Environmental Profile

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

Ecochain v3.5.80

Product:	3001328 - Wafix PVC Branch 88° GY 110x50 SN4S/S/SG
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	0.09	0	0	0.1	0	0.03	0	-0.05	0.08
ADPE	kg Sb-eq	7.15E-4	3.02E-7	1.23E-6	7.17E-4	2.68E-7	2.29E-6	2.99E-9	-8.80E-6	7.10E-4
ADPF	kg Sb-eq	1.03E-2	8.70E-5	2.11E-4	1.06E-2	7.55E-5	7.94E-4	4.15E-6	-5.50E-3	5.94E-3
GWP	kg CO2-eq	8.15E-1	1.18E-2	4.00E-2	8.67E-1	1.03E-2	2.93E-1	3.01E-3	-4.58E-1	7.15E-1
ODP	kg CFC-11-eq	3.97E-7	2.10E-9	3.16E-9	4.03E-7	1.91E-9	3.11E-8	9.89E-11	-2.08E-7	2.28E-7
POCP	kg ethene-eq	5.22E-4	7.14E-6	1.74E-5	5.46E-4	6.17E-6	6.45E-5	7.63E-7	-2.46E-4	3.72E-4
AP	kg SO2-eq	3.24E-3	5.20E-5	1.72E-4	3.46E-3	4.43E-5	4.59E-4	2.23E-6	-1.54E-3	2.43E-3
EP	kg PO4 3−-eq	4.12E-4	1.02E-5	2.21E-5	4.45E-4	8.84E-6	7.08E-5	9.79E-7	-2.09E-4	3.17E-4
HTP	kg 1,4-DB-eq	3.03E-1	4.98E-3	1.86E-2	3.27E-1	4.40E-3	1.24E-1	2.44E-4	-1.41E-1	3.15E-1
FAETP	kg 1,4-DB-eq	9.24E-3	1.45E-4	6.35E-4	1.00E-2	1.29E-4	1.94E-3	1.01E-4	-4.11E-3	8.08E-3
MAETP	kg 1,4-DB-eq	2.15E+1	5.23E-1	2.50E+0	2.45E+1	4.60E-1	6.43E+0	1.15E-1	-9.09E+0	2.24E+1
TETP	kg 1,4-DB-eq	2.14E-3	1.76E-5	1.38E-3	3.54E-3	1.56E-5	4.35E-4	7.66E-7	-1.36E-3	2.63E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	8.43E-1	1.19E-2	4.58E-2	9.00E-1	1.04E-2	3.15E-1	3.52E-3	-4.26E-1	8.03E-1
GWP-f	kg CO2 eq	8.35E-1	1.19E-2	3.52E-2	8.82E-1	1.04E-2	2.94E-1	3.51E-3	-4.69E-1	7.22E-1
GWP-b	kg CO2 eq	6.63E-3	5.51E-6	7.26E-3	1.39E-2	6.30E-6	2.01E-2	4.19E-6	4.37E-2	7.76E-2
GWP-luluc	kg CO2 eq	9.13E-4	4.37E-6	3.34E-3	4.26E-3	3.67E-6	1.20E-4	8.61E-8	-5.92E-4	3.79E-3
ODP	kg CFC11 eq	3.95E-7	2.63E-9	3.72E-9	4.01E-7	2.39E-9	3.22E-8	1.23E-10	-2.06E-7	2.30E-7
AP	mol H+ eq	3.94E-3	6.92E-5	2.15E-4	4.23E-3	5.91E-5	5.77E-4	2.99E-6	-1.86E-3	3.00E-3
EP-fw	kg P eq	3.76E-5	1.20E-7	6.17E-7	3.83E-5	8.53E-8	3.99E-6	3.91E-9	-1.93E-5	2.31E-5
EP-m	kg N eq	7.02E-4	2.44E-5	5.07E-5	7.77E-4	2.11E-5	1.44E-4	2.06E-6	-3.35E-4	6.10E-4
EP-T	mol N eq	7.60E-3	2.69E-4	5.59E-4	8.42E-3	2.33E-4	1.59E-3	1.19E-5	-3.62E-3	6.64E-3
POCP	kg NMVOC eq	2.57E-3	7.68E-5	1.59E-4	2.80E-3	6.66E-5	4.77E-4	4.15E-6	-1.23E-3	2.12E-3
ADP-mm	kg Sb eq	7.15E-4	3.02E-7	1.23E-6	7.17E-4	2.68E-7	2.29E-6	2.99E-9	-8.79E-6	7.10E-4
ADP-f	MJ	2.19E+1	1.80E-1	3.94E-1	2.24E+1	1.59E-1	1.58E+0	8.97E-3	-1.16E+1	1.26E+1
WDP	m3 depriv.	1.24E+0	6.44E-4	3.05E-1	1.55E+0	4.89E-4	5.92E-2	5.58E-5	-6.69E-1	9.37E-1
PM	disease inc.	2.91E-8	1.07E-9	2.65E-9	3.29E-8	9.36E-10	7.34E-9	6.17E-11	-1.51E-8	2.61E-8
IR	kBq U-235 eq	4.71E-2	7.54E-4	6.26E-4	4.85E-2	6.96E-4	5.51E-3	4.14E-5	-2.21E-2	3.26E-2
ETP-fw	CTUe	2.43E+1	1.61E-1	9.14E-1	2.53E+1	1.29E-1	1.12E+1	1.23E-1	-9.25E+0	2.75E+1
HTP-c	CTUh	6.28E-10	5.21E-12	3.16E-11	6.65E-10	4.60E-12	1.78E-10	2.44E-13	-2.46E-10	6.01E-10
HTP-nc	CTUh	2.04E-8	1.76E-10	9.88E-10	2.15E-8	1.54E-10	4.08E-9	2.42E-11	-8.45E-9	1.73E-8
SQP	Pt	4.54E+0	1.56E-1	2.94E-2	4.72E+0	1.36E-1	9.89E-1	2.30E-2	-9.42E+0	-3.55E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.36E+0	2.25E-3	1.91E+0	3.28E+0	2.28E-3	1.10E-1	3.41E-4	-1.95E+0	1.44E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.36E+0	2.25E-3	1.91E+0	3.28E+0	2.28E-3	1.10E-1	3.41E-4	-1.95E+0	1.44E+0
PENRE	MJ	2.34E+1	1.91E-1	4.25E-1	2.40E+1	1.69E-1	1.68E+0	9.52E-3	-1.25E+1	1.34E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.34E+1	1.91E-1	4.25E-1	2.40E+1	1.69E-1	1.68E+0	9.52E-3	-1.25E+1	1.34E+1
PET	MJ	2.48E+1	1.93E-1	2.34E+0	2.73E+1	1.71E-1	1.79E+0	9.86E-3	-1.44E+1	1.49E+1
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	1.48E-2	2.19E-5	7.20E-3	2.20E-2	1.80E-5	1.64E-3	1.10E-5	-8.14E-3	1.56E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.01E-4	4.56E-7	4.18E-7	1.02E-4	4.07E-7	2.59E-6	1.09E-8	-8.93E-6	9.59E-5
NHWD	kg	8.13E-2	1.14E-2	6.45E-4	9.34E-2	9.87E-3	5.91E-2	3.94E-2	-3.55E-2	1.66E-1
RWD	kg	4.33E-5	1.18E-6	7.74E-7	4.53E-5	1.08E-6	6.01E-6	5.84E-8	-1.97E-5	3.27E-5
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