+0	1.36E-3	8.89E+2	6.79E+0	6.90E+1	3.64E-1	-4.49E+2	5.16E+2
WDP	m3 depriv.	5.15E+1	1.78E-2	5.22E-5	5.15E+1	2.08E-2	2.55E+0	1.97E-3	-2.72E+1	2.69E+1
PM	disease inc.	1.54E-6	3.41E-8	9.08E-12	1.57E-6	3.99E-8	3.27E-7	2.49E-9	-8.09E-7	1.13E-6
IR	kBq U-235 eq	1.92E+0	2.54E-2	1.02E-6	1.94E+0	2.97E-2	2.43E-1	1.67E-3	-9.71E-1	1.25E+0
ETP-fw	CTUe	9.13E+2	4.71E+0	1.21E-2	9.18E+2	5.51E+0	4.86E+2	5.27E+0	-4.70E+2	9.45E+2
HTP-c	CTUh	2.71E-8	1.68E-10	6.17E-13	2.73E-8	1.96E-10	7.88E-9	9.33E-12	-1.32E-8	2.22E-8
HTP-nc	CTUh	7.43E-7	5.62E-9	1.57E-11	7.49E-7	6.57E-9	1.78E-7	1.02E-9	-3.76E-7	5.58E-7
SQP	Pt	1.20E+3	4.97E+0	2.24E-3	1.21E+3	5.81E+0	4.34E+1	9.22E-1	-1.16E+3	9.77E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.36E+2	8.33E-2	2.40E-2	2.36E+2	9.74E-2	4.76E+0	1.31E-2	-2.02E+2	3.85E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.36E+2	8.33E-2	2.40E-2	2.36E+2	9.74E-2	4.76E+0	1.31E-2	-2.02E+2	3.85E+1
PENRE	MJ	9.47E+2	6.16E+0	1.44E-3	9.53E+2	7.21E+0	7.34E+1	3.86E-1	-4.83E+2	5.51E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	9.47E+2	6.16E+0	1.44E-3	9.53E+2	7.21E+0	7.34E+1	3.86E-1	-4.83E+2	5.51E+2
PET	MJ	1.18E+3	6.25E+0	2.55E-2	1.19E+3	7.31E+0	7.82E+1	4.00E-1	-6.86E+2	5.90E+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	6.05E-1	6.57E-4	1.46E-6	6.06E-1	7.68E-4	7.18E-2	4.46E-4	-3.51E-1	3.28E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.54E-4	1.48E-5	2.73E-13	7.69E-4	1.74E-5	1.15E-4	4.38E-7	-4.23E-4	4.79E-4
NHWD	kg	3.98E+0	3.60E-1	1.05E-6	4.34E+0	4.21E-1	2.70E+0	1.70E+0	-1.79E+0	7.37E+0
RWD	kg	1.79E-3	3.95E-5	1.10E-13	1.83E-3	4.62E-5	2.68E-4	2.38E-6	-8.88E-4	1.25E-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