Environmental Profile

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

Ecochain v3.5.71

Product:	3057436 - PVC ML KG Pipe 400 SN4 L=2 6u
Unit:	1 piece
Manufacturer:	Wavin - HU - Zsámbék - Verified

The PVC KG multilayer pipe system is a modern PVC product with low pipe wall roughness and favorable flow proprieties, which can be used for cost-effective drainage of both precipitation and municipal wastewater. Sewer pipes combine the advantages of a traditional smooth inner pipe surface with the technology of a modern three-layer pipe wall structure.

LCA standard:	EN15804+A2 (2019)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	14-03-2023
End of validity:	14-03-2028
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 - HU - Zsámbék - Verified (2021). (☑ = 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	4.36E+1	6.47E-1	1.22E+0	4.54E+1	7.41E-1	3.27E+1	2.17E-1	-3.99E+1	3.92E+1
GWP-f	kg CO2 eq	5.67E+1	6.46E-1	6.98E-1	5.81E+1	7.40E-1	1.90E+1	2.17E-1	-3.96E+1	3.84E+1
GWP-b	kg CO2 eq	-1.33E+1	3.92E-4	5.18E-1	-1.27E+1	4.49E-4	1.37E+1	2.79E-4	-1.93E-1	7.33E-1
GWP-luluc	kg CO2 eq	1.14E-1	2.29E-4	3.43E-3	1.18E-1	2.62E-4	8.55E-3	5.95E-6	-2.10E-2	1.06E-1
ODP	kg CFC11 eq	2.91E-5	1.49E-7	1.14E-6	3.04E-5	1.71E-7	2.36E-6	9.00E-9	-1.55E-5	1.74E-5
AP	mol H+ eq	2.71E-1	3.68E-3	5.20E-3	2.80E-1	4.21E-3	4.08E-2	2.14E-4	-1.24E-1	2.01E-1
EP-fw	kg P eq	2.53E-3	5.32E-6	2.94E-5	2.57E-3	6.09E-6	2.86E-4	2.67E-7	-1.10E-3	1.76E-3
EP-m	kg N eq	4.80E-2	1.32E-3	1.65E-3	5.09E-2	1.51E-3	1.01E-2	1.33E-4	-2.32E-2	3.95E-2
EP-T	mol N eq	5.12E-1	1.45E-2	8.34E-3	5.34E-1	1.66E-2	1.12E-1	8.59E-4	-2.58E-1	4.06E-1
POCP	kg NMVOC eq	1.75E-1	4.15E-3	2.59E-3	1.82E-1	4.75E-3	3.32E-2	2.91E-4	-8.49E-2	1.35E-1
ADP-mm	kg Sb eq	1.86E-2	1.67E-5	4.62E-5	1.87E-2	1.91E-5	1.57E-4	2.12E-7	-7.85E-4	1.81E-2
ADP-f	MJ	1.41E+3	9.92E+0	2.95E+2	1.71E+3	1.14E+1	1.09E+2	6.51E-1	-8.84E+2	9.48E+2
WDP	m3 depriv.	8.83E+1	3.04E-2	3.69E+0	9.20E+1	3.49E-2	4.27E+0	3.65E-3	-4.16E+1	5.47E+1
PM	disease inc.	2.42E-6	5.83E-8	3.22E-8	2.51E-6	6.68E-8	5.07E-7	4.45E-9	-8.42E-7	2.25E-6
IR	kBq U-235 eq	3.04E+0	4.33E-2	3.52E+0	6.61E+0	4.96E-2	3.85E-1	2.98E-3	-1.43E+0	5.62E+0
ETP-fw	CTUe	1.10E+3	8.05E+0	8.17E+1	1.19E+3	9.22E+0	8.40E+2	9.33E+0	-4.72E+2	1.58E+3
HTP-c	CTUh	4.25E-8	2.87E-10	1.46E-9	4.43E-8	3.28E-10	1.27E-8	1.67E-11	-1.68E-8	4.05E-8
HTP-nc	CTUh	1.28E-6	9.60E-9	4.03E-8	1.33E-6	1.10E-8	2.93E-7	1.80E-9	-5.58E-7	1.08E-6
SQP	Pt	1.41E+3	8.48E+0	4.06E+0	1.42E+3	9.72E+0	6.83E+1	1.64E+0	-3.44E+2	1.16E+3
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.51E+2	1.42E-1	7.44E+0	2.59E+2	1.63E-1	7.84E+0	2.31E-2	-8.37E+1	1.83E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.51E+2	1.42E-1	7.44E+0	2.59E+2	1.63E-1	7.84E+0	2.31E-2	-8.37E+1	1.83E+2
PENRE	MJ	1.51E+3	1.05E+1	2.95E+2	1.81E+3	1.21E+1	1.16E+2	6.90E-1	-9.57E+2	9.85E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.51E+3	1.05E+1	2.95E+2	1.81E+3	1.21E+1	1.16E+2	6.90E-1	-9.57E+2	9.85E+2
PET	MJ	1.76E+3	1.07E+1	3.03E+2	2.07E+3	1.22E+1	1.24E+2	7.14E-1	-1.04E+3	1.17E+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	9.86E-1	1.12E-3	1.29E-1	1.12E+0	1.29E-3	1.18E-1	7.97E-4	-4.47E-1	7.89E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.26E-3	2.54E-5	5.62E-6	3.29E-3	2.90E-5	1.77E-4	7.82E-7	-8.04E-4	2.70E-3
NHWD	kg	5.65E+0	6.15E-1	6.29E-1	6.89E+0	7.04E-1	4.16E+0	3.05E+0	-2.39E+0	1.24E+1
RWD	kg	2.73E-3	6.74E-5	1.47E-5	2.81E-3	7.72E-5	4.13E-4	4.26E-6	-1.31E-3	1.99E-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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