Environmental Profile

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

Ecochain v3.5.80

Product:	3003019 - PVC Pipe GY 63x1.8 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	0.38	0.02	0.02	0.42	0.01	0.14	0	-0.19	0.37
ADPE	kg Sb-eq	9.75E-5	3.32E-6	3.25E-6	1.04E-4	1.41E-6	1.16E-5	1.45E-8	-4.07E-5	7.64E-5
ADPF	kg Sb-eq	4.29E-2	9.57E-4	8.72E-4	4.47E-2	3.97E-4	4.11E-3	2.06E-5	-2.29E-2	2.63E-2
GWP	kg CO2-eq	3.45E+0	1.30E-1	1.55E-1	3.73E+0	5.41E-2	1.35E+0	1.27E-2	-1.93E+0	3.22E+0
ODP	kg CFC-11-eq	2.04E-6	2.31E-8	1.46E-8	2.07E-6	1.00E-8	1.63E-7	4.94E-10	-1.01E-6	1.24E-6
POCP	kg ethene-eq	2.12E-3	7.85E-5	6.83E-5	2.26E-3	3.25E-5	3.23E-4	3.41E-6	-9.82E-4	1.64E-3
AP	kg SO2-eq	1.33E-2	5.72E-4	6.08E-4	1.44E-2	2.33E-4	2.34E-3	1.09E-5	-6.30E-3	1.07E-2
EP	kg PO4 3−-eq	1.58E-3	1.12E-4	9.61E-5	1.79E-3	4.65E-5	3.55E-4	4.17E-6	-7.59E-4	1.44E-3
HTP	kg 1,4-DB-eq	1.36E+0	5.48E-2	5.85E-2	1.47E+0	2.32E-2	6.37E-1	1.11E-3	-6.12E-1	1.52E+0
FAETP	kg 1,4-DB-eq	2.92E-2	1.60E-3	2.38E-3	3.32E-2	6.78E-4	9.32E-3	3.24E-4	-1.34E-2	3.01E-2
MAETP	kg 1,4-DB-eq	8.49E+1	5.75E+0	9.72E+0	1.00E+2	2.42E+0	3.06E+1	3.98E-1	-3.95E+1	9.43E+1
TETP	kg 1,4-DB-eq	9.37E-3	1.94E-4	3.64E-3	1.32E-2	8.20E-5	2.27E-3	3.67E-6	-4.46E-3	1.11E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	3.43E+0	1.31E-1	1.83E-1	3.74E+0	5.46E-2	1.50E+0	1.48E-2	-1.99E+0	3.32E+0
GWP-f	kg CO2 eq	3.54E+0	1.31E-1	1.43E-1	3.81E+0	5.46E-2	1.36E+0	1.48E-2	-1.97E+0	3.27E+0
GWP-b	kg CO2 eq	-1.15E-1	6.06E-5	3.09E-2	-8.39E-2	3.31E-5	1.42E-1	1.91E-5	-1.39E-2	4.44E-2
GWP-luluc	kg CO2 eq	2.80E-3	4.81E-5	8.72E-3	1.16E-2	1.93E-5	6.33E-4	4.07E-7	-1.31E-3	1.09E-2
ODP	kg CFC11 eq	2.01E-6	2.90E-8	1.73E-8	2.05E-6	1.26E-8	1.68E-7	6.14E-10	-1.00E-6	1.24E-6
AP	mol H+ eq	1.60E-2	7.61E-4	7.80E-4	1.75E-2	3.11E-4	2.94E-3	1.46E-5	-7.60E-3	1.32E-2
EP-fw	kg P eq	1.56E-4	1.32E-6	2.05E-6	1.60E-4	4.49E-7	2.10E-5	1.83E-8	-7.37E-5	1.07E-4
EP-m	kg N eq	2.69E-3	2.68E-4	2.30E-4	3.18E-3	1.11E-4	7.17E-4	8.82E-6	-1.32E-3	2.70E-3
EP-T	mol N eq	2.90E-2	2.96E-3	2.47E-3	3.45E-2	1.23E-3	7.90E-3	5.86E-5	-1.41E-2	2.95E-2
POCP	kg NMVOC eq	1.01E-2	8.44E-4	6.96E-4	1.16E-2	3.50E-4	2.38E-3	1.99E-5	-4.86E-3	9.50E-3
ADP-mm	kg Sb eq	9.75E-5	3.32E-6	3.25E-6	1.04E-4	1.41E-6	1.16E-5	1.45E-8	-4.07E-5	7.64E-5
ADP-f	MJ	9.12E+1	1.98E+0	1.66E+0	9.49E+1	8.38E-1	8.14E+0	4.44E-2	-4.80E+1	5.59E+1
WDP	m3 depriv.	6.00E+0	7.08E-3	1.12E+0	7.13E+0	2.57E-3	3.12E-1	2.51E-4	-2.87E+0	4.57E+0
PM	disease inc.	1.12E-7	1.18E-8	1.21E-8	1.36E-7	4.93E-9	3.72E-8	3.04E-10	-4.89E-8	1.29E-7
IR	kBq U-235 eq	1.93E-1	8.29E-3	2.99E-3	2.04E-1	3.66E-3	2.83E-2	2.03E-4	-9.29E-2	1.43E-1
ETP-fw	CTUe	6.00E+1	1.76E+0	2.76E+0	6.45E+1	6.80E-1	5.94E+1	6.53E-1	-2.85E+1	9.67E+1
HTP-c	CTUh	2.42E-9	5.72E-11	9.42E-11	2.57E-9	2.42E-11	8.88E-10	1.14E-12	-1.06E-9	2.43E-9
HTP-nc	CTUh	7.72E-8	1.93E-9	2.88E-9	8.20E-8	8.11E-10	2.12E-8	1.26E-10	-3.67E-8	6.74E-8
SQP	Pt	2.42E+1	1.72E+0	1.24E-1	2.60E+1	7.17E-1	5.13E+0	1.12E-1	-7.91E+0	2.40E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	6.32E+0	2.48E-2	4.99E+0	1.13E+1	1.20E-2	5.78E-1	1.58E-3	-2.65E+0	9.28E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	6.32E+0	2.48E-2	4.99E+0	1.13E+1	1.20E-2	5.78E-1	1.58E-3	-2.65E+0	9.28E+0
PENRE	MJ	9.79E+1	2.10E+0	1.79E+0	1.02E+2	8.89E-1	8.66E+0	4.71E-2	-5.17E+1	5.97E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	9.79E+1	2.10E+0	1.79E+0	1.02E+2	8.89E-1	8.66E+0	4.71E-2	-5.17E+1	5.97E+1
PET	MJ	1.04E+2	2.13E+0	6.79E+0	1.13E+2	9.01E-1	9.24E+0	4.87E-2	-5.44E+1	6.89E+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	6.38E-2	2.41E-4	2.64E-2	9.04E-2	9.48E-5	8.54E-3	5.44E-5	-3.01E-2	6.91E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.25E-5	5.01E-6	2.32E-6	7.98E-5	2.14E-6	1.31E-5	5.34E-8	-3.99E-5	5.53E-5
NHWD	kg	3.43E-1	1.26E-1	3.35E-3	4.72E-1	5.19E-2	3.03E-1	2.07E-1	-1.54E-1	8.81E-1
RWD	kg	1.69E-4	1.30E-5	4.16E-6	1.86E-4	5.70E-6	3.05E-5	2.90E-7	-8.19E-5	1.41E-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

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