Environmental Profile

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

Ecochain v3.5.80

Product:	3000515 - PVC Pipe GY BENOR 125x3.2 SN4 L=3 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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	1.14	0.03	0.05	1.22	0.02	0.41	0	-0.57	1.08
ADPE	kg Sb-eq	2.89E-4	6.39E-6	9.41E-6	3.04E-4	4.00E-6	3.36E-5	4.19E-8	-1.20E-4	2.22E-4
ADPF	kg Sb-eq	1.27E-1	1.84E-3	2.52E-3	1.32E-1	1.13E-3	1.18E-2	5.91E-5	-6.77E-2	7.69E-2
GWP	kg CO2-eq	1.03E+1	2.50E-1	4.48E-1	1.10E+1	1.53E-1	3.92E+0	3.75E-2	-5.70E+0	9.39E+0
ODP	kg CFC-11-eq	6.02E-6	4.43E-8	4.21E-8	6.11E-6	2.84E-8	4.78E-7	1.42E-9	-2.99E-6	3.63E-6
POCP	kg ethene-eq	6.31E-3	1.51E-4	1.97E-4	6.65E-3	9.20E-5	9.29E-4	9.96E-6	-2.91E-3	4.77E-3
AP	kg SO2-eq	3.98E-2	1.10E-3	1.76E-3	4.26E-2	6.60E-4	6.79E-3	3.15E-5	-1.87E-2	3.14E-2
EP	kg PO4 3−-eq	4.75E-3	2.16E-4	2.78E-4	5.25E-3	1.32E-4	1.03E-3	1.21E-5	-2.27E-3	4.15E-3
HTP	kg 1,4-DB-eq	4.05E+0	1.05E-1	1.69E-1	4.32E+0	6.56E-2	1.82E+0	3.24E-3	-1.82E+0	4.40E+0
FAETP	kg 1,4-DB-eq	8.73E-2	3.07E-3	6.89E-3	9.72E-2	1.92E-3	2.68E-2	9.56E-4	-3.98E-2	8.72E-2
MAETP	kg 1,4-DB-eq	2.54E+2	1.11E+1	2.81E+1	2.94E+2	6.86E+0	8.88E+1	1.17E+0	-1.17E+2	2.74E+2
TETP	kg 1,4-DB-eq	2.79E-2	3.72E-4	1.05E-2	3.88E-2	2.32E-4	6.51E-3	1.07E-5	-1.32E-2	3.23E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	9.94E+0	2.52E-1	5.28E-1	1.07E+1	1.55E-1	4.65E+0	4.36E-2	-5.87E+0	9.69E+0
GWP-f	kg CO2 eq	1.05E+1	2.52E-1	4.13E-1	1.12E+1	1.55E-1	3.95E+0	4.36E-2	-5.83E+0	9.53E+0
GWP-b	kg CO2 eq	-6.12E-1	1.16E-4	8.94E-2	-5.23E-1	9.39E-5	6.94E-1	5.61E-5	-4.11E-2	1.30E-1
GWP-luluc	kg CO2 eq	8.53E-3	9.24E-5	2.52E-2	3.38E-2	5.47E-5	1.83E-3	1.18E-6	-3.91E-3	3.18E-2
ODP	kg CFC11 eq	5.93E-6	5.56E-8	4.99E-8	6.04E-6	3.56E-8	4.93E-7	1.76E-9	-2.96E-6	3.61E-6
AP	mol H+ eq	4.79E-2	1.46E-3	2.26E-3	5.17E-2	8.81E-4	8.52E-3	4.22E-5	-2.26E-2	3.85E-2
EP-fw	kg P eq	4.67E-4	2.54E-6	5.91E-6	4.76E-4	1.27E-6	6.09E-5	5.33E-8	-2.18E-4	3.20E-4
EP-m	kg N eq	8.09E-3	5.15E-4	6.65E-4	9.27E-3	3.15E-4	2.07E-3	2.57E-5	-3.93E-3	7.75E-3
EP-T	mol N eq	8.76E-2	5.68E-3	7.13E-3	1.00E-1	3.47E-3	2.29E-2	1.69E-4	-4.23E-2	8.46E-2
POCP	kg NMVOC eq	3.02E-2	1.62E-3	2.01E-3	3.38E-2	9.93E-4	6.87E-3	5.74E-5	-1.44E-2	2.73E-2
ADP-mm	kg Sb eq	2.89E-4	6.39E-6	9.41E-6	3.04E-4	4.00E-6	3.36E-5	4.19E-8	-1.20E-4	2.22E-4
ADP-f	MJ	2.71E+2	3.80E+0	4.79E+0	2.79E+2	2.37E+0	2.34E+1	1.28E-1	-1.42E+2	1.63E+2
WDP	m3 depriv.	1.78E+1	1.36E-2	3.24E+0	2.10E+1	7.28E-3	9.10E-1	7.35E-4	-8.49E+0	1.35E+1
PM	disease inc.	3.46E-7	2.26E-8	3.50E-8	4.04E-7	1.40E-8	1.07E-7	8.75E-10	-1.46E-7	3.79E-7
IR	kBq U-235 eq	5.75E-1	1.59E-2	8.64E-3	6.00E-1	1.04E-2	8.18E-2	5.86E-4	-2.74E-1	4.18E-1
ETP-fw	CTUe	1.83E+2	3.39E+0	7.98E+0	1.94E+2	1.93E+0	1.75E+2	1.93E+0	-8.50E+1	2.88E+2
HTP-c	CTUh	7.28E-9	1.10E-10	2.72E-10	7.67E-9	6.86E-11	2.57E-9	3.34E-12	-3.15E-9	7.16E-9
HTP-nc	CTUh	2.30E-7	3.71E-9	8.33E-9	2.42E-7	2.30E-9	6.16E-8	3.70E-10	-1.09E-7	1.97E-7
SQP	Pt	9.64E+1	3.30E+0	3.58E-1	1.00E+2	2.03E+0	1.46E+1	3.24E-1	-2.87E+1	8.84E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.25E+1	4.76E-2	1.44E+1	3.69E+1	3.40E-2	1.68E+0	4.60E-3	-8.89E+0	2.98E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.25E+1	4.76E-2	1.44E+1	3.69E+1	3.40E-2	1.68E+0	4.60E-3	-8.89E+0	2.98E+1
PENRE	MJ	2.90E+2	4.04E+0	5.19E+0	2.99E+2	2.52E+0	2.49E+1	1.36E-1	-1.53E+2	1.74E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.90E+2	4.04E+0	5.19E+0	2.99E+2	2.52E+0	2.49E+1	1.36E-1	-1.53E+2	1.74E+2
PET	MJ	3.13E+2	4.08E+0	1.96E+1	3.36E+2	2.55E+0	2.66E+1	1.40E-1	-1.62E+2	2.04E+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	1.90E-1	4.63E-4	7.62E-2	2.67E-1	2.69E-4	2.49E-2	1.56E-4	-8.87E-2	2.03E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.16E-4	9.63E-6	6.70E-6	2.33E-4	6.07E-6	3.77E-5	1.54E-7	-1.18E-4	1.59E-4
NHWD	kg	1.03E+0	2.41E-1	9.67E-3	1.28E+0	1.47E-1	8.70E-1	5.88E-1	-4.57E-1	2.43E+0
RWD	kg	5.05E-4	2.50E-5	1.20E-5	5.42E-4	1.61E-5	8.78E-5	8.34E-7	-2.42E-4	4.04E-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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