Environmental Profile

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

Ecochain v3.5.80

Product:	3000697 - PVC Pipe BR BENOR 250x4.9 SN2 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	5.86	0.15	0.26	6.28	0.09	2.12	0.01	-2.93	5.57
ADPE	kg Sb-eq	1.65E-3	3.25E-5	4.78E-5	1.73E-3	2.05E-5	1.71E-4	2.15E-7	-6.20E-4	1.30E-3
ADPF	kg Sb-eq	6.54E-1	9.35E-3	1.28E-2	6.76E-1	5.76E-3	6.03E-2	3.03E-4	-3.47E-1	3.96E-1
GWP	kg CO2-eq	5.27E+1	1.27E+0	2.28E+0	5.63E+1	7.85E-1	2.04E+1	1.93E-1	-2.92E+1	4.85E+1
ODP	kg CFC-11-eq	3.08E-5	2.26E-7	2.14E-7	3.12E-5	1.46E-7	2.44E-6	7.28E-9	-1.53E-5	1.85E-5
POCP	kg ethene-eq	3.25E-2	7.67E-4	1.00E-3	3.43E-2	4.71E-4	4.73E-3	5.12E-5	-1.49E-2	2.47E-2
AP	kg SO2-eq	2.04E-1	5.59E-3	8.95E-3	2.19E-1	3.38E-3	3.46E-2	1.62E-4	-9.51E-2	1.62E-1
EP	kg PO4 3−-eq	2.43E-2	1.10E-3	1.41E-3	2.68E-2	6.75E-4	5.24E-3	6.30E-5	-1.15E-2	2.13E-2
HTP	kg 1,4-DB-eq	2.08E+1	5.35E-1	8.61E-1	2.22E+1	3.36E-1	9.30E+0	1.66E-2	-9.25E+0	2.26E+1
FAETP	kg 1,4-DB-eq	4.48E-1	1.56E-2	3.50E-2	4.99E-1	9.83E-3	1.37E-1	4.91E-3	-2.02E-1	4.48E-1
MAETP	kg 1,4-DB-eq	1.31E+3	5.62E+1	1.43E+2	1.51E+3	3.51E+1	4.53E+2	6.03E+0	-5.96E+2	1.41E+3
TETP	kg 1,4-DB-eq	1.43E-1	1.89E-3	5.35E-2	1.98E-1	1.19E-3	3.32E-2	5.52E-5	-6.74E-2	1.65E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.22E+1	1.28E+0	2.69E+0	5.62E+1	7.92E-1	2.30E+1	2.25E-1	-3.01E+1	5.00E+1
GWP-f	kg CO2 eq	5.41E+1	1.28E+0	2.10E+0	5.75E+1	7.91E-1	2.06E+1	2.25E-1	-2.99E+1	4.92E+1
GWP-b	kg CO2 eq	-1.92E+0	5.92E-4	4.55E-1	-1.47E+0	4.80E-4	2.33E+0	2.88E-4	-2.10E-1	6.57E-1
GWP-luluc	kg CO2 eq	4.31E-2	4.70E-4	1.28E-1	1.72E-1	2.80E-4	9.35E-3	6.07E-6	-1.98E-2	1.62E-1
ODP	kg CFC11 eq	3.04E-5	2.83E-7	2.54E-7	3.09E-5	1.82E-7	2.51E-6	9.04E-9	-1.51E-5	1.85E-5
AP	mol H+ eq	2.46E-1	7.44E-3	1.15E-2	2.65E-1	4.51E-3	4.34E-2	2.17E-4	-1.15E-1	1.98E-1
EP-fw	kg P eq	2.39E-3	1.29E-5	3.01E-5	2.43E-3	6.51E-6	3.11E-4	2.74E-7	-1.11E-3	1.64E-3
EP-m	kg N eq	4.13E-2	2.62E-3	3.38E-3	4.73E-2	1.61E-3	1.06E-2	1.33E-4	-2.00E-2	3.96E-2
EP-T	mol N eq	4.47E-1	2.89E-2	3.63E-2	5.12E-1	1.78E-2	1.16E-1	8.67E-4	-2.14E-1	4.33E-1
POCP	kg NMVOC eq	1.55E-1	8.25E-3	1.02E-2	1.73E-1	5.08E-3	3.49E-2	2.95E-4	-7.34E-2	1.40E-1
ADP-mm	kg Sb eq	1.65E-3	3.25E-5	4.78E-5	1.73E-3	2.05E-5	1.71E-4	2.15E-7	-6.20E-4	1.30E-3
ADP-f	MJ	1.39E+3	1.93E+1	2.43E+1	1.43E+3	1.21E+1	1.19E+2	6.56E-1	-7.27E+2	8.39E+2
WDP	m3 depriv.	9.09E+1	6.92E-2	1.65E+1	1.07E+2	3.73E-2	4.65E+0	3.78E-3	-4.33E+1	6.88E+1
PM	disease inc.	1.74E-6	1.15E-7	1.78E-7	2.03E-6	7.14E-8	5.44E-7	4.49E-9	-7.39E-7	1.91E-6
IR	kBq U-235 eq	2.96E+0	8.10E-2	4.39E-2	3.08E+0	5.31E-2	4.17E-1	3.01E-3	-1.40E+0	2.16E+0
ETP-fw	CTUe	9.36E+2	1.72E+1	4.06E+1	9.93E+2	9.86E+0	8.92E+2	9.83E+0	-4.29E+2	1.48E+3
HTP-c	CTUh	3.69E-8	5.59E-10	1.39E-9	3.89E-8	3.51E-10	1.31E-8	1.72E-11	-1.60E-8	3.63E-8
HTP-nc	CTUh	1.17E-6	1.89E-8	4.24E-8	1.23E-6	1.18E-8	3.14E-7	1.89E-9	-5.53E-7	1.01E-6
SQP	Pt	3.84E+2	1.68E+1	1.82E+0	4.03E+2	1.04E+1	7.46E+1	1.66E+0	-1.23E+2	3.67E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.86E+1	2.42E-1	7.34E+1	1.72E+2	1.74E-1	8.55E+0	2.37E-2	-4.07E+1	1.40E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.86E+1	2.42E-1	7.34E+1	1.72E+2	1.74E-1	8.55E+0	2.37E-2	-4.07E+1	1.40E+2
PENRE	MJ	1.49E+3	2.05E+1	2.64E+1	1.54E+3	1.29E+1	1.27E+2	6.96E-1	-7.83E+2	8.95E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.49E+3	2.05E+1	2.64E+1	1.54E+3	1.29E+1	1.27E+2	6.96E-1	-7.83E+2	8.95E+2
PET	MJ	1.59E+3	2.08E+1	9.98E+1	1.71E+3	1.31E+1	1.36E+2	7.19E-1	-8.24E+2	1.04E+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	9.74E-1	2.36E-3	3.88E-1	1.36E+0	1.37E-3	1.28E-1	8.03E-4	-4.53E-1	1.04E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.10E-3	4.90E-5	3.41E-5	1.19E-3	3.11E-5	1.92E-4	7.91E-7	-6.05E-4	8.05E-4
NHWD	kg	5.25E+0	1.23E+0	4.92E-2	6.53E+0	7.53E-1	4.43E+0	3.02E+0	-2.32E+0	1.24E+1
RWD	kg	2.61E-3	1.27E-4	6.12E-5	2.80E-3	8.26E-5	4.48E-4	4.28E-6	-1.24E-3	2.10E-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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