Environmental Profile

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

Ecochain v3.5.80

Product:	3002837 - PVC Pipe GY 90x1.8 L=4
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	0.65	0.01	0.03	0.69	0.01	0.23	0	-0.32	0.61
ADPE	kg Sb-eq	3.66E-3	3.04E-6	5.05E-6	3.67E-3	2.15E-6	1.83E-5	2.31E-8	-6.76E-5	3.63E-3
ADPF	kg Sb-eq	7.07E-2	8.75E-4	1.35E-3	7.29E-2	6.04E-4	6.45E-3	3.23E-5	-3.80E-2	4.20E-2
GWP	kg CO2-eq	5.81E+0	1.19E-1	2.41E-1	6.16E+0	8.23E-2	2.17E+0	2.11E-2	-3.20E+0	5.23E+0
ODP	kg CFC-11-eq	3.35E-6	2.11E-8	2.26E-8	3.40E-6	1.53E-8	2.64E-7	7.72E-10	-1.68E-6	2.00E-6
POCP	kg ethene-eq	3.50E-3	7.18E-5	1.06E-4	3.67E-3	4.94E-5	5.08E-4	5.54E-6	-1.66E-3	2.58E-3
AP	kg SO2-eq	2.32E-2	5.23E-4	9.44E-4	2.46E-2	3.54E-4	3.74E-3	1.73E-5	-1.06E-2	1.81E-2
EP	kg PO4 3−-eq	2.84E-3	1.03E-4	1.49E-4	3.09E-3	7.07E-5	5.67E-4	6.70E-6	-1.31E-3	2.42E-3
HTP	kg 1,4-DB-eq	2.29E+0	5.01E-2	9.08E-2	2.43E+0	3.52E-2	9.90E-1	1.79E-3	-1.03E+0	2.43E+0
FAETP	kg 1,4-DB-eq	5.66E-2	1.46E-3	3.70E-3	6.18E-2	1.03E-3	1.47E-2	5.41E-4	-2.25E-2	5.55E-2
MAETP	kg 1,4-DB-eq	1.55E+2	5.26E+0	1.51E+1	1.75E+2	3.68E+0	4.88E+1	6.62E-1	-6.59E+1	1.62E+2
TETP	kg 1,4-DB-eq	1.62E-2	1.77E-4	5.64E-3	2.20E-2	1.25E-4	3.54E-3	5.96E-6	-7.48E-3	1.82E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.20E+0	1.20E-1	2.83E-1	5.60E+0	8.30E-2	2.99E+0	2.45E-2	-3.30E+0	5.40E+0
GWP-f	kg CO2 eq	5.95E+0	1.20E-1	2.22E-1	6.29E+0	8.30E-2	2.18E+0	2.45E-2	-3.28E+0	5.31E+0
GWP-b	kg CO2 eq	-7.58E-1	5.54E-5	4.80E-2	-7.10E-1	5.04E-5	8.08E-1	3.13E-5	-2.30E-2	7.51E-2
GWP-luluc	kg CO2 eq	5.40E-3	4.40E-5	1.35E-2	1.90E-2	2.94E-5	1.00E-3	6.57E-7	-2.25E-3	1.78E-2
ODP	kg CFC11 eq	3.31E-6	2.65E-8	2.68E-8	3.36E-6	1.91E-8	2.72E-7	9.59E-10	-1.66E-6	1.99E-6
AP	mol H+ eq	2.80E-2	6.96E-4	1.21E-3	2.99E-2	4.73E-4	4.69E-3	2.31E-5	-1.28E-2	2.23E-2
EP-fw	kg P eq	2.75E-4	1.21E-6	3.17E-6	2.80E-4	6.83E-7	3.34E-5	2.97E-8	-1.23E-4	1.91E-4
EP-m	kg N eq	4.84E-3	2.45E-4	3.57E-4	5.44E-3	1.69E-4	1.15E-3	1.41E-5	-2.26E-3	4.51E-3
EP-T	mol N eq	5.31E-2	2.70E-3	3.82E-3	5.96E-2	1.86E-3	1.27E-2	9.24E-5	-2.46E-2	4.96E-2
POCP	kg NMVOC eq	1.76E-2	7.72E-4	1.08E-3	1.95E-2	5.33E-4	3.78E-3	3.16E-5	-8.26E-3	1.56E-2
ADP-mm	kg Sb eq	3.66E-3	3.04E-6	5.05E-6	3.67E-3	2.15E-6	1.83E-5	2.31E-8	-6.76E-5	3.63E-3
ADP-f	MJ	1.51E+2	1.81E+0	2.57E+0	1.55E+2	1.27E+0	1.28E+1	6.97E-2	-7.98E+1	8.94E+1
WDP	m3 depriv.	9.99E+0	6.47E-3	1.74E+0	1.17E+1	3.91E-3	5.01E-1	4.29E-4	-4.76E+0	7.48E+0
PM	disease inc.	2.16E-7	1.08E-8	1.88E-8	2.45E-7	7.49E-9	5.82E-8	4.79E-10	-8.53E-8	2.26E-7
IR	kBq U-235 eq	3.36E-1	7.58E-3	4.64E-3	3.48E-1	5.57E-3	4.47E-2	3.20E-4	-1.54E-1	2.44E-1
ETP-fw	CTUe	1.33E+2	1.61E+0	4.28E+0	1.39E+2	1.03E+0	9.68E+1	1.07E+0	-4.92E+1	1.88E+2
HTP-c	CTUh	4.81E-9	5.23E-11	1.46E-10	5.01E-9	3.68E-11	1.44E-9	1.87E-12	-1.79E-9	4.70E-9
HTP-nc	CTUh	1.52E-7	1.76E-9	4.47E-9	1.58E-7	1.23E-9	3.40E-8	2.05E-10	-6.17E-8	1.32E-7
SQP	Pt	9.30E+1	1.57E+0	1.92E-1	9.47E+1	1.09E+0	7.92E+0	1.78E-1	-2.42E+1	7.97E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.85E+1	2.26E-2	7.75E+0	2.62E+1	1.83E-2	9.19E-1	2.54E-3	-6.62E+0	2.06E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.85E+1	2.26E-2	7.75E+0	2.62E+1	1.83E-2	9.19E-1	2.54E-3	-6.62E+0	2.06E+1
PENRE	MJ	1.62E+2	1.92E+0	2.78E+0	1.66E+2	1.35E+0	1.36E+1	7.40E-2	-8.59E+1	9.54E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.62E+2	1.92E+0	2.78E+0	1.66E+2	1.35E+0	1.36E+1	7.40E-2	-8.59E+1	9.54E+1
PET	MJ	1.80E+2	1.94E+0	1.05E+1	1.93E+2	1.37E+0	1.45E+1	7.65E-2	-9.25E+1	1.16E+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	1.09E-1	2.20E-4	4.09E-2	1.50E-1	1.44E-4	1.38E-2	8.54E-5	-4.98E-2	1.15E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.68E-4	4.58E-6	3.60E-6	5.76E-4	3.26E-6	2.06E-5	8.45E-8	-6.65E-5	5.33E-4
NHWD	kg	6.12E-1	1.15E-1	5.19E-3	7.32E-1	7.89E-2	4.78E-1	3.16E-1	-2.60E-1	1.34E+0
RWD	kg	2.93E-4	1.19E-5	6.46E-6	3.12E-4	8.66E-6	4.79E-5	4.55E-7	-1.36E-4	2.32E-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