Environmental Profile

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

Ecochain v3.5.80

Product:	3000699 - PVC Pipe BR BENOR 315x6.2 SN2 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

Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	5.7	0.15	0.25	6.1	0.09	2.04	0.01	-2.83	5.41
ADPE	kg Sb-eq	1.68E-3	3.15E-5	4.56E-5	1.76E-3	1.96E-5	1.64E-4	2.06E-7	-5.97E-4	1.34E-3
ADPF	kg Sb-eq	6.32E-1	9.07E-3	1.22E-2	6.53E-1	5.52E-3	5.78E-2	2.91E-4	-3.33E-1	3.84E-1
GWP	kg CO2-eq	5.11E+1	1.23E+0	2.17E+0	5.45E+1	7.52E-1	1.98E+1	1.85E-1	-2.81E+1	4.72E+1
ODP	kg CFC-11-eq	2.95E-5	2.19E-7	2.04E-7	3.00E-5	1.39E-7	2.34E-6	6.98E-9	-1.46E-5	1.78E-5
POCP	kg ethene-eq	3.19E-2	7.44E-4	9.57E-4	3.36E-2	4.51E-4	4.56E-3	4.92E-5	-1.44E-2	2.43E-2
AP	kg SO2-eq	1.99E-1	5.43E-3	8.52E-3	2.13E-1	3.24E-3	3.33E-2	1.55E-4	-9.19E-2	1.58E-1
EP	kg PO4 3−-eq	2.39E-2	1.07E-3	1.35E-3	2.63E-2	6.46E-4	5.07E-3	6.09E-5	-1.12E-2	2.08E-2
HTP	kg 1,4-DB-eq	2.02E+1	5.19E-1	8.20E-1	2.15E+1	3.22E-1	8.92E+0	1.59E-2	-8.92E+0	2.19E+1
FAETP	kg 1,4-DB-eq	4.37E-1	1.52E-2	3.34E-2	4.85E-1	9.42E-3	1.31E-1	4.71E-3	-1.95E-1	4.36E-1
MAETP	kg 1,4-DB-eq	1.28E+3	5.46E+1	1.36E+2	1.47E+3	3.36E+1	4.34E+2	5.78E+0	-5.73E+2	1.37E+3
TETP	kg 1,4-DB-eq	1.38E-1	1.84E-3	5.09E-2	1.91E-1	1.14E-3	3.18E-2	5.30E-5	-6.49E-2	1.59E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	4.78E+1	1.25E+0	2.56E+0	5.16E+1	7.59E-1	2.50E+1	2.16E-1	-2.90E+1	4.86E+1
GWP-f	kg CO2 eq	5.24E+1	1.24E+0	2.00E+0	5.57E+1	7.58E-1	2.00E+1	2.16E-1	-2.88E+1	4.78E+1
GWP-b	kg CO2 eq	-4.65E+0	5.74E-4	4.33E-1	-4.21E+0	4.60E-4	5.03E+0	2.77E-4	-2.00E-1	6.19E-1
GWP-luluc	kg CO2 eq	4.32E-2	4.56E-4	1.22E-1	1.66E-1	2.68E-4	8.95E-3	5.83E-6	-1.93E-2	1.56E-1
ODP	kg CFC11 eq	2.92E-5	2.75E-7	2.42E-7	2.97E-5	1.75E-7	2.41E-6	8.68E-9	-1.45E-5	1.78E-5
AP	mol H+ eq	2.40E-1	7.22E-3	1.09E-2	2.58E-1	4.32E-3	4.18E-2	2.08E-4	-1.11E-1	1.93E-1
EP-fw	kg P eq	2.32E-3	1.26E-5	2.87E-5	2.36E-3	6.24E-6	2.98E-4	2.63E-7	-1.07E-3	1.59E-3
EP-m	kg N eq	4.06E-2	2.54E-3	3.22E-3	4.64E-2	1.54E-3	1.02E-2	1.29E-4	-1.95E-2	3.88E-2
EP-T	mol N eq	4.42E-1	2.80E-2	3.45E-2	5.04E-1	1.70E-2	1.13E-1	8.32E-4	-2.11E-1	4.24E-1
POCP	kg NMVOC eq	1.52E-1	8.00E-3	9.75E-3	1.70E-1	4.87E-3	3.38E-2	2.83E-4	-7.14E-2	1.38E-1
ADP-mm	kg Sb eq	1.68E-3	3.15E-5	4.56E-5	1.76E-3	1.96E-5	1.64E-4	2.06E-7	-5.97E-4	1.34E-3
ADP-f	MJ	1.34E+3	1.88E+1	2.32E+1	1.39E+3	1.16E+1	1.15E+2	6.29E-1	-6.98E+2	8.14E+2
WDP	m3 depriv.	8.73E+1	6.71E-2	1.57E+1	1.03E+2	3.57E-2	4.45E+0	3.63E-3	-4.14E+1	6.61E+1
PM	disease inc.	1.83E-6	1.12E-7	1.70E-7	2.11E-6	6.84E-8	5.23E-7	4.31E-9	-7.29E-7	1.97E-6
IR	kBq U-235 eq	2.88E+0	7.86E-2	4.19E-2	3.01E+0	5.09E-2	4.00E-1	2.89E-3	-1.34E+0	2.11E+0
ETP-fw	CTUe	9.14E+2	1.67E+1	3.87E+1	9.70E+2	9.45E+0	8.54E+2	9.40E+0	-4.22E+2	1.42E+3
HTP-c	CTUh	3.66E-8	5.43E-10	1.32E-9	3.84E-8	3.36E-10	1.27E-8	1.65E-11	-1.55E-8	3.60E-8
HTP-nc	CTUh	1.14E-6	1.83E-8	4.04E-8	1.20E-6	1.13E-8	3.02E-7	1.81E-9	-5.34E-7	9.76E-7
SQP	Pt	6.24E+2	1.63E+1	1.73E+0	6.42E+2	9.95E+0	7.16E+1	1.60E+0	-1.72E+2	5.53E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.33E+2	2.35E-1	6.99E+1	2.03E+2	1.67E-1	8.19E+0	2.27E-2	-4.99E+1	1.62E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.33E+2	2.35E-1	6.99E+1	2.03E+2	1.67E-1	8.19E+0	2.27E-2	-4.99E+1	1.62E+2
PENRE	MJ	1.44E+3	1.99E+1	2.51E+1	1.49E+3	1.24E+1	1.22E+2	6.68E-1	-7.52E+2	8.69E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.44E+3	1.99E+1	2.51E+1	1.49E+3	1.24E+1	1.22E+2	6.68E-1	-7.52E+2	8.69E+2
PET	MJ	1.57E+3	2.02E+1	9.51E+1	1.69E+3	1.25E+1	1.30E+2	6.90E-1	-8.02E+2	1.03E+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	9.42E-1	2.29E-3	3.69E-1	1.31E+0	1.32E-3	1.23E-1	7.71E-4	-4.34E-1	1.00E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.08E-3	4.76E-5	3.25E-5	1.16E-3	2.98E-5	1.85E-4	7.59E-7	-5.83E-4	7.92E-4
NHWD	kg	5.18E+0	1.19E+0	4.69E-2	6.42E+0	7.21E-1	4.30E+0	2.89E+0	-2.25E+0	1.21E+1
RWD	kg	2.56E-3	1.23E-4	5.83E-5	2.74E-3	7.91E-5	4.30E-4	4.11E-6	-1.19E-3	2.07E-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

Ecochain

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