Environmental Profile

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

Ecochain v3.5.80

Product:	3000671 - PVC Pipe GY BENOR 400x7.9 SN2 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	15.05	0.39	0.67	16.12	0.24	5.41	0.03	-7.52	14.28
ADPE	kg Sb-eq	3.77E-3	8.36E-5	1.22E-4	3.98E-3	5.20E-5	4.37E-4	5.45E-7	-1.57E-3	2.90E-3
ADPF	kg Sb-eq	1.68E+0	2.41E-2	3.28E-2	1.73E+0	1.46E-2	1.54E-1	7.69E-4	-8.88E-1	1.02E+0
GWP	kg CO2-eq	1.35E+2	3.27E+0	5.84E+0	1.45E+2	1.99E+0	5.23E+1	4.87E-1	-7.49E+1	1.24E+2
ODP	kg CFC-11-eq	7.84E-5	5.80E-7	5.48E-7	7.95E-5	3.70E-7	6.22E-6	1.84E-8	-3.89E-5	4.72E-5
POCP	kg ethene-eq	8.39E-2	1.97E-3	2.57E-3	8.85E-2	1.20E-3	1.21E-2	1.30E-4	-3.81E-2	6.38E-2
AP	kg SO2-eq	5.24E-1	1.44E-2	2.29E-2	5.62E-1	8.58E-3	8.86E-2	4.10E-4	-2.44E-1	4.15E-1
EP	kg PO4 3−-eq	6.28E-2	2.83E-3	3.62E-3	6.92E-2	1.71E-3	1.34E-2	1.58E-4	-2.97E-2	5.48E-2
HTP	kg 1,4-DB-eq	5.31E+1	1.38E+0	2.20E+0	5.67E+1	8.53E-1	2.38E+1	4.21E-2	-2.37E+1	5.77E+1
FAETP	kg 1,4-DB-eq	1.15E+0	4.02E-2	8.97E-2	1.28E+0	2.50E-2	3.56E-1	1.24E-2	-5.19E-1	1.15E+0
MAETP	kg 1,4-DB-eq	3.35E+3	1.45E+2	3.66E+2	3.86E+3	8.93E+1	1.17E+3	1.53E+1	-1.52E+3	3.61E+3
TETP	kg 1,4-DB-eq	3.66E-1	4.87E-3	1.37E-1	5.08E-1	3.02E-3	8.47E-2	1.40E-4	-1.73E-1	4.23E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.29E+2	3.30E+0	6.88E+0	1.39E+2	2.01E+0	6.38E+1	5.67E-1	-7.72E+1	1.28E+2
GWP-f	kg CO2 eq	1.39E+2	3.30E+0	5.38E+0	1.48E+2	2.01E+0	5.27E+1	5.67E-1	-7.67E+1	1.26E+2
GWP-b	kg CO2 eq	-1.01E+1	1.52E-3	1.16E+0	-8.91E+0	1.22E-3	1.11E+1	7.30E-4	-5.35E-1	1.66E+0
GWP-luluc	kg CO2 eq	1.13E-1	1.21E-3	3.28E-1	4.43E-1	7.12E-4	2.38E-2	1.54E-5	-5.12E-2	4.16E-1
ODP	kg CFC11 eq	7.73E-5	7.28E-7	6.50E-7	7.86E-5	4.63E-7	6.41E-6	2.29E-8	-3.85E-5	4.70E-5
AP	mol H+ eq	6.32E-1	1.91E-2	2.94E-2	6.81E-1	1.15E-2	1.11E-1	5.49E-4	-2.95E-1	5.09E-1
EP-fw	kg P eq	6.14E-3	3.33E-5	7.70E-5	6.25E-3	1.65E-5	7.93E-4	6.93E-7	-2.84E-3	4.22E-3
EP-m	kg N eq	1.07E-1	6.74E-3	8.65E-3	1.22E-1	4.10E-3	2.72E-2	3.34E-4	-5.16E-2	1.02E-1
EP-T	mol N eq	1.16E+0	7.43E-2	9.28E-2	1.33E+0	4.52E-2	2.99E-1	2.20E-3	-5.57E-1	1.12E+0
POCP	kg NMVOC eq	4.01E-1	2.12E-2	2.62E-2	4.48E-1	1.29E-2	8.98E-2	7.47E-4	-1.89E-1	3.63E-1
ADP-mm	kg Sb eq	3.77E-3	8.36E-5	1.22E-4	3.98E-3	5.20E-5	4.37E-4	5.45E-7	-1.57E-3	2.90E-3
ADP-f	MJ	3.56E+3	4.98E+1	6.23E+1	3.68E+3	3.09E+1	3.05E+2	1.66E+0	-1.86E+3	2.15E+3
WDP	m3 depriv.	2.32E+2	1.78E-1	4.21E+1	2.75E+2	9.47E-2	1.18E+1	9.56E-3	-1.10E+2	1.76E+2
PM	disease inc.	4.67E-6	2.96E-7	4.56E-7	5.42E-6	1.81E-7	1.39E-6	1.14E-8	-1.92E-6	5.08E-6
IR	kBq U-235 eq	7.54E+0	2.08E-1	1.12E-1	7.86E+0	1.35E-1	1.07E+0	7.62E-3	-3.58E+0	5.49E+0
ETP-fw	CTUe	2.40E+3	4.44E+1	1.04E+2	2.55E+3	2.51E+1	2.27E+3	2.50E+1	-1.12E+3	3.76E+3
HTP-c	CTUh	9.60E-8	1.44E-9	3.55E-9	1.01E-7	8.92E-10	3.38E-8	4.35E-11	-4.11E-8	9.46E-8
HTP-nc	CTUh	3.01E-6	4.85E-8	1.09E-7	3.16E-6	2.99E-8	8.04E-7	4.81E-9	-1.42E-6	2.58E-6
SQP	Pt	1.45E+3	4.32E+1	4.66E+0	1.50E+3	2.64E+1	1.91E+2	4.22E+0	-4.13E+2	1.30E+3

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.22E+2	6.23E-1	1.88E+2	5.11E+2	4.43E-1	2.18E+1	5.99E-2	-1.24E+2	4.09E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.22E+2	6.23E-1	1.88E+2	5.11E+2	4.43E-1	2.18E+1	5.99E-2	-1.24E+2	4.09E+2
PENRE	MJ	3.82E+3	5.28E+1	6.75E+1	3.94E+3	3.28E+1	3.24E+2	1.76E+0	-2.00E+3	2.30E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.82E+3	5.28E+1	6.75E+1	3.94E+3	3.28E+1	3.24E+2	1.76E+0	-2.00E+3	2.30E+3
PET	MJ	4.14E+3	5.35E+1	2.55E+2	4.45E+3	3.32E+1	3.46E+2	1.82E+0	-2.13E+3	2.71E+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	2.50E+0	6.06E-3	9.92E-1	3.50E+0	3.49E-3	3.25E-1	2.03E-3	-1.16E+0	2.67E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.84E-3	1.26E-4	8.73E-5	3.05E-3	7.89E-5	4.91E-4	2.00E-6	-1.55E-3	2.07E-3
NHWD	kg	1.36E+1	3.16E+0	1.26E-1	1.69E+1	1.91E+0	1.14E+1	7.64E+0	-5.96E+0	3.19E+1
RWD	kg	6.62E-3	3.27E-4	1.57E-4	7.10E-3	2.10E-4	1.14E-3	1.09E-5	-3.16E-3	5.31E-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