Environmental Profile

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

Ecochain v3.5.80

Product:	3017580 - PVCU Branch 45° BR 400x250 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	3.80E+1	3.28E-1	9.59E-2	3.84E+1	5.88E-1	2.13E+1	1.62E-1	-2.22E+1	3.82E+1
GWP-f	kg CO2 eq	4.20E+1	3.28E-1	9.69E-2	4.24E+1	5.87E-1	1.69E+1	1.62E-1	-2.21E+1	3.80E+1
GWP-b	kg CO2 eq	-4.04E+0	1.99E-4	-1.02E-3	-4.04E+0	3.57E-4	4.36E+0	2.08E-4	-1.46E-1	1.78E-1
GWP-luluc	kg CO2 eq	3.38E-2	1.16E-4	9.90E-5	3.40E-2	2.08E-4	6.71E-3	4.42E-6	-1.43E-2	2.66E-2
ODP	kg CFC11 eq	2.18E-5	7.55E-8	5.48E-9	2.19E-5	1.35E-7	1.78E-6	6.68E-9	-1.07E-5	1.32E-5
AP	mol H+ eq	1.91E-1	1.87E-3	9.77E-4	1.94E-1	3.34E-3	3.18E-2	1.59E-4	-8.25E-2	1.46E-1
EP-fw	kg P eq	1.78E-3	2.70E-6	5.46E-6	1.79E-3	4.83E-6	2.23E-4	1.99E-7	-7.84E-4	1.23E-3
EP-m	kg N eq	3.25E-2	6.68E-4	1.03E-4	3.32E-2	1.20E-3	7.87E-3	1.01E-4	-1.46E-2	2.78E-2
EP-T	mol N eq	3.55E-1	7.36E-3	1.23E-3	3.63E-1	1.32E-2	8.67E-2	6.37E-4	-1.59E-1	3.05E-1
POCP	kg NMVOC eq	1.25E-1	2.10E-3	4.16E-4	1.27E-1	3.77E-3	2.60E-2	2.16E-4	-5.35E-2	1.04E-1
ADP-mm	kg Sb eq	1.70E-3	8.48E-6	1.30E-5	1.73E-3	1.52E-5	1.24E-4	1.58E-7	-4.49E-4	1.42E-3
ADP-f	MJ	1.07E+3	5.03E+0	8.99E-1	1.07E+3	9.01E+0	8.69E+1	4.83E-1	-5.28E+2	6.40E+2
WDP	m3 depriv.	6.52E+1	1.54E-2	3.46E-2	6.53E+1	2.77E-2	3.32E+0	2.72E-3	-3.03E+1	3.83E+1
PM	disease inc.	1.52E-6	2.96E-8	6.02E-9	1.55E-6	5.30E-8	4.00E-7	3.30E-9	-5.43E-7	1.47E-6
IR	kBq U-235 eq	2.28E+0	2.20E-2	6.75E-4	2.30E+0	3.94E-2	3.02E-1	2.21E-3	-9.91E-1	1.65E+0
ETP-fw	CTUe	7.26E+2	4.09E+0	8.01E+0	7.38E+2	7.32E+0	6.28E+2	6.88E+0	-3.14E+2	1.07E+3
HTP-c	CTUh	2.93E-8	1.45E-10	4.09E-10	2.98E-8	2.60E-10	9.77E-9	1.24E-11	-1.14E-8	2.84E-8
HTP-nc	CTUh	8.88E-7	4.87E-9	1.04E-8	9.03E-7	8.72E-9	2.27E-7	1.33E-9	-3.93E-7	7.47E-7
SQP	Pt	5.38E+2	4.30E+0	1.48E+0	5.43E+2	7.71E+0	5.49E+1	1.22E+0	-1.40E+2	4.68E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.52E+2	7.22E-2	1.59E+1	1.68E+2	1.29E-1	6.14E+0	1.72E-2	-3.92E+1	1.35E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.52E+2	7.22E-2	1.59E+1	1.68E+2	1.29E-1	6.14E+0	1.72E-2	-3.92E+1	1.35E+2
PENRE	MJ	1.14E+3	5.34E+0	9.57E-1	1.15E+3	9.57E+0	9.25E+1	5.12E-1	-5.70E+2	6.83E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.14E+3	5.34E+0	9.57E-1	1.15E+3	9.57E+0	9.25E+1	5.12E-1	-5.70E+2	6.83E+2
PET	MJ	1.30E+3	5.41E+0	1.69E+1	1.32E+3	9.70E+0	9.86E+1	5.29E-1	-6.09E+2	8.18E+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	7.27E-1	5.69E-4	9.67E-4	7.28E-1	1.02E-3	9.26E-2	5.91E-4	-3.19E-1	5.04E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	8.57E-4	1.29E-5	1.81E-10	8.70E-4	2.30E-5	1.41E-4	5.81E-7	-4.47E-4	5.88E-4
NHWD	kg	4.12E+0	3.12E-1	6.99E-4	4.43E+0	5.59E-1	3.37E+0	2.26E+0	-1.65E+0	8.96E+0
RWD	kg	2.10E-3	3.42E-5	7.26E-11	2.14E-3	6.13E-5	3.27E-4	3.16E-6	-8.80E-4	1.65E-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

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