Environmental Profile

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

Ecochain v3.5.80

Product:	3001327 - Wafix PVC Branch 45° 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	0.1	0	0.01	0.11	0	0.03	0	-0.05	0.09
ADPE	kg Sb-eq	8.31E-4	3.40E-7	1.41E-6	8.33E-4	3.06E-7	2.62E-6	3.42E-9	-1.01E-5	8.26E-4
ADPF	kg Sb-eq	1.16E-2	9.79E-5	2.42E-4	1.19E-2	8.63E-5	9.11E-4	4.74E-6	-6.23E-3	6.70E-3
GWP	kg CO2-eq	9.24E-1	1.33E-2	4.59E-2	9.83E-1	1.18E-2	3.33E-1	3.41E-3	-5.19E-1	8.12E-1
ODP	kg CFC-11-eq	4.61E-7	2.36E-9	3.63E-9	4.67E-7	2.18E-9	3.60E-8	1.13E-10	-2.40E-7	2.65E-7
POCP	kg ethene-eq	5.84E-4	8.04E-6	1.99E-5	6.12E-4	7.05E-6	7.36E-5	8.67E-7	-2.77E-4	4.17E-4
AP	kg SO2-eq	3.68E-3	5.86E-5	1.97E-4	3.93E-3	5.06E-5	5.26E-4	2.55E-6	-1.73E-3	2.78E-3
EP	kg PO4 3−-eq	4.65E-4	1.15E-5	2.54E-5	5.02E-4	1.01E-5	8.10E-5	1.10E-6	-2.32E-4	3.62E-4
HTP	kg 1,4-DB-eq	3.46E-1	5.61E-3	2.13E-2	3.73E-1	5.03E-3	1.42E-1	2.77E-4	-1.60E-1	3.60E-1
FAETP	kg 1,4-DB-eq	1.04E-2	1.64E-4	7.28E-4	1.13E-2	1.47E-4	2.21E-3	1.11E-4	-4.54E-3	9.20E-3
MAETP	kg 1,4-DB-eq	2.45E+1	5.89E-1	2.87E+0	2.80E+1	5.26E-1	7.33E+0	1.27E-1	-1.03E+1	2.56E+1
TETP	kg 1,4-DB-eq	2.45E-3	1.98E-5	1.59E-3	4.05E-3	1.78E-5	4.99E-4	8.78E-7	-1.50E-3	3.07E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	9.55E-1	1.34E-2	5.25E-2	1.02E+0	1.19E-2	3.55E-1	3.98E-3	-4.89E-1	9.03E-1
GWP-f	kg CO2 eq	9.47E-1	1.34E-2	4.04E-2	1.00E+0	1.18E-2	3.35E-1	3.98E-3	-5.31E-1	8.20E-1
GWP-b	kg CO2 eq	7.71E-3	6.20E-6	8.33E-3	1.60E-2	7.19E-6	2.00E-2	4.78E-6	4.32E-2	7.93E-2
GWP-luluc	kg CO2 eq	1.01E-3	4.92E-6	3.83E-3	4.85E-3	4.19E-6	1.39E-4	9.84E-8	-6.33E-4	4.36E-3
ODP	kg CFC11 eq	4.57E-7	2.96E-9	4.27E-9	4.65E-7	2.73E-9	3.73E-8	1.40E-10	-2.38E-7	2.67E-7
AP	mol H+ eq	4.47E-3	7.79E-5	2.46E-4	4.80E-3	6.75E-5	6.62E-4	3.41E-6	-2.10E-3	3.43E-3
EP-fw	kg P eq	4.29E-5	1.35E-7	7.07E-7	4.37E-5	9.75E-8	4.61E-6	4.46E-9	-2.16E-5	2.68E-5
EP-m	kg N eq	7.92E-4	2.74E-5	5.81E-5	8.78E-4	2.41E-5	1.64E-4	2.33E-6	-3.76E-4	6.93E-4
EP-T	mol N eq	8.58E-3	3.03E-4	6.41E-4	9.52E-3	2.66E-4	1.81E-3	1.36E-5	-4.05E-3	7.56E-3
POCP	kg NMVOC eq	2.89E-3	8.64E-5	1.82E-4	3.16E-3	7.61E-5	5.44E-4	4.74E-6	-1.38E-3	2.40E-3
ADP-mm	kg Sb eq	8.31E-4	3.40E-7	1.41E-6	8.33E-4	3.06E-7	2.62E-6	3.42E-9	-1.01E-5	8.26E-4
ADP-f	MJ	2.47E+1	2.03E-1	4.51E-1	2.53E+1	1.82E-1	1.81E+0	1.02E-2	-1.31E+1	1.42E+1
WDP	m3 depriv.	1.43E+0	7.24E-4	3.49E-1	1.78E+0	5.58E-4	6.85E-2	6.40E-5	-7.60E-1	1.09E+0
PM	disease inc.	3.25E-8	1.21E-9	3.04E-9	3.67E-8	1.07E-9	8.38E-9	7.05E-11	-1.66E-8	2.97E-8
IR	kBq U-235 eq	5.35E-2	8.49E-4	7.17E-4	5.51E-2	7.95E-4	6.32E-3	4.73E-5	-2.51E-2	3.72E-2
ETP-fw	CTUe	2.71E+1	1.81E-1	1.05E+0	2.83E+1	1.48E-1	1.30E+1	1.44E-1	-1.01E+1	3.16E+1
HTP-c	CTUh	7.22E-10	5.86E-12	3.63E-11	7.64E-10	5.25E-12	2.03E-10	2.80E-13	-2.79E-10	6.93E-10
HTP-nc	CTUh	2.35E-8	1.98E-10	1.13E-9	2.48E-8	1.76E-10	4.70E-9	2.81E-11	-9.61E-9	2.01E-8
SQP	Pt	4.91E+0	1.76E-1	3.37E-2	5.12E+0	1.56E-1	1.13E+0	2.62E-2	-9.58E+0	-3.15E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.51E+0	2.54E-3	2.19E+0	3.70E+0	2.61E-3	1.27E-1	3.88E-4	-2.02E+0	1.82E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.51E+0	2.54E-3	2.19E+0	3.70E+0	2.61E-3	1.27E-1	3.88E-4	-2.02E+0	1.82E+0
PENRE	MJ	2.65E+1	2.15E-1	4.88E-1	2.72E+1	1.93E-1	1.92E+0	1.09E-2	-1.41E+1	1.52E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.65E+1	2.15E-1	4.88E-1	2.72E+1	1.93E-1	1.92E+0	1.09E-2	-1.41E+1	1.52E+1
PET	MJ	2.80E+1	2.18E-1	2.68E+0	3.09E+1	1.96E-1	2.05E+0	1.13E-2	-1.61E+1	1.70E+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	1.69E-2	2.47E-5	8.25E-3	2.52E-2	2.06E-5	1.89E-3	1.26E-5	-9.09E-3	1.80E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.18E-4	5.13E-7	4.79E-7	1.19E-4	4.65E-7	2.96E-6	1.25E-8	-1.02E-5	1.12E-4
NHWD	kg	9.25E-2	1.28E-2	7.40E-4	1.06E-1	1.13E-2	6.73E-2	4.51E-2	-4.03E-2	1.89E-1
RWD	kg	4.88E-5	1.33E-6	8.88E-7	5.11E-5	1.24E-6	6.87E-6	6.67E-8	-2.23E-5	3.69E-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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