Environmental Profile

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

Ecochain v3.5.80

Product:	3004164 - PVC RWA Reducer Sewer GY 110x80
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	0.02	0	0	0.02	0	0.01	0	-0.01	0.02
ADPE	kg Sb-eq	1.82E-4	6.47E-8	2.83E-7	1.83E-4	5.99E-8	5.48E-7	6.69E-10	-2.10E-6	1.81E-4
ADPF	kg Sb-eq	2.15E-3	1.86E-5	4.86E-5	2.22E-3	1.69E-5	1.89E-4	9.27E-7	-1.18E-3	1.24E-3
GWP	kg CO2-eq	1.81E-1	2.53E-3	9.22E-3	1.92E-1	2.30E-3	6.43E-2	6.31E-4	-1.02E-1	1.58E-1
ODP	kg CFC-11-eq	1.01E-7	4.49E-10	7.29E-10	1.02E-7	4.26E-10	7.91E-9	2.21E-11	-5.11E-8	5.96E-8
POCP	kg ethene-eq	1.03E-4	1.53E-6	4.01E-6	1.09E-4	1.38E-6	1.50E-5	1.64E-7	-5.30E-5	7.24E-5
AP	kg SO2-eq	7.24E-4	1.11E-5	3.96E-5	7.75E-4	9.89E-6	1.10E-4	4.99E-7	-3.50E-4	5.45E-4
EP	kg PO4 3−-eq	9.40E-5	2.19E-6	5.10E-6	1.01E-4	1.97E-6	1.67E-5	1.97E-7	-4.82E-5	7.20E-5
HTP	kg 1,4-DB-eq	7.05E-2	1.07E-3	4.28E-3	7.59E-2	9.83E-4	2.87E-2	5.24E-5	-3.33E-2	7.23E-2
FAETP	kg 1,4-DB-eq	2.18E-3	3.11E-5	1.46E-4	2.36E-3	2.88E-5	4.37E-4	1.61E-5	-9.66E-4	1.87E-3
MAETP	kg 1,4-DB-eq	4.99E+0	1.12E-1	5.76E-1	5.68E+0	1.03E-1	1.51E+0	1.97E-2	-2.15E+0	5.16E+0
TETP	kg 1,4-DB-eq	5.25E-4	3.77E-6	3.19E-4	8.48E-4	3.48E-6	1.02E-4	1.76E-7	-3.23E-4	6.30E-4
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.87E-1	2.56E-3	1.06E-2	2.00E-1	2.32E-3	6.94E-2	7.35E-4	-9.40E-2	1.78E-1
GWP-f	kg CO2 eq	1.85E-1	2.55E-3	8.11E-3	1.95E-1	2.32E-3	6.48E-2	7.35E-4	-1.04E-1	1.59E-1
GWP-b	kg CO2 eq	1.85E-3	1.18E-6	1.67E-3	3.52E-3	1.41E-6	4.57E-3	9.29E-7	9.91E-3	1.80E-2
GWP-luluc	kg CO2 eq	2.16E-4	9.36E-7	7.70E-4	9.86E-4	8.20E-7	2.93E-5	1.93E-8	-1.38E-4	8.79E-4
ODP	kg CFC11 eq	9.98E-8	5.64E-10	8.57E-10	1.01E-7	5.34E-10	8.14E-9	2.74E-11	-5.06E-8	5.94E-8
AP	mol H+ eq	8.82E-4	1.48E-5	4.94E-5	9.47E-4	1.32E-5	1.38E-4	6.68E-7	-4.24E-4	6.75E-4
EP-fw	kg P eq	8.98E-6	2.58E-8	1.42E-7	9.14E-6	1.91E-8	9.83E-7	8.73E-10	-4.57E-6	5.58E-6
EP-m	kg N eq	1.59E-4	5.22E-6	1.17E-5	1.76E-4	4.72E-6	3.39E-5	4.14E-7	-7.61E-5	1.39E-4
EP-T	mol N eq	1.71E-3	5.76E-5	1.29E-4	1.90E-3	5.20E-5	3.73E-4	2.66E-6	-8.19E-4	1.51E-3
POCP	kg NMVOC eq	5.46E-4	1.64E-5	3.66E-5	5.99E-4	1.49E-5	1.12E-4	9.16E-7	-2.71E-4	4.55E-4
ADP-mm	kg Sb eq	1.82E-4	6.47E-8	2.83E-7	1.83E-4	5.99E-8	5.48E-7	6.69E-10	-2.10E-6	1.81E-4
ADP-f	MJ	4.58E+0	3.85E-2	9.07E-2	4.71E+0	3.56E-2	3.73E-1	2.00E-3	-2.49E+0	2.63E+0
WDP	m3 depriv.	3.03E-1	1.38E-4	7.02E-2	3.73E-1	1.09E-4	1.48E-2	1.30E-5	-1.58E-1	2.30E-1
PM	disease inc.	6.02E-9	2.29E-10	6.10E-10	6.86E-9	2.09E-10	1.71E-9	1.38E-11	-3.37E-9	5.43E-9
IR	kBq U-235 eq	1.05E-2	1.61E-4	1.44E-4	1.08E-2	1.55E-4	1.32E-3	9.21E-6	-5.25E-3	7.04E-3
ETP-fw	CTUe	5.81E+0	3.44E-2	2.11E-1	6.05E+0	2.89E-2	2.90E+0	3.20E-2	-2.17E+0	6.84E+0
HTP-c	CTUh	1.53E-10	1.11E-12	7.29E-12	1.61E-10	1.03E-12	4.15E-11	5.54E-14	-5.85E-11	1.45E-10
HTP-nc	CTUh	5.04E-9	3.76E-11	2.28E-10	5.31E-9	3.44E-11	1.00E-9	6.13E-12	-2.02E-9	4.33E-9
SQP	Pt	1.02E+0	3.34E-2	6.78E-3	1.06E+0	3.04E-2	2.27E-1	5.13E-3	-2.15E+0	-8.33E-1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.16E-1	4.82E-4	4.41E-1	7.57E-1	5.10E-4	2.69E-2	7.48E-5	-4.48E-1	3.36E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.16E-1	4.82E-4	4.41E-1	7.57E-1	5.10E-4	2.69E-2	7.48E-5	-4.48E-1	3.36E-1
PENRE	MJ	4.91E+0	4.09E-2	9.80E-2	5.05E+0	3.77E-2	3.97E-1	2.13E-3	-2.68E+0	2.81E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.91E+0	4.09E-2	9.80E-2	5.05E+0	3.77E-2	3.97E-1	2.13E-3	-2.68E+0	2.81E+0
PET	MJ	5.22E+0	4.14E-2	5.39E-1	5.80E+0	3.83E-2	4.24E-1	2.20E-3	-3.12E+0	3.15E+0
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	3.41E-3	4.69E-6	1.66E-3	5.07E-3	4.02E-6	4.04E-4	2.45E-6	-1.89E-3	3.60E-3
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.63E-5	9.76E-8	9.63E-8	2.64E-5	9.09E-8	6.11E-7	2.44E-9	-2.11E-6	2.50E-5
NHWD	kg	1.94E-2	2.44E-3	1.49E-4	2.20E-2	2.20E-3	1.34E-2	8.81E-3	-8.43E-3	3.80E-2
RWD	kg	9.13E-6	2.53E-7	1.78E-7	9.56E-6	2.42E-7	1.42E-6	1.30E-8	-4.68E-6	6.56E-6
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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