Environmental Profile

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

Ecochain v3.5.80

Product:	3000516 - PVC Pipe GY BENOR 125x3.2 SN4 L=5 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	1.89	0.05	0.09	2.03	0.03	0.68	0	-0.95	1.79
ADPE	kg Sb-eq	4.79E-4	1.06E-5	1.57E-5	5.05E-4	6.66E-6	5.58E-5	6.98E-8	-2.00E-4	3.68E-4
ADPF	kg Sb-eq	2.11E-1	3.04E-3	4.20E-3	2.18E-1	1.87E-3	1.97E-2	9.84E-5	-1.13E-1	1.28E-1
GWP	kg CO2-eq	1.70E+1	4.13E-1	7.47E-1	1.82E+1	2.55E-1	6.52E+0	6.24E-2	-9.48E+0	1.56E+1
ODP	kg CFC-11-eq	1.00E-5	7.33E-8	7.02E-8	1.02E-5	4.73E-8	7.95E-7	2.36E-9	-4.97E-6	6.03E-6
POCP	kg ethene-eq	1.04E-2	2.49E-4	3.29E-4	1.10E-2	1.53E-4	1.54E-3	1.66E-5	-4.83E-3	7.87E-3
AP	kg SO2-eq	6.58E-2	1.82E-3	2.93E-3	7.05E-2	1.10E-3	1.13E-2	5.25E-5	-3.10E-2	5.20E-2
EP	kg PO4 3−-eq	7.83E-3	3.57E-4	4.63E-4	8.65E-3	2.19E-4	1.70E-3	2.02E-5	-3.73E-3	6.86E-3
HTP	kg 1,4-DB-eq	6.70E+0	1.74E-1	2.82E-1	7.16E+0	1.09E-1	3.03E+0	5.39E-3	-3.01E+0	7.29E+0
FAETP	kg 1,4-DB-eq	1.44E-1	5.08E-3	1.15E-2	1.61E-1	3.20E-3	4.46E-2	1.59E-3	-6.59E-2	1.44E-1
MAETP	kg 1,4-DB-eq	4.21E+2	1.83E+1	4.69E+1	4.86E+2	1.14E+1	1.48E+2	1.95E+0	-1.94E+2	4.53E+2
TETP	kg 1,4-DB-eq	4.63E-2	6.15E-4	1.75E-2	6.44E-2	3.87E-4	1.08E-2	1.79E-5	-2.20E-2	5.37E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.69E+1	4.17E-1	8.80E-1	1.82E+1	2.58E-1	7.27E+0	7.26E-2	-9.77E+0	1.61E+1
GWP-f	kg CO2 eq	1.75E+1	4.17E-1	6.89E-1	1.86E+1	2.57E-1	6.58E+0	7.26E-2	-9.70E+0	1.58E+1
GWP-b	kg CO2 eq	-5.55E-1	1.92E-4	1.49E-1	-4.05E-1	1.56E-4	6.91E-1	9.35E-5	-6.84E-2	2.18E-1
GWP-luluc	kg CO2 eq	1.39E-2	1.53E-4	4.20E-2	5.61E-2	9.11E-5	3.05E-3	1.97E-6	-6.44E-3	5.28E-2
ODP	kg CFC11 eq	9.87E-6	9.20E-8	8.32E-8	1.00E-5	5.93E-8	8.20E-7	2.93E-9	-4.92E-6	6.01E-6
AP	mol H+ eq	7.92E-2	2.42E-3	3.76E-3	8.54E-2	1.47E-3	1.41E-2	7.03E-5	-3.73E-2	6.37E-2
EP-fw	kg P eq	7.73E-4	4.21E-6	9.85E-6	7.88E-4	2.12E-6	1.01E-4	8.88E-8	-3.62E-4	5.29E-4
EP-m	kg N eq	1.33E-2	8.52E-4	1.11E-3	1.53E-2	5.25E-4	3.43E-3	4.27E-5	-6.49E-3	1.28E-2
EP-T	mol N eq	1.44E-1	9.39E-3	1.19E-2	1.65E-1	5.78E-3	3.79E-2	2.81E-4	-6.95E-2	1.40E-1
POCP	kg NMVOC eq	4.98E-2	2.68E-3	3.35E-3	5.58E-2	1.65E-3	1.14E-2	9.56E-5	-2.39E-2	4.50E-2
ADP-mm	kg Sb eq	4.79E-4	1.06E-5	1.57E-5	5.05E-4	6.66E-6	5.58E-5	6.98E-8	-2.00E-4	3.68E-4
ADP-f	MJ	4.49E+2	6.29E+0	7.98E+0	4.63E+2	3.95E+0	3.89E+1	2.13E-1	-2.36E+2	2.70E+2
WDP	m3 depriv.	2.95E+1	2.25E-2	5.39E+0	3.50E+1	1.21E-2	1.51E+0	1.22E-3	-1.41E+1	2.24E+1
PM	disease inc.	5.52E-7	3.74E-8	5.83E-8	6.48E-7	2.32E-8	1.77E-7	1.46E-9	-2.40E-7	6.10E-7
IR	kBq U-235 eq	9.52E-1	2.63E-2	1.44E-2	9.93E-1	1.73E-2	1.36E-1	9.75E-4	-4.56E-1	6.91E-1
ETP-fw	CTUe	3.01E+2	5.61E+0	1.33E+1	3.20E+2	3.21E+0	2.91E+2	3.20E+0	-1.40E+2	4.78E+2
HTP-c	CTUh	1.19E-8	1.82E-10	4.54E-10	1.26E-8	1.14E-10	4.25E-9	5.56E-12	-5.21E-9	1.17E-8
HTP-nc	CTUh	3.80E-7	6.13E-9	1.39E-8	4.00E-7	3.82E-9	1.02E-7	6.16E-10	-1.80E-7	3.27E-7
SQP	Pt	1.18E+2	5.45E+0	5.97E-1	1.24E+2	3.38E+0	2.43E+1	5.40E-1	-3.87E+1	1.14E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.11E+1	7.87E-2	2.41E+1	5.52E+1	5.67E-2	2.79E+0	7.66E-3	-1.30E+1	4.51E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.11E+1	7.87E-2	2.41E+1	5.52E+1	5.67E-2	2.79E+0	7.66E-3	-1.30E+1	4.51E+1
PENRE	MJ	4.82E+2	6.68E+0	8.64E+0	4.97E+2	4.19E+0	4.14E+1	2.26E-1	-2.54E+2	2.89E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.82E+2	6.68E+0	8.64E+0	4.97E+2	4.19E+0	4.14E+1	2.26E-1	-2.54E+2	2.89E+2
PET	MJ	5.13E+2	6.75E+0	3.27E+1	5.52E+2	4.25E+0	4.42E+1	2.33E-1	-2.67E+2	3.34E+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	3.15E-1	7.66E-4	1.27E-1	4.43E-1	4.47E-4	4.14E-2	2.60E-4	-1.48E-1	3.37E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.57E-4	1.59E-5	1.12E-5	3.84E-4	1.01E-5	6.26E-5	2.56E-7	-1.96E-4	2.61E-4
NHWD	kg	1.70E+0	3.99E-1	1.61E-2	2.11E+0	2.45E-1	1.44E+0	9.79E-1	-7.57E-1	4.02E+0
RWD	kg	8.34E-4	4.13E-5	2.01E-5	8.95E-4	2.69E-5	1.46E-4	1.39E-6	-4.02E-4	6.67E-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

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777