Environmental Profile

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

Ecochain v3.5.80

Product:	3021021 - PVC Pipe GY BENOR 250x7.3 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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	5.24	0.14	0.23	5.61	0.08	1.9	0.01	-2.61	4.99
ADPE	kg Sb-eq	1.48E-3	2.88E-5	4.24E-5	1.55E-3	1.81E-5	1.51E-4	1.90E-7	-5.48E-4	1.17E-3
ADPF	kg Sb-eq	5.85E-1	8.29E-3	1.14E-2	6.05E-1	5.09E-3	5.33E-2	2.68E-4	-3.09E-1	3.55E-1
GWP	kg CO2-eq	4.72E+1	1.13E+0	2.02E+0	5.03E+1	6.93E-1	1.85E+1	1.70E-1	-2.61E+1	4.36E+1
ODP	kg CFC-11-eq	2.72E-5	2.00E-7	1.90E-7	2.76E-5	1.29E-7	2.15E-6	6.43E-9	-1.35E-5	1.64E-5
POCP	kg ethene-eq	2.94E-2	6.80E-4	8.89E-4	3.09E-2	4.16E-4	4.19E-3	4.52E-5	-1.32E-2	2.24E-2
AP	kg SO2-eq	1.83E-1	4.96E-3	7.92E-3	1.96E-1	2.98E-3	3.06E-2	1.43E-4	-8.43E-2	1.45E-1
EP	kg PO4 3−-eq	2.18E-2	9.74E-4	1.25E-3	2.40E-2	5.96E-4	4.65E-3	5.58E-5	-1.02E-2	1.91E-2
HTP	kg 1,4-DB-eq	1.85E+1	4.75E-1	7.62E-1	1.97E+1	2.96E-1	8.23E+0	1.47E-2	-8.19E+0	2.01E+1
FAETP	kg 1,4-DB-eq	4.00E-1	1.39E-2	3.10E-2	4.45E-1	8.68E-3	1.23E-1	4.34E-3	-1.79E-1	4.02E-1
MAETP	kg 1,4-DB-eq	1.17E+3	4.99E+1	1.27E+2	1.35E+3	3.10E+1	4.05E+2	5.32E+0	-5.27E+2	1.26E+3
TETP	kg 1,4-DB-eq	1.27E-1	1.68E-3	4.73E-2	1.76E-1	1.05E-3	2.94E-2	4.87E-5	-5.96E-2	1.47E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	4.64E+1	1.14E+0	2.38E+0	4.99E+1	6.99E-1	2.11E+1	1.98E-1	-2.69E+1	4.50E+1
GWP-f	kg CO2 eq	4.84E+1	1.14E+0	1.86E+0	5.14E+1	6.99E-1	1.87E+1	1.98E-1	-2.67E+1	4.42E+1
GWP-b	kg CO2 eq	-2.01E+0	5.25E-4	4.03E-1	-1.61E+0	4.24E-4	2.36E+0	2.55E-4	-1.85E-1	5.66E-1
GWP-luluc	kg CO2 eq	3.87E-2	4.17E-4	1.14E-1	1.53E-1	2.47E-4	8.26E-3	5.36E-6	-1.75E-2	1.44E-1
ODP	kg CFC11 eq	2.68E-5	2.51E-7	2.25E-7	2.73E-5	1.61E-7	2.22E-6	7.99E-9	-1.34E-5	1.63E-5
AP	mol H+ eq	2.20E-1	6.60E-3	1.02E-2	2.37E-1	3.98E-3	3.84E-2	1.91E-4	-1.02E-1	1.78E-1
EP-fw	kg P eq	2.13E-3	1.15E-5	2.66E-5	2.17E-3	5.75E-6	2.75E-4	2.42E-7	-9.83E-4	1.47E-3
EP-m	kg N eq	3.70E-2	2.32E-3	2.99E-3	4.23E-2	1.42E-3	9.37E-3	1.18E-4	-1.77E-2	3.55E-2
EP-T	mol N eq	4.01E-1	2.56E-2	3.21E-2	4.59E-1	1.57E-2	1.03E-1	7.66E-4	-1.90E-1	3.88E-1
POCP	kg NMVOC eq	1.39E-1	7.32E-3	9.06E-3	1.56E-1	4.49E-3	3.10E-2	2.61E-4	-6.52E-2	1.26E-1
ADP-mm	kg Sb eq	1.48E-3	2.88E-5	4.24E-5	1.55E-3	1.81E-5	1.51E-4	1.90E-7	-5.48E-4	1.17E-3
ADP-f	MJ	1.24E+3	1.72E+1	2.16E+1	1.28E+3	1.07E+1	1.06E+2	5.79E-1	-6.47E+2	7.52E+2
WDP	m3 depriv.	8.06E+1	6.14E-2	1.46E+1	9.53E+1	3.29E-2	4.11E+0	3.34E-3	-3.83E+1	6.12E+1
PM	disease inc.	1.57E-6	1.02E-7	1.58E-7	1.83E-6	6.31E-8	4.82E-7	3.97E-9	-6.56E-7	1.73E-6
IR	kBq U-235 eq	2.64E+0	7.19E-2	3.89E-2	2.75E+0	4.69E-2	3.69E-1	2.66E-3	-1.24E+0	1.92E+0
ETP-fw	CTUe	8.35E+2	1.53E+1	3.60E+1	8.87E+2	8.71E+0	7.88E+2	8.68E+0	-3.81E+2	1.31E+3
HTP-c	CTUh	3.29E-8	4.96E-10	1.23E-9	3.46E-8	3.10E-10	1.16E-8	1.52E-11	-1.42E-8	3.24E-8
HTP-nc	CTUh	1.04E-6	1.67E-8	3.75E-8	1.10E-6	1.04E-8	2.78E-7	1.67E-9	-4.89E-7	8.97E-7
SQP	Pt	3.69E+2	1.49E+1	1.61E+0	3.86E+2	9.17E+0	6.60E+1	1.47E+0	-1.14E+2	3.48E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.18E+1	2.15E-1	6.50E+1	1.57E+2	1.54E-1	7.56E+0	2.09E-2	-3.71E+1	1.28E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.18E+1	2.15E-1	6.50E+1	1.57E+2	1.54E-1	7.56E+0	2.09E-2	-3.71E+1	1.28E+2
PENRE	MJ	1.33E+3	1.82E+1	2.34E+1	1.38E+3	1.14E+1	1.12E+2	6.15E-1	-6.97E+2	8.02E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.33E+3	1.82E+1	2.34E+1	1.38E+3	1.14E+1	1.12E+2	6.15E-1	-6.97E+2	8.02E+2
PET	MJ	1.43E+3	1.84E+1	8.84E+1	1.53E+3	1.15E+1	1.20E+2	6.35E-1	-7.35E+2	9.30E+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	8.71E-1	2.09E-3	3.43E-1	1.22E+0	1.21E-3	1.13E-1	7.09E-4	-4.00E-1	9.30E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	9.79E-4	4.35E-5	3.02E-5	1.05E-3	2.74E-5	1.70E-4	6.99E-7	-5.40E-4	7.11E-4
NHWD	kg	4.70E+0	1.09E+0	4.36E-2	5.83E+0	6.65E-1	3.94E+0	2.66E+0	-2.06E+0	1.10E+1
RWD	kg	2.33E-3	1.13E-4	5.42E-5	2.49E-3	7.29E-5	3.96E-4	3.78E-6	-1.09E-3	1.87E-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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