Environmental Profile

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

Ecochain v3.5.80

Product:	3000683 - PVC Pipe GY BENOR 315x6.2 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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	9.33	0.24	0.42	9.99	0.15	3.36	0.02	-4.66	8.85
ADPE	kg Sb-eq	2.60E-3	5.18E-5	7.60E-5	2.73E-3	3.25E-5	2.72E-4	3.41E-7	-9.83E-4	2.05E-3
ADPF	kg Sb-eq	1.04E+0	1.49E-2	2.04E-2	1.07E+0	9.14E-3	9.58E-2	4.81E-4	-5.50E-1	6.29E-1
GWP	kg CO2-eq	8.38E+1	2.03E+0	3.62E+0	8.95E+1	1.25E+0	3.24E+1	3.06E-1	-4.64E+1	7.70E+1
ODP	kg CFC-11-eq	4.89E-5	3.59E-7	3.40E-7	4.96E-5	2.31E-7	3.87E-6	1.15E-8	-2.42E-5	2.95E-5
POCP	kg ethene-eq	5.18E-2	1.22E-3	1.59E-3	5.46E-2	7.47E-4	7.52E-3	8.12E-5	-2.36E-2	3.93E-2
AP	kg SO2-eq	3.25E-1	8.91E-3	1.42E-2	3.48E-1	5.36E-3	5.50E-2	2.57E-4	-1.51E-1	2.57E-1
EP	kg PO4 3−-eq	3.88E-2	1.75E-3	2.24E-3	4.28E-2	1.07E-3	8.34E-3	1.00E-4	-1.83E-2	3.39E-2
HTP	kg 1,4-DB-eq	3.30E+1	8.53E-1	1.37E+0	3.52E+1	5.33E-1	1.48E+1	2.64E-2	-1.47E+1	3.59E+1
FAETP	kg 1,4-DB-eq	7.12E-1	2.49E-2	5.56E-2	7.93E-1	1.56E-2	2.17E-1	7.79E-3	-3.22E-1	7.12E-1
MAETP	kg 1,4-DB-eq	2.08E+3	8.96E+1	2.27E+2	2.40E+3	5.57E+1	7.19E+2	9.56E+0	-9.47E+2	2.24E+3
TETP	kg 1,4-DB-eq	2.27E-1	3.01E-3	8.49E-2	3.15E-1	1.89E-3	5.27E-2	8.75E-5	-1.07E-1	2.62E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	8.16E+1	2.04E+0	4.26E+0	8.80E+1	1.26E+0	3.77E+1	3.56E-1	-4.78E+1	7.95E+1
GWP-f	kg CO2 eq	8.60E+1	2.04E+0	3.34E+0	9.13E+1	1.26E+0	3.27E+1	3.56E-1	-4.75E+1	7.82E+1
GWP-b	kg CO2 eq	-4.37E+0	9.43E-4	7.22E-1	-3.65E+0	7.62E-4	5.02E+0	4.58E-4	-3.33E-1	1.04E+0
GWP-luluc	kg CO2 eq	6.92E-2	7.48E-4	2.04E-1	2.74E-1	4.44E-4	1.48E-2	9.62E-6	-3.16E-2	2.57E-1
ODP	kg CFC11 eq	4.82E-5	4.51E-7	4.03E-7	4.91E-5	2.89E-7	3.99E-6	1.43E-8	-2.40E-5	2.94E-5
AP	mol H+ eq	3.91E-1	1.18E-2	1.82E-2	4.21E-1	7.15E-3	6.90E-2	3.44E-4	-1.83E-1	3.15E-1
EP-fw	kg P eq	3.80E-3	2.06E-5	4.78E-5	3.87E-3	1.03E-5	4.94E-4	4.34E-7	-1.77E-3	2.61E-3
EP-m	kg N eq	6.59E-2	4.17E-3	5.37E-3	7.54E-2	2.56E-3	1.68E-2	2.12E-4	-3.18E-2	6.31E-2
EP-T	mol N eq	7.14E-1	4.60E-2	5.76E-2	8.18E-1	2.82E-2	1.85E-1	1.38E-3	-3.42E-1	6.90E-1
POCP	kg NMVOC eq	2.47E-1	1.31E-2	1.63E-2	2.76E-1	8.06E-3	5.56E-2	4.68E-4	-1.17E-1	2.24E-1
ADP-mm	kg Sb eq	2.60E-3	5.18E-5	7.60E-5	2.73E-3	3.25E-5	2.72E-4	3.41E-7	-9.83E-4	2.05E-3
ADP-f	MJ	2.21E+3	3.08E+1	3.87E+1	2.28E+3	1.93E+1	1.90E+2	1.04E+0	-1.15E+3	1.33E+3
WDP	m3 depriv.	1.44E+2	1.10E-1	2.61E+1	1.71E+2	5.91E-2	7.38E+0	5.98E-3	-6.87E+1	1.09E+2
PM	disease inc.	2.82E-6	1.83E-7	2.83E-7	3.29E-6	1.13E-7	8.65E-7	7.13E-9	-1.18E-6	3.09E-6
IR	kBq U-235 eq	4.71E+0	1.29E-1	6.98E-2	4.91E+0	8.42E-2	6.62E-1	4.77E-3	-2.23E+0	3.44E+0
ETP-fw	CTUe	1.49E+3	2.75E+1	6.45E+1	1.58E+3	1.56E+1	1.42E+3	1.56E+1	-6.87E+2	2.34E+3
HTP-c	CTUh	5.91E-8	8.91E-10	2.20E-9	6.22E-8	5.57E-10	2.08E-8	2.72E-11	-2.55E-8	5.81E-8
HTP-nc	CTUh	1.87E-6	3.00E-8	6.73E-8	1.96E-6	1.87E-8	5.00E-7	3.00E-9	-8.80E-7	1.60E-6
SQP	Pt	7.30E+2	2.67E+1	2.89E+0	7.59E+2	1.65E+1	1.19E+2	2.64E+0	-2.21E+2	6.76E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.74E+2	3.86E-1	1.17E+2	2.91E+2	2.76E-1	1.36E+1	3.75E-2	-6.97E+1	2.36E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.74E+2	3.86E-1	1.17E+2	2.91E+2	2.76E-1	1.36E+1	3.75E-2	-6.97E+1	2.36E+2
PENRE	MJ	2.37E+3	3.27E+1	4.19E+1	2.44E+3	2.05E+1	2.02E+2	1.10E+0	-1.24E+3	1.42E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.37E+3	3.27E+1	4.19E+1	2.44E+3	2.05E+1	2.02E+2	1.10E+0	-1.24E+3	1.42E+3
PET	MJ	2.54E+3	3.31E+1	1.58E+2	2.74E+3	2.07E+1	2.15E+2	1.14E+0	-1.31E+3	1.66E+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	1.55E+0	3.75E-3	6.16E-1	2.17E+0	2.18E-3	2.03E-1	1.27E-3	-7.19E-1	1.65E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.76E-3	7.81E-5	5.41E-5	1.89E-3	4.93E-5	3.06E-4	1.25E-6	-9.61E-4	1.29E-3
NHWD	kg	8.39E+0	1.95E+0	7.81E-2	1.04E+1	1.19E+0	7.05E+0	4.79E+0	-3.70E+0	1.98E+1
RWD	kg	4.16E-3	2.02E-4	9.72E-5	4.46E-3	1.31E-4	7.11E-4	6.79E-6	-1.96E-3	3.34E-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