Environmental Profile

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

Ecochain v3.5.80

Product:	3082331 - PVC Pipe DGR KOMO 400x12.3 PN8 L=10 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	48.01	0.88	1.99	50.87	0.71	16.34	0.11	-23.87	44.15
ADPE	kg Sb-eq	3.56E-1	1.86E-4	3.62E-4	3.56E-1	1.54E-4	1.33E-3	1.69E-6	-5.02E-3	3.53E-1
ADPF	kg Sb-eq	5.20E+0	5.34E-2	9.70E-2	5.35E+0	4.33E-2	4.66E-1	2.35E-3	-2.82E+0	3.04E+0
GWP	kg CO2-eq	4.27E+2	7.26E+0	1.72E+1	4.51E+2	5.90E+0	1.59E+2	1.56E+0	-2.37E+2	3.80E+2
ODP	kg CFC-11-eq	2.48E-4	1.29E-6	1.62E-6	2.50E-4	1.09E-6	1.94E-5	5.60E-8	-1.25E-4	1.47E-4
POCP	kg ethene-eq	2.53E-1	4.38E-3	7.59E-3	2.65E-1	3.54E-3	3.63E-2	4.09E-4	-1.21E-1	1.84E-1
AP	kg SO2-eq	1.71E+0	3.19E-2	6.76E-2	1.81E+0	2.54E-2	2.70E-1	1.26E-3	-7.77E-1	1.33E+0
EP	kg PO4 3−-eq	2.07E-1	6.27E-3	1.07E-2	2.24E-1	5.07E-3	4.07E-2	4.92E-4	-9.40E-2	1.76E-1
HTP	kg 1,4-DB-eq	1.69E+2	3.06E+0	6.51E+0	1.79E+2	2.52E+0	7.12E+1	1.31E-1	-7.56E+1	1.77E+2
FAETP	kg 1,4-DB-eq	4.31E+0	8.93E-2	2.65E-1	4.66E+0	7.39E-2	1.06E+0	4.00E-2	-1.66E+0	4.19E+0
MAETP	kg 1,4-DB-eq	1.16E+4	3.21E+2	1.08E+3	1.30E+4	2.64E+2	3.55E+3	4.90E+1	-4.87E+3	1.20E+4
TETP	kg 1,4-DB-eq	1.20E+0	1.08E-2	4.04E-1	1.61E+0	8.94E-3	2.56E-1	4.40E-4	-5.51E-1	1.33E+0
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	4.16E+2	7.33E+0	2.03E+1	4.43E+2	5.95E+0	1.86E+2	1.82E+0	-2.44E+2	3.92E+2
GWP-f	kg CO2 eq	4.37E+2	7.32E+0	1.59E+1	4.60E+2	5.95E+0	1.60E+2	1.82E+0	-2.43E+2	3.85E+2
GWP-b	kg CO2 eq	-2.17E+1	3.38E-3	3.44E+0	-1.82E+1	3.61E-3	2.55E+1	2.31E-3	-1.71E+0	5.60E+0
GWP-luluc	kg CO2 eq	3.90E-1	2.68E-3	9.69E-1	1.36E+0	2.10E-3	7.30E-2	4.85E-5	-1.62E-1	1.28E+0
ODP	kg CFC11 eq	2.44E-4	1.62E-6	1.92E-6	2.48E-4	1.37E-6	1.99E-5	6.96E-8	-1.23E-4	1.46E-4
AP	mol H+ eq	2.06E+0	4.25E-2	8.67E-2	2.19E+0	3.39E-2	3.38E-1	1.69E-3	-9.37E-1	1.63E+0
EP-fw	kg P eq	2.04E-2	7.39E-5	2.27E-4	2.07E-2	4.89E-5	2.44E-3	2.19E-6	-9.08E-3	1.42E-2
EP-m	kg N eq	3.53E-1	1.50E-2	2.56E-2	3.94E-1	1.21E-2	8.19E-2	1.04E-3	-1.63E-1	3.26E-1
EP-T	mol N eq	3.86E+0	1.65E-1	2.74E-1	4.30E+0	1.34E-1	9.03E-1	6.73E-3	-1.75E+0	3.59E+0
POCP	kg NMVOC eq	1.28E+0	4.71E-2	7.74E-2	1.41E+0	3.82E-2	2.70E-1	2.31E-3	-6.00E-1	1.12E+0
ADP-mm	kg Sb eq	3.56E-1	1.86E-4	3.62E-4	3.56E-1	1.54E-4	1.33E-3	1.69E-6	-5.02E-3	3.53E-1
ADP-f	MJ	1.11E+4	1.10E+2	1.84E+2	1.14E+4	9.13E+1	9.22E+2	5.07E+0	-5.91E+3	6.47E+3
WDP	m3 depriv.	7.39E+2	3.95E-1	1.24E+2	8.64E+2	2.80E-1	3.67E+1	3.29E-2	-3.54E+2	5.47E+2
PM	disease inc.	1.43E-5	6.58E-7	1.35E-6	1.63E-5	5.37E-7	4.18E-6	3.49E-8	-6.06E-6	1.50E-5
IR	kBq U-235 eq	2.48E+1	4.63E-1	3.32E-1	2.56E+1	3.99E-1	3.24E+0	2.33E-2	-1.14E+1	1.78E+1
ETP-fw	CTUe	1.04E+4	9.85E+1	3.07E+2	1.08E+4	7.41E+1	7.14E+3	7.90E+1	-3.51E+3	1.46E+4
HTP-c	CTUh	3.61E-7	3.19E-9	1.05E-8	3.74E-7	2.64E-9	1.03E-7	1.39E-10	-1.31E-7	3.50E-7
HTP-nc	CTUh	1.16E-5	1.08E-7	3.21E-7	1.20E-5	8.84E-8	2.48E-6	1.52E-8	-4.53E-6	1.01E-5
SQP	Pt	3.79E+3	9.58E+1	1.38E+1	3.90E+3	7.81E+1	5.68E+2	1.29E+1	-1.13E+3	3.43E+3

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.06E+2	1.38E+0	5.55E+2	1.46E+3	1.31E+0	6.69E+1	1.87E-1	-3.57E+2	1.17E+3
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.06E+2	1.38E+0	5.55E+2	1.46E+3	1.31E+0	6.69E+1	1.87E-1	-3.57E+2	1.17E+3
PENRE	MJ	1.19E+4	1.17E+2	1.99E+2	1.22E+4	9.69E+1	9.80E+2	5.38E+0	-6.37E+3	6.91E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.19E+4	1.17E+2	1.99E+2	1.22E+4	9.69E+1	9.80E+2	5.38E+0	-6.37E+3	6.91E+3
PET	MJ	1.28E+4	1.19E+2	7.55E+2	1.37E+4	9.82E+1	1.05E+3	5.57E+0	-6.72E+3	8.08E+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	8.09E+0	1.35E-2	2.93E+0	1.10E+1	1.03E-2	1.00E+0	6.21E-3	-3.69E+0	8.37E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.25E-2	2.80E-4	2.58E-4	5.30E-2	2.33E-4	1.49E-3	6.17E-6	-4.91E-3	4.99E-2
NHWD	kg	4.42E+1	7.01E+0	3.72E-1	5.16E+1	5.66E+0	3.38E+1	2.26E+1	-1.90E+1	9.46E+1
RWD	kg	2.15E-2	7.25E-4	4.63E-4	2.27E-2	6.21E-4	3.45E-3	3.30E-5	-1.01E-2	1.67E-2
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