Environmental Profile

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

Ecochain v3.5.80

Product:	3001344 - Wafix PVC Branch 88° GY 160x110 SN4S/S/S
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	0.25	0	0.01	0.27	0	0.08	0	-0.13	0.22
ADPE	kg Sb-eq	1.97E-3	8.39E-7	3.39E-6	1.97E-3	7.40E-7	6.32E-6	8.24E-9	-2.43E-5	1.96E-3
ADPF	kg Sb-eq	2.84E-2	2.41E-4	5.83E-4	2.92E-2	2.08E-4	2.19E-3	1.14E-5	-1.52E-2	1.64E-2
GWP	kg CO2-eq	2.26E+0	3.28E-2	1.11E-1	2.40E+0	2.84E-2	8.07E-1	8.30E-3	-1.27E+0	1.97E+0
ODP	kg CFC-11-eq	1.10E-6	5.83E-9	8.75E-9	1.11E-6	5.26E-9	8.57E-8	2.73E-10	-5.74E-7	6.28E-7
POCP	kg ethene-eq	1.44E-3	1.98E-5	4.81E-5	1.51E-3	1.70E-5	1.79E-4	2.10E-6	-6.83E-4	1.03E-3
AP	kg SO2-eq	8.97E-3	1.44E-4	4.76E-4	9.59E-3	1.22E-4	1.27E-3	6.15E-6	-4.28E-3	6.71E-3
EP	kg PO4 3−-eq	1.15E-3	2.84E-5	6.12E-5	1.24E-3	2.44E-5	1.96E-4	2.70E-6	-5.87E-4	8.74E-4
HTP	kg 1,4-DB-eq	8.39E-1	1.38E-2	5.14E-2	9.04E-1	1.21E-2	3.43E-1	6.72E-4	-3.91E-1	8.69E-1
FAETP	kg 1,4-DB-eq	2.59E-2	4.04E-4	1.76E-3	2.80E-2	3.55E-4	5.37E-3	2.78E-4	-1.17E-2	2.24E-2
MAETP	kg 1,4-DB-eq	5.95E+1	1.45E+0	6.92E+0	6.79E+1	1.27E+0	1.78E+1	3.16E-1	-2.52E+1	6.21E+1
TETP	kg 1,4-DB-eq	5.94E-3	4.89E-5	3.82E-3	9.81E-3	4.30E-5	1.20E-3	2.11E-6	-3.86E-3	7.19E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.33E+0	3.31E-2	1.27E-1	2.49E+0	2.86E-2	8.73E-1	9.69E-3	-1.17E+0	2.23E+0
GWP-f	kg CO2 eq	2.31E+0	3.31E-2	9.73E-2	2.44E+0	2.86E-2	8.12E-1	9.69E-3	-1.30E+0	1.99E+0
GWP-b	kg CO2 eq	1.84E-2	1.53E-5	2.01E-2	3.85E-2	1.74E-5	6.02E-2	1.16E-5	1.32E-1	2.30E-1
GWP-luluc	kg CO2 eq	2.58E-3	1.21E-5	9.24E-3	1.18E-2	1.01E-5	3.32E-4	2.37E-7	-1.71E-3	1.05E-2
ODP	kg CFC11 eq	1.09E-6	7.31E-9	1.03E-8	1.11E-6	6.59E-9	8.88E-8	3.38E-10	-5.68E-7	6.33E-7
AP	mol H+ eq	1.09E-2	1.92E-4	5.93E-4	1.17E-2	1.63E-4	1.60E-3	8.23E-6	-5.18E-3	8.29E-3
EP-fw	kg P eq	1.04E-4	3.34E-7	1.70E-6	1.06E-4	2.35E-7	1.10E-5	1.08E-8	-5.41E-5	6.34E-5
EP-m	kg N eq	1.95E-3	6.77E-5	1.40E-4	2.16E-3	5.83E-5	3.99E-4	5.69E-6	-9.35E-4	1.69E-3
EP-T	mol N eq	2.11E-2	7.46E-4	1.55E-3	2.34E-2	6.42E-4	4.39E-3	3.29E-5	-1.01E-2	1.84E-2
POCP	kg NMVOC eq	7.11E-3	2.13E-4	4.40E-4	7.77E-3	1.84E-4	1.32E-3	1.14E-5	-3.42E-3	5.86E-3
ADP-mm	kg Sb eq	1.97E-3	8.39E-7	3.39E-6	1.97E-3	7.40E-7	6.32E-6	8.24E-9	-2.43E-5	1.96E-3
ADP-f	MJ	6.04E+1	4.99E-1	1.09E+0	6.20E+1	4.39E-1	4.35E+0	2.47E-2	-3.20E+1	3.48E+1
WDP	m3 depriv.	3.42E+0	1.79E-3	8.42E-1	4.27E+0	1.35E-3	1.63E-1	1.54E-4	-1.86E+0	2.57E+0
PM	disease inc.	8.12E-8	2.97E-9	7.33E-9	9.15E-8	2.58E-9	2.03E-8	1.70E-10	-4.26E-8	7.20E-8
IR	kBq U-235 eq	1.30E-1	2.09E-3	1.73E-3	1.34E-1	1.92E-3	1.52E-2	1.14E-4	-6.17E-2	8.97E-2
ETP-fw	CTUe	6.82E+1	4.45E-1	2.53E+0	7.12E+1	3.56E-1	3.09E+1	3.39E-1	-2.63E+1	7.65E+1
HTP-c	CTUh	1.74E-9	1.44E-11	8.75E-11	1.84E-9	1.27E-11	4.91E-10	6.73E-13	-6.84E-10	1.66E-9
HTP-nc	CTUh	5.63E-8	4.87E-10	2.73E-9	5.95E-8	4.25E-10	1.12E-8	6.66E-11	-2.35E-8	4.77E-8
SQP	Pt	1.29E+1	4.33E-1	8.13E-2	1.35E+1	3.75E-1	2.73E+0	6.33E-2	-2.80E+1	-1.13E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.85E+0	6.25E-3	5.29E+0	9.14E+0	6.30E-3	3.04E-1	9.39E-4	-5.74E+0	3.71E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.85E+0	6.25E-3	5.29E+0	9.14E+0	6.30E-3	3.04E-1	9.39E-4	-5.74E+0	3.71E+0
PENRE	MJ	6.47E+1	5.30E-1	1.18E+0	6.64E+1	4.66E-1	4.63E+0	2.62E-2	-3.45E+1	3.71E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	6.47E+1	5.30E-1	1.18E+0	6.64E+1	4.66E-1	4.63E+0	2.62E-2	-3.45E+1	3.71E+1
PET	MJ	6.86E+1	5.37E-1	6.46E+0	7.56E+1	4.72E-1	4.94E+0	2.72E-2	-4.02E+1	4.08E+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	4.09E-2	6.08E-5	1.99E-2	6.09E-2	4.97E-5	4.52E-3	3.04E-5	-2.28E-2	4.26E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.78E-4	1.27E-6	1.16E-6	2.81E-4	1.12E-6	7.17E-6	3.00E-8	-2.48E-5	2.64E-4
NHWD	kg	2.26E-1	3.17E-2	1.78E-3	2.59E-1	2.72E-2	1.63E-1	1.09E-1	-9.86E-2	4.60E-1
RWD	kg	1.20E-4	3.28E-6	2.14E-6	1.25E-4	2.98E-6	1.66E-5	1.61E-7	-5.50E-5	9.02E-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

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