Environmental Profile

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

Ecochain v3.5.80

Product:	3000533 - PVC Pipe GY BENOR 125x3.2 SN4 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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	1.16	0.03	0.05	1.24	0.02	0.42	0	-0.58	1.1
ADPE	kg Sb-eq	3.16E-4	6.42E-6	9.41E-6	3.32E-4	4.02E-6	3.37E-5	4.22E-8	-1.22E-4	2.48E-4
ADPF	kg Sb-eq	1.29E-1	1.85E-3	2.52E-3	1.33E-1	1.13E-3	1.19E-2	5.96E-5	-6.81E-2	7.79E-2
GWP	kg CO2-eq	1.04E+1	2.51E-1	4.48E-1	1.11E+1	1.54E-1	4.00E+0	3.78E-2	-5.74E+0	9.53E+0
ODP	kg CFC-11-eq	6.05E-6	4.46E-8	4.21E-8	6.14E-6	2.86E-8	4.80E-7	1.43E-9	-3.00E-6	3.65E-6
POCP	kg ethene-eq	6.41E-3	1.52E-4	1.97E-4	6.76E-3	9.25E-5	9.32E-4	1.01E-5	-2.93E-3	4.86E-3
AP	kg SO2-eq	4.02E-2	1.10E-3	1.76E-3	4.31E-2	6.64E-4	6.82E-3	3.18E-5	-1.88E-2	3.18E-2
EP	kg PO4 3−-eq	4.81E-3	2.17E-4	2.78E-4	5.30E-3	1.33E-4	1.03E-3	1.23E-5	-2.28E-3	4.21E-3
HTP	kg 1,4-DB-eq	4.09E+0	1.06E-1	1.69E-1	4.37E+0	6.60E-2	1.83E+0	3.26E-3	-1.82E+0	4.44E+0
FAETP	kg 1,4-DB-eq	8.83E-2	3.09E-3	6.89E-3	9.82E-2	1.93E-3	2.69E-2	9.64E-4	-3.99E-2	8.82E-2
MAETP	kg 1,4-DB-eq	2.58E+2	1.11E+1	2.81E+1	2.97E+2	6.90E+0	8.91E+1	1.18E+0	-1.17E+2	2.77E+2
TETP	kg 1,4-DB-eq	2.81E-2	3.74E-4	1.05E-2	3.90E-2	2.34E-4	6.54E-3	1.08E-5	-1.33E-2	3.25E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.00E+1	2.54E-1	5.28E-1	1.08E+1	1.56E-1	4.73E+0	4.41E-2	-5.92E+0	9.83E+0
GWP-f	kg CO2 eq	1.06E+1	2.53E-1	4.13E-1	1.13E+1	1.55E-1	4.03E+0	4.41E-2	-5.88E+0	9.67E+0
GWP-b	kg CO2 eq	-6.13E-1	1.17E-4	8.94E-2	-5.24E-1	9.44E-5	6.94E-1	5.66E-5	-4.12E-2	1.29E-1
GWP-luluc	kg CO2 eq	8.61E-3	9.28E-5	2.52E-2	3.39E-2	5.50E-5	1.84E-3	1.19E-6	-3.93E-3	3.19E-2
ODP	kg CFC11 eq	5.97E-6	5.59E-8	4.99E-8	6.08E-6	3.58E-8	4.95E-7	1.78E-9	-2.97E-6	3.64E-6
AP	mol H+ eq	4.85E-2	1.47E-3	2.26E-3	5.22E-2	8.86E-4	8.56E-3	4.26E-5	-2.27E-2	3.90E-2
EP-fw	kg P eq	4.71E-4	2.56E-6	5.91E-6	4.79E-4	1.28E-6	6.12E-5	5.38E-8	-2.19E-4	3.23E-4
EP-m	kg N eq	8.17E-3	5.18E-4	6.65E-4	9.36E-3	3.17E-4	2.09E-3	2.61E-5	-3.95E-3	7.83E-3
EP-T	mol N eq	8.86E-2	5.71E-3	7.13E-3	1.01E-1	3.49E-3	2.30E-2	1.70E-4	-4.25E-2	8.56E-2
POCP	kg NMVOC eq	3.06E-2	1.63E-3	2.01E-3	3.43E-2	9.98E-4	6.90E-3	5.79E-5	-1.45E-2	2.77E-2
ADP-mm	kg Sb eq	3.16E-4	6.42E-6	9.41E-6	3.32E-4	4.02E-6	3.37E-5	4.22E-8	-1.22E-4	2.48E-4
ADP-f	MJ	2.73E+2	3.82E+0	4.79E+0	2.82E+2	2.39E+0	2.35E+1	1.29E-1	-1.43E+2	1.65E+2
WDP	m3 depriv.	1.79E+1	1.37E-2	3.24E+0	2.11E+1	7.32E-3	9.14E-1	7.40E-4	-8.52E+0	1.35E+1
PM	disease inc.	3.52E-7	2.28E-8	3.50E-8	4.10E-7	1.40E-8	1.07E-7	8.82E-10	-1.47E-7	3.85E-7
IR	kBq U-235 eq	5.83E-1	1.60E-2	8.64E-3	6.08E-1	1.04E-2	8.21E-2	5.91E-4	-2.76E-1	4.25E-1
ETP-fw	CTUe	1.85E+2	3.41E+0	7.98E+0	1.96E+2	1.94E+0	1.75E+2	1.93E+0	-8.54E+1	2.90E+2
HTP-c	CTUh	7.34E-9	1.11E-10	2.72E-10	7.73E-9	6.90E-11	2.58E-9	3.37E-12	-3.16E-9	7.22E-9
HTP-nc	CTUh	2.31E-7	3.73E-9	8.33E-9	2.43E-7	2.31E-9	6.19E-8	3.72E-10	-1.09E-7	1.99E-7
SQP	Pt	9.69E+1	3.32E+0	3.58E-1	1.01E+2	2.04E+0	1.47E+1	3.27E-1	-2.87E+1	8.89E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.26E+1	4.78E-2	1.44E+1	3.71E+1	3.42E-2	1.68E+0	4.65E-3	-8.91E+0	2.99E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.26E+1	4.78E-2	1.44E+1	3.71E+1	3.42E-2	1.68E+0	4.65E-3	-8.91E+0	2.99E+1
PENRE	MJ	2.93E+2	4.06E+0	5.19E+0	3.03E+2	2.53E+0	2.50E+1	1.37E-1	-1.54E+2	1.76E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.93E+2	4.06E+0	5.19E+0	3.03E+2	2.53E+0	2.50E+1	1.37E-1	-1.54E+2	1.76E+2
PET	MJ	3.16E+2	4.11E+0	1.96E+1	3.40E+2	2.57E+0	2.67E+1	1.41E-1	-1.63E+2	2.06E+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	1.92E-1	4.65E-4	7.62E-2	2.68E-1	2.70E-4	2.51E-2	1.58E-4	-8.91E-2	2.05E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.18E-4	9.68E-6	6.70E-6	2.35E-4	6.10E-6	3.79E-5	1.55E-7	-1.19E-4	1.60E-4
NHWD	kg	1.04E+0	2.42E-1	9.67E-3	1.29E+0	1.48E-1	8.75E-1	5.92E-1	-4.59E-1	2.45E+0
RWD	kg	5.14E-4	2.51E-5	1.20E-5	5.51E-4	1.62E-5	8.82E-5	8.41E-7	-2.43E-4	4.13E-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