Environmental Profile

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

Ecochain v3.5.80

Product:	3021025 - PVC Pipe BR 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	3.35	0.09	0.15	3.58	0.05	1.21	0.01	-1.68	3.17
ADPE	kg Sb-eq	9.07E-4	1.86E-5	2.73E-5	9.53E-4	1.17E-5	9.80E-5	1.23E-7	-3.53E-4	7.09E-4
ADPF	kg Sb-eq	3.73E-1	5.35E-3	7.31E-3	3.86E-1	3.29E-3	3.45E-2	1.73E-4	-1.98E-1	2.26E-1
GWP	kg CO2-eq	3.01E+1	7.27E-1	1.30E+0	3.21E+1	4.49E-1	1.16E+1	1.10E-1	-1.67E+1	2.76E+1
ODP	kg CFC-11-eq	1.76E-5	1.29E-7	1.22E-7	1.78E-5	8.32E-8	1.40E-6	4.16E-9	-8.73E-6	1.06E-5
POCP	kg ethene-eq	1.85E-2	4.39E-4	5.72E-4	1.95E-2	2.69E-4	2.71E-3	2.92E-5	-8.50E-3	1.40E-2
AP	kg SO2-eq	1.16E-1	3.20E-3	5.10E-3	1.25E-1	1.93E-3	1.98E-2	9.24E-5	-5.44E-2	9.21E-2
EP	kg PO4 3−-eq	1.39E-2	6.28E-4	8.05E-4	1.53E-2	3.86E-4	3.00E-3	3.58E-5	-6.57E-3	1.22E-2
HTP	kg 1,4-DB-eq	1.18E+1	3.06E-1	4.91E-1	1.26E+1	1.92E-1	5.32E+0	9.49E-3	-5.29E+0	1.29E+1
FAETP	kg 1,4-DB-eq	2.56E-1	8.94E-3	2.00E-2	2.85E-1	5.62E-3	7.84E-2	2.80E-3	-1.16E-1	2.56E-1
MAETP	kg 1,4-DB-eq	7.46E+2	3.22E+1	8.15E+1	8.60E+2	2.01E+1	2.59E+2	3.44E+0	-3.41E+2	8.01E+2
TETP	kg 1,4-DB-eq	8.15E-2	1.08E-3	3.05E-2	1.13E-1	6.80E-4	1.90E-2	3.15E-5	-3.86E-2	9.42E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.97E+1	7.34E-1	1.53E+0	3.20E+1	4.53E-1	1.31E+1	1.28E-1	-1.72E+1	2.85E+1
GWP-f	kg CO2 eq	3.09E+1	7.34E-1	1.20E+0	3.28E+1	4.52E-1	1.17E+1	1.28E-1	-1.71E+1	2.80E+1
GWP-b	kg CO2 eq	-1.18E+0	3.39E-4	2.59E-1	-9.25E-1	2.75E-4	1.42E+0	1.65E-4	-1.20E-1	3.76E-1
GWP-luluc	kg CO2 eq	2.47E-2	2.69E-4	7.31E-2	9.80E-2	1.60E-4	5.35E-3	3.47E-6	-1.13E-2	9.22E-2
ODP	kg CFC11 eq	1.73E-5	1.62E-7	1.45E-7	1.77E-5	1.04E-7	1.44E-6	5.16E-9	-8.64E-6	1.06E-5
AP	mol H+ eq	1.40E-1	4.25E-3	6.54E-3	1.51E-1	2.58E-3	2.48E-2	1.24E-4	-6.57E-2	1.13E-1
EP-fw	kg P eq	1.36E-3	7.40E-6	1.71E-5	1.39E-3	3.72E-6	1.78E-4	1.56E-7	-6.36E-4	9.34E-4
EP-m	kg N eq	2.36E-2	1.50E-3	1.93E-3	2.70E-2	9.22E-4	6.04E-3	7.59E-5	-1.14E-2	2.26E-2
EP-T	mol N eq	2.55E-1	1.65E-2	2.07E-2	2.92E-1	1.02E-2	6.66E-2	4.95E-4	-1.23E-1	2.47E-1
POCP	kg NMVOC eq	8.83E-2	4.72E-3	5.84E-3	9.89E-2	2.90E-3	2.00E-2	1.68E-4	-4.20E-2	7.99E-2
ADP-mm	kg Sb eq	9.07E-4	1.86E-5	2.73E-5	9.53E-4	1.17E-5	9.80E-5	1.23E-7	-3.53E-4	7.09E-4
ADP-f	MJ	7.93E+2	1.11E+1	1.39E+1	8.18E+2	6.94E+0	6.83E+1	3.74E-1	-4.16E+2	4.78E+2
WDP	m3 depriv.	5.19E+1	3.96E-2	9.38E+0	6.14E+1	2.13E-2	2.66E+0	2.16E-3	-2.48E+1	3.93E+1
PM	disease inc.	9.92E-7	6.59E-8	1.01E-7	1.16E-6	4.08E-8	3.11E-7	2.57E-9	-4.23E-7	1.09E-6
IR	kBq U-235 eq	1.69E+0	4.64E-2	2.50E-2	1.76E+0	3.03E-2	2.39E-1	1.72E-3	-8.02E-1	1.23E+0
ETP-fw	CTUe	5.34E+2	9.86E+0	2.31E+1	5.67E+2	5.64E+0	5.10E+2	5.62E+0	-2.46E+2	8.42E+2
HTP-c	CTUh	2.11E-8	3.20E-10	7.90E-10	2.22E-8	2.01E-10	7.48E-9	9.80E-12	-9.16E-9	2.08E-8
HTP-nc	CTUh	6.70E-7	1.08E-8	2.42E-8	7.05E-7	6.72E-9	1.80E-7	1.08E-9	-3.17E-7	5.76E-7
SQP	Pt	2.27E+2	9.60E+0	1.04E+0	2.38E+2	5.94E+0	4.27E+1	9.50E-1	-7.20E+1	2.16E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.75E+1	1.39E-1	4.19E+1	9.95E+1	9.96E-2	4.89E+0	1.35E-2	-2.36E+1	8.09E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.75E+1	1.39E-1	4.19E+1	9.95E+1	9.96E-2	4.89E+0	1.35E-2	-2.36E+1	8.09E+1
PENRE	MJ	8.51E+2	1.17E+1	1.50E+1	8.78E+2	7.37E+0	7.27E+1	3.97E-1	-4.48E+2	5.10E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.51E+2	1.17E+1	1.50E+1	8.78E+2	7.37E+0	7.27E+1	3.97E-1	-4.48E+2	5.10E+2
PET	MJ	9.08E+2	1.19E+1	5.69E+1	9.77E+2	7.47E+0	7.76E+1	4.11E-1	-4.71E+2	5.91E+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	5.56E-1	1.35E-3	2.21E-1	7.79E-1	7.86E-4	7.29E-2	4.59E-4	-2.59E-1	5.93E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	6.30E-4	2.80E-5	1.94E-5	6.78E-4	1.78E-5	1.10E-4	4.52E-7	-3.46E-4	4.60E-4
NHWD	kg	3.00E+0	7.02E-1	2.80E-2	3.73E+0	4.30E-1	2.53E+0	1.72E+0	-1.33E+0	7.09E+0
RWD	kg	1.49E-3	7.26E-5	3.49E-5	1.59E-3	4.72E-5	2.56E-4	2.45E-6	-7.07E-4	1.19E-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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