Environmental Profile

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

Ecochain v3.5.80

Product:	3002882 - PVC Pipe GY 50x3 L=4 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	0.5	0.02	0.02	0.54	0.01	0.19	0	-0.25	0.49
ADPE	kg Sb-eq	1.28E-4	4.35E-6	4.27E-6	1.36E-4	1.85E-6	1.52E-5	1.90E-8	-5.33E-5	1.00E-4
ADPF	kg Sb-eq	5.61E-2	1.25E-3	1.14E-3	5.85E-2	5.21E-4	5.38E-3	2.69E-5	-3.00E-2	3.45E-2
GWP	kg CO2-eq	4.51E+0	1.70E-1	2.03E-1	4.89E+0	7.10E-2	1.77E+0	1.67E-2	-2.53E+0	4.21E+0
ODP	kg CFC-11-eq	2.67E-6	3.02E-8	1.91E-8	2.72E-6	1.32E-8	2.14E-7	6.48E-10	-1.32E-6	1.62E-6
POCP	kg ethene-eq	2.76E-3	1.03E-4	8.95E-5	2.96E-3	4.26E-5	4.23E-4	4.47E-6	-1.29E-3	2.14E-3
AP	kg SO2-eq	1.73E-2	7.48E-4	7.98E-4	1.89E-2	3.05E-4	3.07E-3	1.43E-5	-8.24E-3	1.40E-2
EP	kg PO4 3−-eq	2.06E-3	1.47E-4	1.26E-4	2.34E-3	6.10E-5	4.65E-4	5.46E-6	-9.90E-4	1.88E-3
HTP	kg 1,4-DB-eq	1.78E+0	7.17E-2	7.67E-2	1.92E+0	3.04E-2	8.34E-1	1.46E-3	-8.01E-1	1.99E+0
FAETP	kg 1,4-DB-eq	3.81E-2	2.09E-3	3.12E-3	4.33E-2	8.89E-4	1.22E-2	4.25E-4	-1.75E-2	3.93E-2
MAETP	kg 1,4-DB-eq	1.11E+2	7.53E+0	1.27E+1	1.31E+2	3.18E+0	4.01E+1	5.22E-1	-5.17E+1	1.23E+2
TETP	kg 1,4-DB-eq	1.23E-2	2.53E-4	4.77E-3	1.73E-2	1.08E-4	2.97E-3	4.82E-6	-5.84E-3	1.45E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	4.54E+0	1.72E-1	2.39E-1	4.95E+0	7.16E-2	1.91E+0	1.94E-2	-2.60E+0	4.35E+0
GWP-f	kg CO2 eq	4.63E+0	1.72E-1	1.88E-1	4.99E+0	7.15E-2	1.78E+0	1.94E-2	-2.58E+0	4.28E+0
GWP-b	kg CO2 eq	-9.00E-2	7.92E-5	4.05E-2	-4.94E-2	4.34E-5	1.26E-1	2.51E-5	-1.83E-2	5.83E-2
GWP-luluc	kg CO2 eq	3.63E-3	6.29E-5	1.14E-2	1.51E-2	2.53E-5	8.30E-4	5.33E-7	-1.71E-3	1.43E-2
ODP	kg CFC11 eq	2.63E-6	3.79E-8	2.27E-8	2.69E-6	1.65E-8	2.21E-7	8.05E-10	-1.31E-6	1.62E-6
AP	mol H+ eq	2.09E-2	9.96E-4	1.02E-3	2.29E-2	4.08E-4	3.85E-3	1.92E-5	-9.93E-3	1.72E-2
EP-fw	kg P eq	2.04E-4	1.73E-6	2.68E-6	2.09E-4	5.89E-7	2.75E-5	2.40E-8	-9.66E-5	1.40E-4
EP-m	kg N eq	3.50E-3	3.51E-4	3.01E-4	4.15E-3	1.46E-4	9.37E-4	1.16E-5	-1.72E-3	3.52E-3
EP-T	mol N eq	3.78E-2	3.87E-3	3.23E-3	4.49E-2	1.61E-3	1.03E-2	7.69E-5	-1.84E-2	3.85E-2
POCP	kg NMVOC eq	1.31E-2	1.10E-3	9.13E-4	1.52E-2	4.59E-4	3.11E-3	2.60E-5	-6.34E-3	1.24E-2
ADP-mm	kg Sb eq	1.28E-4	4.35E-6	4.27E-6	1.36E-4	1.85E-6	1.52E-5	1.90E-8	-5.33E-5	1.00E-4
ADP-f	MJ	1.19E+2	2.59E+0	2.17E+0	1.24E+2	1.10E+0	1.07E+1	5.82E-2	-6.29E+1	7.31E+1
WDP	m3 depriv.	7.86E+0	9.26E-3	1.47E+0	9.34E+0	3.37E-3	4.09E-1	3.29E-4	-3.77E+0	5.99E+0
PM	disease inc.	1.43E-7	1.54E-8	1.59E-8	1.75E-7	6.46E-9	4.87E-8	3.98E-10	-6.36E-8	1.67E-7
IR	kBq U-235 eq	2.52E-1	1.08E-2	3.92E-3	2.67E-1	4.80E-3	3.71E-2	2.67E-4	-1.22E-1	1.87E-1
ETP-fw	CTUe	7.83E+1	2.31E+0	3.62E+0	8.42E+1	8.92E-1	7.79E+1	8.56E-1	-3.71E+1	1.27E+2
HTP-c	CTUh	3.15E-9	7.49E-11	1.23E-10	3.35E-9	3.17E-11	1.16E-9	1.50E-12	-1.39E-9	3.16E-9
HTP-nc	CTUh	1.01E-7	2.53E-9	3.78E-9	1.07E-7	1.06E-9	2.77E-8	1.65E-10	-4.80E-8	8.82E-8
SQP	Pt	2.62E+1	2.25E+0	1.62E-1	2.86E+1	9.39E-1	6.72E+0	1.47E-1	-9.19E+0	2.72E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	7.45E+0	3.24E-2	6.55E+0	1.40E+1	1.58E-2	7.58E-1	2.07E-3	-3.24E+0	1.16E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	7.45E+0	3.24E-2	6.55E+0	1.40E+1	1.58E-2	7.58E-1	2.07E-3	-3.24E+0	1.16E+1
PENRE	MJ	1.28E+2	2.75E+0	2.35E+0	1.33E+2	1.17E+0	1.13E+1	6.18E-2	-6.78E+1	7.81E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.28E+2	2.75E+0	2.35E+0	1.33E+2	1.17E+0	1.13E+1	6.18E-2	-6.78E+1	7.81E+1
PET	MJ	1.36E+2	2.78E+0	8.90E+0	1.47E+2	1.18E+0	1.21E+1	6.38E-2	-7.10E+1	8.96E+1
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	8.35E-2	3.15E-4	3.46E-2	1.18E-1	1.24E-4	1.12E-2	7.13E-5	-3.94E-2	9.04E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	9.46E-5	6.56E-6	3.04E-6	1.04E-4	2.81E-6	1.72E-5	7.01E-8	-5.22E-5	7.20E-5
NHWD	kg	4.47E-1	1.64E-1	4.39E-3	6.16E-1	6.81E-2	3.96E-1	2.72E-1	-2.01E-1	1.15E+0
RWD	kg	2.21E-4	1.70E-5	5.46E-6	2.43E-4	7.47E-6	4.00E-5	3.81E-7	-1.07E-4	1.84E-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

Ecochain

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777