Environmental Profile

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

Ecochain v3.5.80

Product:	3024514 - PVC Pipe BR BENOR 125x3.7 SN8 L=3 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	1.32	0.03	0.06	1.41	0.02	0.47	0	-0.66	1.25
ADPE	kg Sb-eq	3.58E-4	7.32E-6	1.08E-5	3.76E-4	4.60E-6	3.85E-5	4.83E-8	-1.39E-4	2.80E-4
ADPF	kg Sb-eq	1.47E-1	2.11E-3	2.89E-3	1.52E-1	1.29E-3	1.36E-2	6.81E-5	-7.79E-2	8.88E-2
GWP	kg CO2-eq	1.18E+1	2.87E-1	5.14E-1	1.26E+1	1.76E-1	4.57E+0	4.32E-2	-6.56E+0	1.09E+1
ODP	kg CFC-11-eq	6.92E-6	5.08E-8	4.83E-8	7.01E-6	3.27E-8	5.48E-7	1.63E-9	-3.43E-6	4.17E-6
POCP	kg ethene-eq	7.30E-3	1.73E-4	2.26E-4	7.70E-3	1.06E-4	1.06E-3	1.15E-5	-3.34E-3	5.54E-3
AP	kg SO2-eq	4.59E-2	1.26E-3	2.02E-3	4.92E-2	7.59E-4	7.79E-3	3.63E-5	-2.14E-2	3.63E-2
EP	kg PO4 3−-eq	5.48E-3	2.48E-4	3.18E-4	6.04E-3	1.52E-4	1.18E-3	1.41E-5	-2.59E-3	4.80E-3
HTP	kg 1,4-DB-eq	4.67E+0	1.21E-1	1.94E-1	4.98E+0	7.54E-2	2.09E+0	3.73E-3	-2.08E+0	5.07E+0
FAETP	kg 1,4-DB-eq	1.01E-1	3.52E-3	7.90E-3	1.12E-1	2.21E-3	3.08E-2	1.10E-3	-4.56E-2	1.01E-1
MAETP	kg 1,4-DB-eq	2.94E+2	1.27E+1	3.22E+1	3.39E+2	7.89E+0	1.02E+2	1.35E+0	-1.34E+2	3.16E+2
TETP	kg 1,4-DB-eq	3.21E-2	4.26E-4	1.21E-2	4.46E-2	2.67E-4	7.47E-3	1.24E-5	-1.52E-2	3.72E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.16E+1	2.89E-1	6.06E-1	1.25E+1	1.78E-1	5.30E+0	5.04E-2	-6.77E+0	1.12E+1
GWP-f	kg CO2 eq	1.22E+1	2.89E-1	4.74E-1	1.29E+1	1.78E-1	4.60E+0	5.04E-2	-6.72E+0	1.10E+1
GWP-b	kg CO2 eq	-6.01E-1	1.33E-4	1.03E-1	-4.98E-1	1.08E-4	6.93E-1	6.47E-5	-4.71E-2	1.48E-1
GWP-luluc	kg CO2 eq	9.78E-3	1.06E-4	2.89E-2	3.88E-2	6.29E-5	2.10E-3	1.36E-6	-4.48E-3	3.65E-2
ODP	kg CFC11 eq	6.82E-6	6.38E-8	5.73E-8	6.94E-6	4.10E-8	5.65E-7	2.03E-9	-3.39E-6	4.16E-6
AP	mol H+ eq	5.53E-2	1.68E-3	2.59E-3	5.96E-2	1.01E-3	9.77E-3	4.86E-5	-2.59E-2	4.45E-2
EP-fw	kg P eq	5.37E-4	2.92E-6	6.78E-6	5.47E-4	1.46E-6	6.99E-5	6.15E-8	-2.50E-4	3.68E-4
EP-m	kg N eq	9.31E-3	5.91E-4	7.62E-4	1.07E-2	3.62E-4	2.38E-3	2.98E-5	-4.51E-3	8.92E-3
EP-T	mol N eq	1.01E-1	6.51E-3	8.17E-3	1.16E-1	3.99E-3	2.62E-2	1.95E-4	-4.84E-2	9.76E-2
POCP	kg NMVOC eq	3.49E-2	1.86E-3	2.31E-3	3.90E-2	1.14E-3	7.87E-3	6.62E-5	-1.66E-2	3.15E-2
ADP-mm	kg Sb eq	3.58E-4	7.32E-6	1.08E-5	3.76E-4	4.60E-6	3.85E-5	4.83E-8	-1.39E-4	2.80E-4
ADP-f	MJ	3.12E+2	4.36E+0	5.49E+0	3.22E+2	2.73E+0	2.69E+1	1.47E-1	-1.63E+2	1.88E+2
WDP	m3 depriv.	2.04E+1	1.56E-2	3.71E+0	2.41E+1	8.37E-3	1.04E+0	8.49E-4	-9.74E+0	1.55E+1
PM	disease inc.	3.97E-7	2.60E-8	4.01E-8	4.63E-7	1.60E-8	1.23E-7	1.01E-9	-1.67E-7	4.35E-7
IR	kBq U-235 eq	6.65E-1	1.83E-2	9.91E-3	6.93E-1	1.19E-2	9.38E-2	6.75E-4	-3.15E-1	4.84E-1
ETP-fw	CTUe	2.11E+2	3.89E+0	9.15E+0	2.24E+2	2.22E+0	2.01E+2	2.21E+0	-9.72E+1	3.31E+2
HTP-c	CTUh	8.36E-9	1.26E-10	3.12E-10	8.79E-9	7.88E-11	2.95E-9	3.85E-12	-3.61E-9	8.22E-9
HTP-nc	CTUh	2.64E-7	4.25E-9	9.56E-9	2.78E-7	2.64E-9	7.07E-8	4.25E-10	-1.25E-7	2.27E-7
SQP	Pt	1.02E+2	3.78E+0	4.11E-1	1.06E+2	2.33E+0	1.68E+1	3.74E-1	-3.09E+1	9.44E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.44E+1	5.46E-2	1.66E+1	4.11E+1	3.91E-2	1.92E+0	5.31E-3	-9.80E+0	3.32E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.44E+1	5.46E-2	1.66E+1	4.11E+1	3.91E-2	1.92E+0	5.31E-3	-9.80E+0	3.32E+1
PENRE	MJ	3.35E+2	4.63E+0	5.95E+0	3.45E+2	2.90E+0	2.86E+1	1.56E-1	-1.76E+2	2.01E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.35E+2	4.63E+0	5.95E+0	3.45E+2	2.90E+0	2.86E+1	1.56E-1	-1.76E+2	2.01E+2
PET	MJ	3.59E+2	4.68E+0	2.25E+1	3.86E+2	2.94E+0	3.05E+1	1.61E-1	-1.86E+2	2.34E+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	2.19E-1	5.31E-4	8.74E-2	3.07E-1	3.09E-4	2.87E-2	1.80E-4	-1.02E-1	2.34E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.49E-4	1.10E-5	7.68E-6	2.67E-4	6.98E-6	4.33E-5	1.78E-7	-1.36E-4	1.82E-4
NHWD	kg	1.19E+0	2.77E-1	1.11E-2	1.47E+0	1.69E-1	9.98E-1	6.77E-1	-5.24E-1	2.79E+0
RWD	kg	5.86E-4	2.86E-5	1.38E-5	6.28E-4	1.86E-5	1.01E-4	9.61E-7	-2.78E-4	4.70E-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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