Environmental Profile

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

Ecochain v3.5.80

Product:	3003037 - PVC Pipe GY 100x1.8 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

Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.62	0.03	0.03	0.67	0.01	0.23	0	-0.31	0.6
ADPE	kg Sb-eq	1.57E-4	5.35E-6	5.21E-6	1.67E-4	2.26E-6	1.87E-5	2.32E-8	-6.53E-5	1.23E-4
ADPF	kg Sb-eq	6.89E-2	1.54E-3	1.40E-3	7.18E-2	6.37E-4	6.59E-3	3.30E-5	-3.67E-2	4.24E-2
GWP	kg CO2-eq	5.55E+0	2.09E-1	2.48E-1	6.01E+0	8.68E-2	2.16E+0	2.04E-2	-3.09E+0	5.19E+0
ODP	kg CFC-11-eq	3.27E-6	3.71E-8	2.33E-8	3.33E-6	1.61E-8	2.62E-7	7.92E-10	-1.62E-6	1.99E-6
POCP	kg ethene-eq	3.41E-3	1.26E-4	1.09E-4	3.65E-3	5.21E-5	5.20E-4	5.47E-6	-1.58E-3	2.65E-3
AP	kg SO2-eq	2.14E-2	9.20E-4	9.75E-4	2.33E-2	3.74E-4	3.77E-3	1.75E-5	-1.01E-2	1.73E-2
EP	kg PO4 3−-eq	2.56E-3	1.81E-4	1.54E-4	2.89E-3	7.46E-5	5.71E-4	6.68E-6	-1.23E-3	2.32E-3
HTP	kg 1,4-DB-eq	2.19E+0	8.81E-2	9.38E-2	2.37E+0	3.71E-2	1.02E+0	1.78E-3	-9.85E-1	2.44E+0
FAETP	kg 1,4-DB-eq	4.70E-2	2.57E-3	3.82E-3	5.34E-2	1.09E-3	1.50E-2	5.19E-4	-2.16E-2	4.84E-2
MAETP	kg 1,4-DB-eq	1.37E+2	9.25E+0	1.56E+1	1.62E+2	3.89E+0	4.91E+1	6.39E-1	-6.34E+1	1.52E+2
TETP	kg 1,4-DB-eq	1.51E-2	3.11E-4	5.83E-3	2.12E-2	1.32E-4	3.64E-3	5.89E-6	-7.18E-3	1.78E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.40E+0	2.11E-1	2.93E-1	5.90E+0	8.76E-2	2.52E+0	2.37E-2	-3.19E+0	5.35E+0
GWP-f	kg CO2 eq	5.69E+0	2.11E-1	2.29E-1	6.13E+0	8.75E-2	2.18E+0	2.37E-2	-3.16E+0	5.26E+0
GWP-b	kg CO2 eq	-2.97E-1	9.74E-5	4.96E-2	-2.48E-1	5.31E-5	3.41E-1	3.07E-5	-2.23E-2	7.11E-2
GWP-luluc	kg CO2 eq	4.56E-3	7.73E-5	1.40E-2	1.86E-2	3.10E-5	1.02E-3	6.52E-7	-2.12E-3	1.75E-2
ODP	kg CFC11 eq	3.22E-6	4.66E-8	2.77E-8	3.30E-6	2.02E-8	2.70E-7	9.85E-10	-1.60E-6	1.98E-6
AP	mol H+ eq	2.57E-2	1.22E-3	1.25E-3	2.82E-2	4.98E-4	4.73E-3	2.35E-5	-1.22E-2	2.12E-2
EP-fw	kg P eq	2.52E-4	2.13E-6	3.28E-6	2.57E-4	7.20E-7	3.37E-5	2.93E-8	-1.18E-4	1.73E-4
EP-m	kg N eq	4.35E-3	4.31E-4	3.68E-4	5.15E-3	1.78E-4	1.15E-3	1.42E-5	-2.13E-3	4.36E-3
EP-T	mol N eq	4.71E-2	4.76E-3	3.95E-3	5.58E-2	1.97E-3	1.27E-2	9.40E-5	-2.29E-2	4.76E-2
POCP	kg NMVOC eq	1.63E-2	1.36E-3	1.12E-3	1.88E-2	5.62E-4	3.82E-3	3.18E-5	-7.83E-3	1.53E-2
ADP-mm	kg Sb eq	1.57E-4	5.35E-6	5.21E-6	1.67E-4	2.26E-6	1.87E-5	2.32E-8	-6.53E-5	1.23E-4
ADP-f	MJ	1.47E+2	3.18E+0	2.65E+0	1.52E+2	1.34E+0	1.31E+1	7.12E-2	-7.70E+1	8.99E+1
WDP	m3 depriv.	9.63E+0	1.14E-2	1.79E+0	1.14E+1	4.12E-3	5.01E-1	4.02E-4	-4.61E+0	7.34E+0
PM	disease inc.	1.85E-7	1.90E-8	1.94E-8	2.23E-7	7.90E-9	5.98E-8	4.87E-10	-7.93E-8	2.12E-7
IR	kBq U-235 eq	3.10E-1	1.33E-2	4.79E-3	3.29E-1	5.87E-3	4.55E-2	3.26E-4	-1.49E-1	2.31E-1
ETP-fw	CTUe	9.67E+1	2.84E+0	4.42E+0	1.04E+2	1.09E+0	9.53E+1	1.05E+0	-4.62E+1	1.55E+2
HTP-c	CTUh	3.93E-9	9.21E-11	1.51E-10	4.17E-9	3.88E-11	1.43E-9	1.83E-12	-1.71E-9	3.94E-9
HTP-nc	CTUh	1.24E-7	3.10E-9	4.62E-9	1.32E-7	1.30E-9	3.40E-8	2.01E-10	-5.90E-8	1.08E-7
SQP	Pt	4.90E+1	2.76E+0	1.98E-1	5.20E+1	1.15E+0	8.23E+0	1.80E-1	-1.49E+1	4.67E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.17E+1	3.99E-2	8.00E+0	1.97E+1	1.93E-2	9.27E-1	2.53E-3	-4.69E+0	1.60E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.17E+1	3.99E-2	8.00E+0	1.97E+1	1.93E-2	9.27E-1	2.53E-3	-4.69E+0	1.60E+1
PENRE	MJ	1.57E+2	3.38E+0	2.87E+0	1.64E+2	1.43E+0	1.39E+1	7.56E-2	-8.30E+1	9.60E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.57E+2	3.38E+0	2.87E+0	1.64E+2	1.43E+0	1.39E+1	7.56E-2	-8.30E+1	9.60E+1
PET	MJ	1.69E+2	3.42E+0	1.09E+1	1.83E+2	1.45E+0	1.48E+1	7.81E-2	-8.77E+1	1.12E+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	1.03E-1	3.88E-4	4.22E-2	1.45E-1	1.52E-4	1.37E-2	8.72E-5	-4.82E-2	1.11E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.17E-4	8.07E-6	3.71E-6	1.29E-4	3.44E-6	2.10E-5	8.57E-8	-6.40E-5	8.94E-5
NHWD	kg	5.56E-1	2.02E-1	5.36E-3	7.63E-1	8.33E-2	4.89E-1	3.33E-1	-2.48E-1	1.42E+0
RWD	kg	2.73E-4	2.09E-5	6.67E-6	3.00E-4	9.14E-6	4.90E-5	4.66E-7	-1.31E-4	2.27E-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