Environmental Profile

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

Ecochain v3.5.80

Product:	3000567 - PVC Pipe BR BENOR 315x7.7 SN4 L=5 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	11.53	0.3	0.51	12.35	0.19	4.17	0.03	-5.76	10.96
ADPE	kg Sb-eq	3.15E-3	6.37E-5	9.36E-5	3.31E-3	4.00E-5	3.35E-4	4.20E-7	-1.21E-3	2.47E-3
ADPF	kg Sb-eq	1.29E+0	1.83E-2	2.51E-2	1.33E+0	1.13E-2	1.18E-1	5.93E-4	-6.82E-1	7.79E-1
GWP	kg CO2-eq	1.04E+2	2.49E+0	4.46E+0	1.11E+2	1.53E+0	4.05E+1	3.77E-1	-5.75E+1	9.56E+1
ODP	kg CFC-11-eq	6.02E-5	4.42E-7	4.19E-7	6.10E-5	2.85E-7	4.77E-6	1.42E-8	-2.99E-5	3.62E-5
POCP	kg ethene-eq	6.43E-2	1.50E-3	1.96E-3	6.77E-2	9.21E-4	9.27E-3	1.00E-4	-2.91E-2	4.89E-2
AP	kg SO2-eq	4.02E-1	1.10E-2	1.75E-2	4.30E-1	6.60E-3	6.78E-2	3.16E-4	-1.86E-1	3.18E-1
EP	kg PO4 3−-eq	4.78E-2	2.15E-3	2.76E-3	5.27E-2	1.32E-3	1.03E-2	1.23E-4	-2.25E-2	4.19E-2
HTP	kg 1,4-DB-eq	4.08E+1	1.05E+0	1.68E+0	4.35E+1	6.56E-1	1.82E+1	3.24E-2	-1.81E+1	4.43E+1
FAETP	kg 1,4-DB-eq	8.80E-1	3.06E-2	6.85E-2	9.79E-1	1.92E-2	2.72E-1	9.59E-3	-3.96E-1	8.83E-1
MAETP	kg 1,4-DB-eq	2.57E+3	1.10E+2	2.80E+2	2.96E+3	6.87E+1	8.93E+2	1.18E+1	-1.17E+3	2.77E+3
TETP	kg 1,4-DB-eq	2.80E-1	3.71E-3	1.05E-1	3.88E-1	2.33E-3	6.50E-2	1.08E-4	-1.32E-1	3.24E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.02E+2	2.52E+0	5.25E+0	1.10E+2	1.55E+0	4.58E+1	4.39E-1	-5.93E+1	9.86E+1
GWP-f	kg CO2 eq	1.06E+2	2.51E+0	4.11E+0	1.13E+2	1.55E+0	4.08E+1	4.38E-1	-5.89E+1	9.70E+1
GWP-b	kg CO2 eq	-4.23E+0	1.16E-3	8.90E-1	-3.34E+0	9.39E-4	5.01E+0	5.63E-4	-4.10E-1	1.27E+0
GWP-luluc	kg CO2 eq	8.52E-2	9.21E-4	2.51E-1	3.37E-1	5.47E-4	1.83E-2	1.19E-5	-3.88E-2	3.17E-1
ODP	kg CFC11 eq	5.94E-5	5.55E-7	4.97E-7	6.04E-5	3.56E-7	4.92E-6	1.77E-8	-2.96E-5	3.61E-5
AP	mol H+ eq	4.84E-1	1.46E-2	2.24E-2	5.21E-1	8.81E-3	8.50E-2	4.23E-4	-2.25E-1	3.90E-1
EP-fw	kg P eq	4.69E-3	2.54E-5	5.88E-5	4.78E-3	1.27E-5	6.08E-4	5.35E-7	-2.18E-3	3.22E-3
EP-m	kg N eq	8.13E-2	5.14E-3	6.61E-3	9.31E-2	3.15E-3	2.07E-2	2.60E-4	-3.92E-2	7.80E-2
EP-T	mol N eq	8.81E-1	5.67E-2	7.09E-2	1.01E+0	3.47E-2	2.28E-1	1.69E-3	-4.20E-1	8.53E-1
POCP	kg NMVOC eq	3.06E-1	1.62E-2	2.00E-2	3.42E-1	9.93E-3	6.85E-2	5.76E-4	-1.44E-1	2.77E-1
ADP-mm	kg Sb eq	3.15E-3	6.37E-5	9.36E-5	3.31E-3	4.00E-5	3.35E-4	4.20E-7	-1.21E-3	2.47E-3
ADP-f	MJ	2.74E+3	3.79E+1	4.76E+1	2.82E+3	2.37E+1	2.34E+2	1.28E+0	-1.43E+3	1.65E+3
WDP	m3 depriv.	1.78E+2	1.36E-1	3.22E+1	2.11E+2	7.29E-2	9.09E+0	7.39E-3	-8.48E+1	1.35E+2
PM	disease inc.	3.44E-6	2.26E-7	3.48E-7	4.01E-6	1.40E-7	1.07E-6	8.78E-9	-1.45E-6	3.78E-6
IR	kBq U-235 eq	5.80E+0	1.59E-1	8.60E-2	6.04E+0	1.04E-1	8.16E-1	5.88E-3	-2.74E+0	4.23E+0
ETP-fw	CTUe	1.84E+3	3.38E+1	7.94E+1	1.95E+3	1.93E+1	1.75E+3	1.92E+1	-8.42E+2	2.89E+3
HTP-c	CTUh	7.26E-8	1.10E-9	2.71E-9	7.64E-8	6.86E-10	2.57E-8	3.35E-11	-3.14E-8	7.14E-8
HTP-nc	CTUh	2.30E-6	3.70E-8	8.29E-8	2.42E-6	2.30E-8	6.16E-7	3.69E-9	-1.08E-6	1.98E-6
SQP	Pt	7.95E+2	3.29E+1	3.56E+0	8.32E+2	2.03E+1	1.46E+2	3.25E+0	-2.49E+2	7.52E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.00E+2	4.75E-1	1.44E+2	3.44E+2	3.41E-1	1.67E+1	4.62E-2	-8.13E+1	2.80E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.00E+2	4.75E-1	1.44E+2	3.44E+2	3.41E-1	1.67E+1	4.62E-2	-8.13E+1	2.80E+2
PENRE	MJ	2.94E+3	4.03E+1	5.16E+1	3.03E+3	2.52E+1	2.49E+2	1.36E+0	-1.54E+3	1.76E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.94E+3	4.03E+1	5.16E+1	3.03E+3	2.52E+1	2.49E+2	1.36E+0	-1.54E+3	1.76E+3
PET	MJ	3.14E+3	4.07E+1	1.95E+2	3.37E+3	2.55E+1	2.65E+2	1.41E+0	-1.62E+3	2.04E+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	1.92E+0	4.62E-3	7.58E-1	2.68E+0	2.69E-3	2.49E-1	1.57E-3	-8.87E-1	2.05E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.16E-3	9.61E-5	6.67E-5	2.32E-3	6.07E-5	3.77E-4	1.55E-6	-1.19E-3	1.57E-3
NHWD	kg	1.03E+1	2.41E+0	9.62E-2	1.28E+1	1.47E+0	8.70E+0	5.89E+0	-4.55E+0	2.44E+1
RWD	kg	5.11E-3	2.49E-4	1.20E-4	5.48E-3	1.61E-4	8.77E-4	8.37E-6	-2.42E-3	4.10E-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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