Environmental Profile

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

Ecochain v3.5.80

Product:	3000566 - PVC Pipe BR BENOR 315x7.7 SN4 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	7.03	0.18	0.31	7.52	0.11	2.53	0.02	-3.49	6.69
ADPE	kg Sb-eq	2.01E-3	3.87E-5	5.62E-5	2.10E-3	2.41E-5	2.02E-4	2.54E-7	-7.33E-4	1.60E-3
ADPF	kg Sb-eq	7.83E-1	1.11E-2	1.51E-2	8.09E-1	6.79E-3	7.12E-2	3.58E-4	-4.12E-1	4.75E-1
GWP	kg CO2-eq	6.32E+1	1.52E+0	2.68E+0	6.74E+1	9.26E-1	2.47E+1	2.28E-1	-3.48E+1	5.84E+1
ODP	kg CFC-11-eq	3.63E-5	2.69E-7	2.51E-7	3.69E-5	1.72E-7	2.88E-6	8.59E-9	-1.80E-5	2.19E-5
POCP	kg ethene-eq	3.94E-2	9.15E-4	1.18E-3	4.15E-2	5.55E-4	5.61E-3	6.05E-5	-1.77E-2	3.01E-2
AP	kg SO2-eq	2.45E-1	6.66E-3	1.05E-2	2.63E-1	3.98E-3	4.10E-2	1.91E-4	-1.13E-1	1.95E-1
EP	kg PO4 3−-eq	2.94E-2	1.31E-3	1.66E-3	3.23E-2	7.95E-4	6.23E-3	7.46E-5	-1.38E-2	2.57E-2
HTP	kg 1,4-DB-eq	2.48E+1	6.38E-1	1.01E+0	2.65E+1	3.96E-1	1.10E+1	1.96E-2	-1.10E+1	2.69E+1
FAETP	kg 1,4-DB-eq	5.38E-1	1.86E-2	4.11E-2	5.97E-1	1.16E-2	1.64E-1	5.79E-3	-2.40E-1	5.39E-1
MAETP	kg 1,4-DB-eq	1.57E+3	6.70E+1	1.68E+2	1.81E+3	4.14E+1	5.39E+2	7.11E+0	-7.06E+2	1.69E+3
TETP	kg 1,4-DB-eq	1.70E-1	2.26E-3	6.27E-2	2.35E-1	1.40E-3	3.92E-2	6.51E-5	-7.98E-2	1.96E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	6.03E+1	1.53E+0	3.15E+0	6.50E+1	9.34E-1	3.00E+1	2.65E-1	-3.59E+1	6.02E+1
GWP-f	kg CO2 eq	6.48E+1	1.53E+0	2.47E+0	6.88E+1	9.33E-1	2.49E+1	2.65E-1	-3.56E+1	5.93E+1
GWP-b	kg CO2 eq	-4.56E+0	7.06E-4	5.34E-1	-4.03E+0	5.67E-4	5.03E+0	3.40E-4	-2.47E-1	7.53E-1
GWP-luluc	kg CO2 eq	5.28E-2	5.60E-4	1.50E-1	2.04E-1	3.30E-4	1.10E-2	7.17E-6	-2.37E-2	1.91E-1
ODP	kg CFC11 eq	3.59E-5	3.37E-7	2.98E-7	3.65E-5	2.15E-7	2.97E-6	1.07E-8	-1.78E-5	2.19E-5
AP	mol H+ eq	2.96E-1	8.87E-3	1.35E-2	3.18E-1	5.31E-3	5.15E-2	2.56E-4	-1.37E-1	2.39E-1
EP-fw	kg P eq	2.86E-3	1.54E-5	3.53E-5	2.91E-3	7.68E-6	3.67E-4	3.23E-7	-1.32E-3	1.97E-3
EP-m	kg N eq	5.00E-2	3.12E-3	3.97E-3	5.71E-2	1.90E-3	1.26E-2	1.58E-4	-2.39E-2	4.78E-2
EP-T	mol N eq	5.43E-1	3.44E-2	4.25E-2	6.20E-1	2.10E-2	1.39E-1	1.02E-3	-2.58E-1	5.23E-1
POCP	kg NMVOC eq	1.88E-1	9.83E-3	1.20E-2	2.10E-1	5.99E-3	4.16E-2	3.48E-4	-8.78E-2	1.70E-1
ADP-mm	kg Sb eq	2.01E-3	3.87E-5	5.62E-5	2.10E-3	2.41E-5	2.02E-4	2.54E-7	-7.33E-4	1.60E-3
ADP-f	MJ	1.66E+3	2.31E+1	2.86E+1	1.71E+3	1.43E+1	1.41E+2	7.74E-1	-8.64E+2	1.01E+3
WDP	m3 depriv.	1.08E+2	8.25E-2	1.93E+1	1.27E+2	4.40E-2	5.48E+0	4.46E-3	-5.11E+1	8.16E+1
PM	disease inc.	2.20E-6	1.37E-7	2.09E-7	2.54E-6	8.42E-8	6.44E-7	5.30E-9	-8.90E-7	2.39E-6
IR	kBq U-235 eq	3.54E+0	9.66E-2	5.16E-2	3.69E+0	6.26E-2	4.93E-1	3.55E-3	-1.66E+0	2.59E+0
ETP-fw	CTUe	1.12E+3	2.06E+1	4.77E+1	1.19E+3	1.16E+1	1.05E+3	1.16E+1	-5.16E+2	1.75E+3
HTP-c	CTUh	4.47E-8	6.67E-10	1.63E-9	4.70E-8	4.14E-10	1.56E-8	2.03E-11	-1.90E-8	4.40E-8
HTP-nc	CTUh	1.40E-6	2.25E-8	4.97E-8	1.47E-6	1.39E-8	3.72E-7	2.23E-9	-6.57E-7	1.20E-6
SQP	Pt	6.64E+2	2.00E+1	2.14E+0	6.86E+2	1.23E+1	8.82E+1	1.96E+0	-1.89E+2	5.99E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.48E+2	2.89E-1	8.62E+1	2.35E+2	2.05E-1	1.01E+1	2.79E-2	-5.69E+1	1.88E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.48E+2	2.89E-1	8.62E+1	2.35E+2	2.05E-1	1.01E+1	2.79E-2	-5.69E+1	1.88E+2
PENRE	MJ	1.78E+3	2.45E+1	3.10E+1	1.84E+3	1.52E+1	1.50E+2	8.21E-1	-9.31E+2	1.07E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.78E+3	2.45E+1	3.10E+1	1.84E+3	1.52E+1	1.50E+2	8.21E-1	-9.31E+2	1.07E+3
PET	MJ	1.93E+3	2.48E+1	1.17E+2	2.07E+3	1.54E+1	1.60E+2	8.49E-1	-9.87E+2	1.26E+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	1.17E+0	2.81E-3	4.55E-1	1.62E+0	1.62E-3	1.51E-1	9.48E-4	-5.35E-1	1.24E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.32E-3	5.84E-5	4.00E-5	1.42E-3	3.66E-5	2.28E-4	9.33E-7	-7.22E-4	9.63E-4
NHWD	kg	6.35E+0	1.46E+0	5.77E-2	7.87E+0	8.88E-1	5.29E+0	3.56E+0	-2.76E+0	1.49E+1
RWD	kg	3.14E-3	1.51E-4	7.19E-5	3.36E-3	9.74E-5	5.29E-4	5.05E-6	-1.46E-3	2.53E-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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