Environmental Profile

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

Ecochain v3.5.80

Product:	3003033 - PVC Pipe GY 90x1.8 L=4 SG/CH Uncert
Unit:	1 piece
Manufacturer:	Wavin - NL - Hardenberg - Verified
Address:	J.C. Kellerlaan 3 7772 SG Hardenberg Netherlands

Wavin carries a complete PVC range of outdoor sewers. With PVC as a material, a smooth-walled, flexible and completely watertight piping system is obtained. Moreover, PVC is absolutely resistant to all substances that occur in domestic waste water. By working with a light material, large pipe lengths and plug connections, a very fast installation is guaranteed.

LCA standard:	NMD Bepalingsmethode 1.1 (2022)
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 - NL - Hardenberg - Verified (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

ECI = Environmental Costs Indicator [euro]; **ADPE** = Abiotic depletion potential for non-fossil resources [kg Sb-eq]; **ADPF** = Abiotic depletion potential for fossil resources [kg Sb-eq]; **GWP** = Global warming potential [kg CO2-eq]; **ODP** = Depletion potential of the stratospheric ozone layer [kg CFC-11-eq]; **POCP** = Formation potential of tropospheric ozone photochemical oxidants [kg ethene-eq]; **AP** = Acidification potential of land and water [kg SO2-eq]; **EP** = Eutrophication potential [kg PO4 3−-eq]; **HTP** = Human toxicity potential [kg 1,4-DB-eq]; **FAETP** = Freshwater aquatic ecotoxicity potential [kg 1,4-DB-eq]; **MAETP** = Marine aquatic ecotoxicity potential [kg 1,4-DB-eq]; **TETP** = Terrestrial ecotoxicity potential [kg 1,4-DB-eq]; **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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.55	0.02	0.03	0.6	0.01	0.2	0	-0.28	0.54
ADPE	kg Sb-eq	1.41E-4	4.80E-6	4.68E-6	1.50E-4	2.03E-6	1.68E-5	2.09E-8	-5.87E-5	1.10E-4
ADPF	kg Sb-eq	6.19E-2	1.38E-3	1.25E-3	6.45E-2	5.72E-4	5.92E-3	2.96E-5	-3.30E-2	3.80E-2
GWP	kg CO2-eq	4.98E+0	1.88E-1	2.23E-1	5.39E+0	7.80E-2	1.94E+0	1.83E-2	-2.78E+0	4.65E+0
ODP	kg CFC-11-eq	2.93E-6	3.33E-8	2.10E-8	2.99E-6	1.45E-8	2.35E-7	7.12E-10	-1.46E-6	1.78E-6
POCP	kg ethene-eq	3.06E-3	1.13E-4	9.83E-5	3.27E-3	4.68E-5	4.67E-4	4.91E-6	-1.42E-3	2.37E-3
AP	kg SO2-eq	1.92E-2	8.26E-4	8.75E-4	2.09E-2	3.36E-4	3.38E-3	1.57E-5	-9.10E-3	1.55E-2
EP	kg PO4 3−-eq	2.29E-3	1.62E-4	1.38E-4	2.59E-3	6.70E-5	5.13E-4	6.00E-6	-1.10E-3	2.08E-3
HTP	kg 1,4-DB-eq	1.96E+0	7.91E-2	8.42E-2	2.12E+0	3.34E-2	9.18E-1	1.60E-3	-8.84E-1	2.19E+0
FAETP	kg 1,4-DB-eq	4.22E-2	2.31E-3	3.43E-3	4.79E-2	9.77E-4	1.34E-2	4.67E-4	-1.94E-2	4.34E-2
MAETP	kg 1,4-DB-eq	1.23E+2	8.30E+0	1.40E+1	1.45E+2	3.49E+0	4.41E+1	5.74E-1	-5.69E+1	1.36E+2
