Environmental Profile

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

Ecochain v3.5.80

Product:	3000341 - PVC Pipe GY BENOR 125x3.7 SN8 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

This document and supporting material contain confidential and proprietary business information of Wavin - NL - Hardenberg - Verified. These materials may be printed or (photo) copied or otherwise used only with the written consent of Wavin - NL - Hardenberg - Verified.

Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	2.19	0.06	0.1	2.34	0.04	0.79	0	-1.1	2.07
ADPE	kg Sb-eq	5.78E-4	1.22E-5	1.80E-5	6.08E-4	7.67E-6	6.43E-5	8.05E-8	-2.31E-4	4.48E-4
ADPF	kg Sb-eq	2.44E-1	3.50E-3	4.82E-3	2.52E-1	2.16E-3	2.26E-2	1.14E-4	-1.30E-1	1.47E-1
GWP	kg CO2-eq	1.97E+1	4.76E-1	8.57E-1	2.10E+1	2.94E-1	7.58E+0	7.20E-2	-1.09E+1	1.80E+1
ODP	kg CFC-11-eq	1.15E-5	8.44E-8	8.05E-8	1.17E-5	5.46E-8	9.16E-7	2.72E-9	-5.72E-6	6.95E-6
POCP	kg ethene-eq	1.21E-2	2.87E-4	3.77E-4	1.27E-2	1.77E-4	1.77E-3	1.91E-5	-5.56E-3	9.13E-3
AP	kg SO2-eq	7.59E-2	2.09E-3	3.36E-3	8.14E-2	1.27E-3	1.30E-2	6.06E-5	-3.56E-2	6.01E-2
EP	kg PO4 3−-eq	9.03E-3	4.11E-4	5.31E-4	9.97E-3	2.53E-4	1.96E-3	2.34E-5	-4.29E-3	7.92E-3
HTP	kg 1,4-DB-eq	7.74E+0	2.00E-1	3.23E-1	8.26E+0	1.26E-1	3.49E+0	6.22E-3	-3.47E+0	8.42E+0
FAETP	kg 1,4-DB-eq	1.67E-1	5.85E-3	1.32E-2	1.86E-1	3.69E-3	5.14E-2	1.84E-3	-7.59E-2	1.67E-1
MAETP	kg 1,4-DB-eq	4.86E+2	2.10E+1	5.37E+1	5.61E+2	1.32E+1	1.70E+2	2.25E+0	-2.24E+2	5.23E+2
TETP	kg 1,4-DB-eq	5.33E-2	7.08E-4	2.01E-2	7.41E-2	4.46E-4	1.25E-2	2.06E-5	-2.53E-2	6.18E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.96E+1	4.80E-1	1.01E+0	2.11E+1	2.97E-1	8.33E+0	8.39E-2	-1.13E+1	1.86E+1
GWP-f	kg CO2 eq	2.02E+1	4.80E-1	7.90E-1	2.14E+1	2.97E-1	7.64E+0	8.39E-2	-1.12E+1	1.83E+1
GWP-b	kg CO2 eq	-5.34E-1	2.22E-4	1.71E-1	-3.63E-1	1.80E-4	6.90E-1	1.08E-4	-7.87E-2	2.49E-1
GWP-luluc	kg CO2 eq	1.60E-2	1.76E-4	4.82E-2	6.43E-2	1.05E-4	3.51E-3	2.27E-6	-7.41E-3	6.06E-2
ODP	kg CFC11 eq	1.14E-5	1.06E-7	9.55E-8	1.16E-5	6.84E-8	9.44E-7	3.38E-9	-5.66E-6	6.93E-6
AP	mol H+ eq	9.15E-2	2.78E-3	4.31E-3	9.86E-2	1.69E-3	1.63E-2	8.11E-5	-4.30E-2	7.36E-2
