Environmental Profile

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

Ecochain v3.5.80

Product:	3000344 - PVC Pipe GY BENOR 200x5.9 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	3.32	0.09	0.15	3.56	0.05	1.2	0.01	-1.66	3.15
ADPE	kg Sb-eq	9.00E-4	1.85E-5	2.73E-5	9.46E-4	1.16E-5	9.73E-5	1.22E-7	-3.51E-4	7.04E-4
ADPF	kg Sb-eq	3.71E-1	5.31E-3	7.31E-3	3.83E-1	3.27E-3	3.43E-2	1.72E-4	-1.97E-1	2.24E-1
GWP	kg CO2-eq	2.99E+1	7.22E-1	1.30E+0	3.19E+1	4.45E-1	1.15E+1	1.09E-1	-1.66E+1	2.74E+1
ODP	kg CFC-11-eq	1.75E-5	1.28E-7	1.22E-7	1.77E-5	8.26E-8	1.39E-6	4.13E-9	-8.66E-6	1.05E-5
POCP	kg ethene-eq	1.84E-2	4.36E-4	5.72E-4	1.94E-2	2.67E-4	2.69E-3	2.90E-5	-8.44E-3	1.39E-2
AP	kg SO2-eq	1.16E-1	3.18E-3	5.10E-3	1.24E-1	1.92E-3	1.97E-2	9.18E-5	-5.41E-2	9.15E-2
EP	kg PO4 3−-eq	1.38E-2	6.24E-4	8.05E-4	1.52E-2	3.83E-4	2.98E-3	3.56E-5	-6.53E-3	1.21E-2
HTP	kg 1,4-DB-eq	1.18E+1	3.04E-1	4.91E-1	1.26E+1	1.91E-1	5.28E+0	9.42E-3	-5.25E+0	1.28E+1
FAETP	kg 1,4-DB-eq	2.53E-1	8.88E-3	2.00E-2	2.82E-1	5.58E-3	7.78E-2	2.78E-3	-1.15E-1	2.53E-1
MAETP	kg 1,4-DB-eq	7.40E+2	3.19E+1	8.15E+1	8.54E+2	1.99E+1	2.57E+2	3.42E+0	-3.39E+2	7.96E+2
TETP	kg 1,4-DB-eq	8.09E-2	1.08E-3	3.05E-2	1.12E-1	6.75E-4	1.89E-2	3.13E-5	-3.83E-2	9.38E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.95E+1	7.29E-1	1.53E+0	3.17E+1	4.49E-1	1.31E+1	1.27E-1	-1.71E+1	2.83E+1
GWP-f	kg CO2 eq	3.06E+1	7.29E-1	1.20E+0	3.26E+1	4.49E-1	1.16E+1	1.27E-1	-1.70E+1	2.78E+1
GWP-b	kg CO2 eq	-1.19E+0	3.36E-4	2.59E-1	-9.26E-1	2.73E-4	1.42E+0	1.63E-4	-1.19E-1	3.75E-1
GWP-luluc	kg CO2 eq	2.45E-2	2.67E-4	7.31E-2	9.78E-2	1.59E-4	5.31E-3	3.44E-6	-1.13E-2	9.21E-2
ODP	kg CFC11 eq	1.72E-5	1.61E-7	1.45E-7	1.75E-5	1.03E-7	1.43E-6	5.13E-9	-8.57E-6	1.05E-5
AP	mol H+ eq	1.39E-1	4.23E-3	6.54E-3	1.50E-1	2.56E-3	2.47E-2	1.23E-4	-6.52E-2	1.12E-1
EP-fw	kg P eq	1.36E-3	7.35E-6	1.71E-5	1.38E-3	3.70E-6	1.77E-4	1.55E-7	-6.32E-4	9.28E-4
EP-m	kg N eq	2.34E-2	1.49E-3	1.93E-3	2.68E-2	9.15E-4	6.00E-3	7.53E-5	-1.13E-2	2.25E-2
EP-T	mol N eq	2.53E-1	1.64E-2	2.07E-2	2.90E-1	1.01E-2	6.62E-2	4.92E-4	-1.22E-1	2.45E-1
POCP	kg NMVOC eq	8.77E-2	4.69E-3	5.84E-3	9.82E-2	2.88E-3	1.99E-2	1.67E-4	-4.17E-2	7.94E-2
ADP-mm	kg Sb eq	9.00E-4	1.85E-5	2.73E-5	9.46E-4	1.16E-5	9.73E-5	1.22E-7	-3.51E-4	7.04E-4
ADP-f	MJ	7.88E+2	1.10E+1	1.39E+1	8.13E+2	6.89E+0	6.79E+1	3.72E-1	-4.13E+2	4.75E+2
WDP	m3 depriv.	5.16E+1	3.93E-2	9.38E+0	6.10E+1	2.12E-2	2.64E+0	2.14E-3	-2.46E+1	3.91E+1
PM	disease inc.	9.85E-7	6.54E-8	1.01E-7	1.15E-6	4.05E-8	3.09E-7	2.55E-9	-4.20E-7	1.08E-6
IR	kBq U-235 eq	1.68E+0	4.60E-2	2.50E-2	1.75E+0	3.01E-2	2.37E-1	1.71E-3	-7.96E-1	1.22E+0
ETP-fw	CTUe	5.30E+2	9.80E+0	2.31E+1	5.63E+2	5.60E+0	5.07E+2	5.59E+0	-2.44E+2	8.37E+2
HTP-c	CTUh	2.10E-8	3.18E-10	7.90E-10	2.21E-8	1.99E-10	7.43E-9	9.73E-12	-9.10E-9	2.06E-8
HTP-nc	CTUh	6.66E-7	1.07E-8	2.42E-8	7.00E-7	6.67E-9	1.79E-7	1.07E-9	-3.15E-7	5.72E-7
SQP	Pt	2.27E+2	9.53E+0	1.04E+0	2.37E+2	5.90E+0	4.24E+1	9.44E-1	-7.17E+1	2.15E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.72E+1	1.38E-1	4.19E+1	9.92E+1	9.89E-2	4.86E+0	1.34E-2	-2.35E+1	8.07E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.72E+1	1.38E-1	4.19E+1	9.92E+1	9.89E-2	4.86E+0	1.34E-2	-2.35E+1	8.07E+1
PENRE	MJ	8.45E+2	1.17E+1	1.50E+1	8.72E+2	7.32E+0	7.22E+1	3.94E-1	-4.44E+2	5.07E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.45E+2	1.17E+1	1.50E+1	8.72E+2	7.32E+0	7.22E+1	3.94E-1	-4.44E+2	5.07E+2
PET	MJ	9.02E+2	1.18E+1	5.69E+1	9.71E+2	7.42E+0	7.71E+1	4.08E-1	-4.68E+2	5.88E+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	5.52E-1	1.34E-3	2.21E-1	7.75E-1	7.80E-4	7.24E-2	4.55E-4	-2.57E-1	5.91E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	6.26E-4	2.78E-5	1.94E-5	6.73E-4	1.76E-5	1.09E-4	4.48E-7	-3.43E-4	4.57E-4
NHWD	kg	2.98E+0	6.97E-1	2.80E-2	3.70E+0	4.27E-1	2.51E+0	1.71E+0	-1.32E+0	7.04E+0
RWD	kg	1.48E-3	7.22E-5	3.49E-5	1.58E-3	4.69E-5	2.54E-4	2.43E-6	-7.02E-4	1.18E-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

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