TETP	kg 1,4-DB-eq	1.35E-2	2.79E-4	5.23E-3	1.90E-2	1.18E-4	3.27E-3	5.29E-6	-6.44E-3	1.60E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	4.88E+0	1.90E-1	2.63E-1	5.33E+0	7.87E-2	2.23E+0	2.13E-2	-2.86E+0	4.80E+0
GWP-f	kg CO2 eq	5.11E+0	1.89E-1	2.06E-1	5.50E+0	7.86E-2	1.96E+0	2.13E-2	-2.84E+0	4.72E+0
GWP-b	kg CO2 eq	-2.34E-1	8.74E-5	4.45E-2	-1.90E-1	4.77E-5	2.74E-1	2.75E-5	-2.01E-2	6.39E-2
GWP-luluc	kg CO2 eq	4.07E-3	6.94E-5	1.25E-2	1.67E-2	2.78E-5	9.12E-4	5.86E-7	-1.90E-3	1.57E-2
ODP	kg CFC11 eq	2.89E-6	4.18E-8	2.49E-8	2.96E-6	1.81E-8	2.43E-7	8.84E-10	-1.44E-6	1.78E-6
AP	mol H+ eq	2.31E-2	1.10E-3	1.12E-3	2.53E-2	4.48E-4	4.24E-3	2.11E-5	-1.10E-2	1.90E-2
EP-fw	kg P eq	2.26E-4	1.91E-6	2.94E-6	2.31E-4	6.47E-7	3.02E-5	2.64E-8	-1.06E-4	1.55E-4
EP-m	kg N eq	3.89E-3	3.87E-4	3.31E-4	4.61E-3	1.60E-4	1.04E-3	1.27E-5	-1.91E-3	3.91E-3
EP-T	mol N eq	4.21E-2	4.27E-3	3.55E-3	5.00E-2	1.77E-3	1.14E-2	8.45E-5	-2.05E-2	4.27E-2
POCP	kg NMVOC eq	1.46E-2	1.22E-3	1.00E-3	1.68E-2	5.05E-4	3.43E-3	2.86E-5	-7.02E-3	1.37E-2
ADP-mm	kg Sb eq	1.41E-4	4.80E-6	4.68E-6	1.50E-4	2.03E-6	1.68E-5	2.09E-8	-5.87E-5	1.10E-4
ADP-f	MJ	1.32E+2	2.86E+0	2.38E+0	1.37E+2	1.21E+0	1.17E+1	6.40E-2	-6.92E+1	8.07E+1
WDP	m3 depriv.	8.65E+0	1.02E-2	1.61E+0	1.03E+1	3.70E-3	4.50E-1	3.61E-4	-4.14E+0	6.59E+0
PM	disease inc.	1.65E-7	1.70E-8	1.74E-8	1.99E-7	7.10E-9	5.37E-8	4.38E-10	-7.09E-8	1.89E-7
IR	kBq U-235 eq	2.79E-1	1.20E-2	4.30E-3	2.95E-1	5.27E-3	4.08E-2	2.93E-4	-1.34E-1	2.07E-1
ETP-fw	CTUe	8.67E+1	2.55E+0	3.97E+0	9.32E+1	9.80E-1	8.56E+1	9.40E-1	-4.13E+1	1.39E+2
HTP-c	CTUh	3.52E-9	8.26E-11	1.36E-10	3.74E-9	3.49E-11	1.28E-9	1.65E-12	-1.53E-9	3.52E-9
HTP-nc	CTUh	1.11E-7	2.79E-9	4.15E-9	1.18E-7	1.17E-9	3.05E-8	1.81E-10	-5.29E-8	9.73E-8
SQP	Pt	4.11E+1	2.48E+0	1.78E-1	4.37E+1	1.03E+0	7.39E+0	1.62E-1	-1.27E+1	3.96E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.00E+1	3.58E-2	7.19E+0	1.73E+1	1.73E-2	8.33E-1	2.27E-3	-4.09E+0	1.40E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.00E+1	3.58E-2	7.19E+0	1.73E+1	1.73E-2	8.33E-1	2.27E-3	-4.09E+0	1.40E+1
PENRE	MJ	1.41E+2	3.03E+0	2.58E+0	1.47E+2	1.28E+0	1.25E+1	6.79E-2	-7.45E+1	8.61E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.41E+2	3.03E+0	2.58E+0	1.47E+2	1.28E+0	1.25E+1	6.79E-2	-7.45E+1	8.61E+1
PET	MJ	1.51E+2	3.07E+0	9.77E+0	1.64E+2	1.30E+0	1.33E+1	7.01E-2	-7.86E+1	1.00E+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	9.21E-2	3.48E-4	3.79E-2	1.30E-1	1.37E-4	1.23E-2	7.83E-5	-4.33E-2	9.96E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.05E-4	7.24E-6	3.34E-6	1.16E-4	3.09E-6	1.89E-5	7.70E-8	-5.75E-5	8.01E-5
NHWD	kg	4.98E-1	1.81E-1	4.81E-3	6.84E-1	7.48E-2	4.38E-1	2.99E-1	-2.22E-1	1.27E+0
RWD	kg	2.45E-4	1.88E-5	5.99E-6	2.69E-4	8.21E-6	4.40E-5	4.18E-7	-1.18E-4	2.04E-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