EP-fw	kg P eq	8.92E-4	4.84E-6	1.13E-5	9.08E-4	2.44E-6	1.17E-4	1.02E-7	-4.17E-4	6.10E-4
EP-m	kg N eq	1.53E-2	9.81E-4	1.27E-3	1.76E-2	6.05E-4	3.95E-3	4.96E-5	-7.46E-3	1.47E-2
EP-T	mol N eq	1.66E-1	1.08E-2	1.36E-2	1.90E-1	6.66E-3	4.36E-2	3.24E-4	-7.98E-2	1.61E-1
POCP	kg NMVOC eq	5.75E-2	3.09E-3	3.85E-3	6.44E-2	1.90E-3	1.31E-2	1.10E-4	-2.75E-2	5.21E-2
ADP-mm	kg Sb eq	5.78E-4	1.22E-5	1.80E-5	6.08E-4	7.67E-6	6.43E-5	8.05E-8	-2.31E-4	4.48E-4
ADP-f	MJ	5.19E+2	7.24E+0	9.15E+0	5.35E+2	4.55E+0	4.48E+1	2.45E-1	-2.72E+2	3.12E+2
WDP	m3 depriv.	3.40E+1	2.59E-2	6.19E+0	4.03E+1	1.40E-2	1.74E+0	1.41E-3	-1.63E+1	2.58E+1
PM	disease inc.	6.35E-7	4.31E-8	6.69E-8	7.45E-7	2.68E-8	2.04E-7	1.68E-9	-2.76E-7	7.02E-7
IR	kBq U-235 eq	1.10E+0	3.03E-2	1.65E-2	1.15E+0	1.99E-2	1.57E-1	1.13E-3	-5.26E-1	8.00E-1
ETP-fw	CTUe	3.48E+2	6.45E+0	1.53E+1	3.70E+2	3.70E+0	3.35E+2	3.69E+0	-1.60E+2	5.52E+2
HTP-c	CTUh	1.37E-8	2.09E-10	5.20E-10	1.45E-8	1.32E-10	4.89E-9	6.42E-12	-6.00E-9	1.35E-8
HTP-nc	CTUh	4.38E-7	7.06E-9	1.59E-8	4.61E-7	4.41E-9	1.18E-7	7.09E-10	-2.07E-7	3.77E-7
SQP	Pt	1.27E+2	6.28E+0	6.84E-1	1.34E+2	3.90E+0	2.80E+1	6.23E-1	-4.25E+1	1.24E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.44E+1	9.06E-2	2.76E+1	6.21E+1	6.53E-2	3.21E+0	8.85E-3	-1.45E+1	5.08E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.44E+1	9.06E-2	2.76E+1	6.21E+1	6.53E-2	3.21E+0	8.85E-3	-1.45E+1	5.08E+1
PENRE	MJ	5.57E+2	7.68E+0	9.91E+0	5.74E+2	4.83E+0	4.77E+1	2.60E-1	-2.93E+2	3.34E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.57E+2	7.68E+0	9.91E+0	5.74E+2	4.83E+0	4.77E+1	2.60E-1	-2.93E+2	3.34E+2
PET	MJ	5.91E+2	7.77E+0	3.75E+1	6.36E+2	4.90E+0	5.09E+1	2.69E-1	-3.08E+2	3.84E+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	3.64E-1	8.81E-4	1.46E-1	5.10E-1	5.15E-4	4.78E-2	3.01E-4	-1.70E-1	3.89E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.11E-4	1.83E-5	1.28E-5	4.42E-4	1.16E-5	7.22E-5	2.96E-7	-2.26E-4	3.00E-4
NHWD	kg	1.95E+0	4.59E-1	1.85E-2	2.43E+0	2.82E-1	1.66E+0	1.13E+0	-8.71E-1	4.63E+0
RWD	kg	9.67E-4	4.75E-5	2.30E-5	1.04E-3	3.10E-5	1.68E-4	1.60E-6	-4.63E-4	7.75E-4
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

Ecochain

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777