Environmental Profile

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

Ecochain v3.5.80

Product:	3000347 - PVC Pipe GY BENOR 250x7.3 SN8 L=5 SC/CH
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	8.54	0.22	0.38	9.14	0.14	3.09	0.02	-4.28	8.1
ADPE	kg Sb-eq	2.32E-3	4.74E-5	7.01E-5	2.44E-3	2.99E-5	2.51E-4	3.14E-7	-9.05E-4	1.82E-3
ADPF	kg Sb-eq	9.54E-1	1.36E-2	1.88E-2	9.86E-1	8.43E-3	8.83E-2	4.43E-4	-5.07E-1	5.76E-1
GWP	kg CO2-eq	7.68E+1	1.85E+0	3.34E+0	8.20E+1	1.15E+0	2.97E+1	2.82E-1	-4.27E+1	7.05E+1
ODP	kg CFC-11-eq	4.50E-5	3.29E-7	3.14E-7	4.57E-5	2.13E-7	3.57E-6	1.06E-8	-2.23E-5	2.71E-5
POCP	kg ethene-eq	4.72E-2	1.12E-3	1.47E-3	4.97E-2	6.89E-4	6.91E-3	7.48E-5	-2.17E-2	3.57E-2
AP	kg SO2-eq	2.97E-1	8.16E-3	1.31E-2	3.18E-1	4.94E-3	5.06E-2	2.37E-4	-1.39E-1	2.35E-1
EP	kg PO4 3−-eq	3.53E-2	1.60E-3	2.07E-3	3.89E-2	9.87E-4	7.65E-3	9.18E-5	-1.67E-2	3.10E-2
HTP	kg 1,4-DB-eq	3.02E+1	7.81E-1	1.26E+0	3.23E+1	4.91E-1	1.36E+1	2.43E-2	-1.35E+1	3.29E+1
FAETP	kg 1,4-DB-eq	6.51E-1	2.28E-2	5.13E-2	7.25E-1	1.44E-2	2.00E-1	7.18E-3	-2.96E-1	6.51E-1
MAETP	kg 1,4-DB-eq	1.90E+3	8.20E+1	2.10E+2	2.19E+3	5.14E+1	6.63E+2	8.81E+0	-8.72E+2	2.04E+3
TETP	kg 1,4-DB-eq	2.08E-1	2.76E-3	7.83E-2	2.89E-1	1.74E-3	4.86E-2	8.06E-5	-9.85E-2	2.41E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	7.71E+1	1.87E+0	3.94E+0	8.29E+1	1.16E+0	3.23E+1	3.28E-1	-4.40E+1	7.27E+1
GWP-f	kg CO2 eq	7.88E+1	1.87E+0	3.08E+0	8.37E+1	1.16E+0	3.00E+1	3.28E-1	-4.37E+1	7.15E+1
GWP-b	kg CO2 eq	-1.72E+0	8.63E-4	6.66E-1	-1.05E+0	7.03E-4	2.32E+0	4.21E-4	-3.07E-1	9.67E-1
GWP-luluc	kg CO2 eq	6.23E-2	6.85E-4	1.88E-1	2.51E-1	4.10E-4	1.37E-2	8.87E-6	-2.88E-2	2.36E-1
ODP	kg CFC11 eq	4.44E-5	4.13E-7	3.72E-7	4.52E-5	2.67E-7	3.68E-6	1.32E-8	-2.21E-5	2.70E-5
AP	mol H+ eq	3.57E-1	1.08E-2	1.68E-2	3.85E-1	6.59E-3	6.35E-2	3.17E-4	-1.67E-1	2.88E-1
EP-fw	kg P eq	3.48E-3	1.89E-5	4.41E-5	3.54E-3	9.53E-6	4.55E-4	4.00E-7	-1.63E-3	2.38E-3
EP-m	kg N eq	5.99E-2	3.82E-3	4.95E-3	6.86E-2	2.36E-3	1.54E-2	1.94E-4	-2.91E-2	5.75E-2
EP-T	mol N eq	6.47E-1	4.21E-2	5.31E-2	7.43E-1	2.60E-2	1.70E-1	1.27E-3	-3.11E-1	6.29E-1
POCP	kg NMVOC eq	2.25E-1	1.20E-2	1.50E-2	2.52E-1	7.43E-3	5.10E-2	4.31E-4	-1.07E-1	2.03E-1
ADP-mm	kg Sb eq	2.32E-3	4.74E-5	7.01E-5	2.44E-3	2.99E-5	2.51E-4	3.14E-7	-9.05E-4	1.82E-3
ADP-f	MJ	2.03E+3	2.82E+1	3.57E+1	2.09E+3	1.78E+1	1.75E+2	9.58E-1	-1.06E+3	1.22E+3
WDP	m3 depriv.	1.33E+2	1.01E-1	2.41E+1	1.57E+2	5.45E-2	6.81E+0	5.51E-3	-6.34E+1	1.01E+2
PM	disease inc.	2.47E-6	1.68E-7	2.61E-7	2.90E-6	1.05E-7	7.96E-7	6.57E-9	-1.07E-6	2.73E-6
IR	kBq U-235 eq	4.31E+0	1.18E-1	6.44E-2	4.49E+0	7.77E-2	6.10E-1	4.40E-3	-2.05E+0	3.13E+0
ETP-fw	CTUe	1.36E+3	2.52E+1	5.95E+1	1.44E+3	1.44E+1	1.31E+3	1.44E+1	-6.24E+2	2.16E+3
HTP-c	CTUh	5.35E-8	8.16E-10	2.03E-9	5.64E-8	5.14E-10	1.90E-8	2.51E-11	-2.34E-8	5.26E-8
HTP-nc	CTUh	1.71E-6	2.75E-8	6.21E-8	1.80E-6	1.72E-8	4.60E-7	2.77E-9	-8.08E-7	1.47E-6
SQP	Pt	4.62E+2	2.45E+1	2.67E+0	4.89E+2	1.52E+1	1.09E+2	2.43E+0	-1.59E+2	4.57E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.29E+2	3.53E-1	1.08E+2	2.37E+2	2.55E-1	1.25E+1	3.46E-2	-5.53E+1	1.95E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.29E+2	3.53E-1	1.08E+2	2.37E+2	2.55E-1	1.25E+1	3.46E-2	-5.53E+1	1.95E+2
PENRE	MJ	2.18E+3	3.00E+1	3.87E+1	2.24E+3	1.89E+1	1.86E+2	1.02E+0	-1.15E+3	1.30E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.18E+3	3.00E+1	3.87E+1	2.24E+3	1.89E+1	1.86E+2	1.02E+0	-1.15E+3	1.30E+3
PET	MJ	2.30E+3	3.03E+1	1.46E+2	2.48E+3	1.91E+1	1.99E+2	1.05E+0	-1.20E+3	1.50E+3
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	1.42E+0	3.44E-3	5.68E-1	1.99E+0	2.01E-3	1.86E-1	1.17E-3	-6.63E-1	1.52E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.60E-3	7.15E-5	4.99E-5	1.73E-3	4.54E-5	2.82E-4	1.16E-6	-8.84E-4	1.17E-3
NHWD	kg	7.62E+0	1.79E+0	7.21E-2	9.48E+0	1.10E+0	6.46E+0	4.41E+0	-3.39E+0	1.81E+1
RWD	kg	3.79E-3	1.85E-4	8.97E-5	4.06E-3	1.21E-4	6.55E-4	6.26E-6	-1.81E-3	3.04E-3
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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