Environmental Profile

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

Ecochain v3.5.80

Product:	3001325 - Wafix PVC Branch 45° GY 110x40 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	0.01	0.1	0	0.03	0	-0.05	0.09
ADPE	kg Sb-eq	7.61E-4	3.17E-7	1.30E-6	7.62E-4	2.83E-7	2.42E-6	3.16E-9	-9.30E-6	7.56E-4
ADPF	kg Sb-eq	1.08E-2	9.13E-5	2.23E-4	1.11E-2	7.98E-5	8.40E-4	4.38E-6	-5.79E-3	6.24E-3
GWP	kg CO2-eq	8.58E-1	1.24E-2	4.23E-2	9.13E-1	1.09E-2	3.08E-1	3.17E-3	-4.82E-1	7.53E-1
ODP	kg CFC-11-eq	4.22E-7	2.20E-9	3.35E-9	4.28E-7	2.01E-9	3.30E-8	1.04E-10	-2.21E-7	2.43E-7
POCP	kg ethene-eq	5.46E-4	7.49E-6	1.84E-5	5.72E-4	6.52E-6	6.81E-5	8.04E-7	-2.58E-4	3.89E-4
AP	kg SO2-eq	3.41E-3	5.46E-5	1.82E-4	3.65E-3	4.67E-5	4.85E-4	2.35E-6	-1.61E-3	2.57E-3
EP	kg PO4 3−-eq	4.33E-4	1.07E-5	2.34E-5	4.67E-4	9.34E-6	7.48E-5	1.03E-6	-2.18E-4	3.35E-4
HTP	kg 1,4-DB-eq	3.20E-1	5.23E-3	1.97E-2	3.45E-1	4.65E-3	1.31E-1	2.57E-4	-1.48E-1	3.33E-1
FAETP	kg 1,4-DB-eq	9.69E-3	1.53E-4	6.72E-4	1.05E-2	1.36E-4	2.05E-3	1.05E-4	-4.28E-3	8.52E-3
MAETP	kg 1,4-DB-eq	2.27E+1	5.49E-1	2.65E+0	2.59E+1	4.86E-1	6.79E+0	1.20E-1	-9.58E+0	2.37E+1
TETP	kg 1,4-DB-eq	2.26E-3	1.85E-5	1.46E-3	3.74E-3	1.65E-5	4.60E-4	8.10E-7	-1.42E-3	2.80E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	8.87E-1	1.25E-2	4.84E-2	9.48E-1	1.10E-2	3.31E-1	3.70E-3	-4.51E-1	8.42E-1
GWP-f	kg CO2 eq	8.79E-1	1.25E-2	3.72E-2	9.29E-1	1.09E-2	3.10E-1	3.70E-3	-4.94E-1	7.60E-1
GWP-b	kg CO2 eq	7.05E-3	5.78E-6	7.68E-3	1.47E-2	6.65E-6	2.00E-2	4.42E-6	4.35E-2	7.83E-2
GWP-luluc	kg CO2 eq	9.52E-4	4.59E-6	3.53E-3	4.49E-3	3.88E-6	1.28E-4	9.09E-8	-6.08E-4	4.01E-3
ODP	kg CFC11 eq	4.19E-7	2.76E-9	3.93E-9	4.26E-7	2.52E-9	3.42E-8	1.30E-10	-2.18E-7	2.44E-7
AP	mol H+ eq	4.15E-3	7.26E-5	2.27E-4	4.45E-3	6.24E-5	6.10E-4	3.15E-6	-1.96E-3	3.17E-3
EP-fw	kg P eq	3.96E-5	1.26E-7	6.52E-7	4.04E-5	9.01E-8	4.24E-6	4.12E-9	-2.02E-5	2.46E-5
EP-m	kg N eq	7.38E-4	2.56E-5	5.36E-5	8.17E-4	2.23E-5	1.52E-4	2.17E-6	-3.51E-4	6.42E-4
EP-T	mol N eq	7.98E-3	2.82E-4	5.91E-4	8.85E-3	2.46E-4	1.67E-3	1.26E-5	-3.79E-3	7.00E-3
POCP	kg NMVOC eq	2.69E-3	8.06E-5	1.68E-4	2.94E-3	7.03E-5	5.03E-4	4.38E-6	-1.29E-3	2.23E-3
ADP-mm	kg Sb eq	7.61E-4	3.17E-7	1.30E-6	7.62E-4	2.83E-7	2.42E-6	3.16E-9	-9.30E-6	7.56E-4
ADP-f	MJ	2.30E+1	1.89E-1	4.16E-1	2.36E+1	1.68E-1	1.67E+0	9.47E-3	-1.22E+1	1.32E+1
WDP	m3 depriv.	1.32E+0	6.76E-4	3.22E-1	1.64E+0	5.16E-4	6.29E-2	5.90E-5	-7.05E-1	9.98E-1
PM	disease inc.	3.04E-8	1.12E-9	2.80E-9	3.44E-8	9.88E-10	7.75E-9	6.52E-11	-1.57E-8	2.75E-8
IR	kBq U-235 eq	4.96E-2	7.91E-4	6.62E-4	5.11E-2	7.35E-4	5.83E-3	4.37E-5	-2.33E-2	3.44E-2
ETP-fw	CTUe	2.54E+1	1.68E-1	9.67E-1	2.65E+1	1.36E-1	1.19E+1	1.31E-1	-9.59E+0	2.91E+1
HTP-c	CTUh	6.65E-10	5.46E-12	3.35E-11	7.04E-10	4.86E-12	1.88E-10	2.58E-13	-2.59E-10	6.37E-10
HTP-nc	CTUh	2.16E-8	1.84E-10	1.04E-9	2.28E-8	1.63E-10	4.32E-9	2.57E-11	-8.91E-9	1.84E-8
SQP	Pt	4.68E+0	1.64E-1	3.11E-2	4.88E+0	1.44E-1	1.04E+0	2.43E-2	-9.49E+0	-3.39E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.42E+0	2.36E-3	2.02E+0	3.45E+0	2.41E-3	1.17E-1	3.59E-4	-1.98E+0	1.59E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.42E+0	2.36E-3	2.02E+0	3.45E+0	2.41E-3	1.17E-1	3.59E-4	-1.98E+0	1.59E+0
PENRE	MJ	2.46E+1	2.01E-1	4.50E-1	2.53E+1	1.78E-1	1.77E+0	1.01E-2	-1.31E+1	1.41E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.46E+1	2.01E-1	4.50E-1	2.53E+1	1.78E-1	1.77E+0	1.01E-2	-1.31E+1	1.41E+1
PET	MJ	2.60E+1	2.03E-1	2.47E+0	2.87E+1	1.81E-1	1.89E+0	1.04E-2	-1.51E+1	1.57E+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	1.56E-2	2.30E-5	7.61E-3	2.33E-2	1.90E-5	1.74E-3	1.16E-5	-8.51E-3	1.65E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.07E-4	4.79E-7	4.42E-7	1.08E-4	4.30E-7	2.74E-6	1.15E-8	-9.43E-6	1.02E-4
NHWD	kg	8.57E-2	1.20E-2	6.82E-4	9.83E-2	1.04E-2	6.23E-2	4.16E-2	-3.74E-2	1.75E-1
RWD	kg	4.55E-5	1.24E-6	8.19E-7	4.76E-5	1.14E-6	6.35E-6	6.17E-8	-2.07E-5	3.44E-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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