Environmental Profile

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

Ecochain v3.5.80

Product:	3001324 - Wafix PVC Branch 88° GY 110 SN8 S/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	0.12	0	0.01	0.13	0	0.04	0	-0.06	0.11
ADPE	kg Sb-eq	9.65E-4	4.18E-7	1.84E-6	9.68E-4	3.67E-7	3.12E-6	4.09E-9	-1.20E-5	9.59E-4
ADPF	kg Sb-eq	1.42E-2	1.20E-4	3.17E-4	1.46E-2	1.03E-4	1.08E-3	5.67E-6	-7.58E-3	8.22E-3
GWP	kg CO2-eq	1.12E+0	1.64E-2	6.01E-2	1.20E+0	1.41E-2	4.01E-1	4.15E-3	-6.31E-1	9.87E-1
ODP	kg CFC-11-eq	5.37E-7	2.90E-9	4.76E-9	5.45E-7	2.61E-9	4.20E-8	1.35E-10	-2.82E-7	3.07E-7
POCP	kg ethene-eq	7.24E-4	9.88E-6	2.61E-5	7.60E-4	8.45E-6	8.84E-5	1.05E-6	-3.40E-4	5.18E-4
AP	kg SO2-eq	4.46E-3	7.20E-5	2.59E-4	4.79E-3	6.06E-5	6.25E-4	3.05E-6	-2.12E-3	3.35E-3
EP	kg PO4 3−-eq	5.70E-4	1.41E-5	3.32E-5	6.17E-4	1.21E-5	9.68E-5	1.35E-6	-2.91E-4	4.37E-4
HTP	kg 1,4-DB-eq	4.15E-1	6.89E-3	2.79E-2	4.50E-1	6.02E-3	1.70E-1	3.35E-4	-1.93E-1	4.33E-1
FAETP	kg 1,4-DB-eq	1.28E-2	2.01E-4	9.54E-4	1.40E-2	1.76E-4	2.67E-3	1.41E-4	-5.78E-3	1.12E-2
MAETP	kg 1,4-DB-eq	2.95E+1	7.24E-1	3.76E+0	3.39E+1	6.30E-1	8.82E+0	1.60E-1	-1.25E+1	3.11E+1
TETP	kg 1,4-DB-eq	2.92E-3	2.44E-5	2.08E-3	5.03E-3	2.13E-5	5.93E-4	1.04E-6	-1.91E-3	3.73E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.16E+0	1.65E-2	6.88E-2	1.24E+0	1.42E-2	4.34E-1	4.84E-3	-5.81E-1	1.12E+0
GWP-f	kg CO2 eq	1.15E+0	1.65E-2	5.29E-2	1.22E+0	1.42E-2	4.04E-1	4.84E-3	-6.46E-1	9.96E-1
GWP-b	kg CO2 eq	8.95E-3	7.62E-6	1.09E-2	1.99E-2	8.62E-6	3.01E-2	5.74E-6	6.58E-2	1.16E-1
GWP-luluc	kg CO2 eq	1.28E-3	6.05E-6	5.02E-3	6.30E-3	5.02E-6	1.63E-4	1.18E-7	-8.50E-4	5.62E-3
ODP	kg CFC11 eq	5.34E-7	3.64E-9	5.59E-9	5.43E-7	3.27E-9	4.35E-8	1.68E-10	-2.80E-7	3.10E-7
AP	mol H+ eq	5.43E-3	9.58E-5	3.22E-4	5.85E-3	8.08E-5	7.87E-4	4.08E-6	-2.57E-3	4.15E-3
EP-fw	kg P eq	5.14E-5	1.67E-7	9.26E-7	5.25E-5	1.17E-7	5.42E-6	5.34E-9	-2.68E-5	3.13E-5
EP-m	kg N eq	9.70E-4	3.37E-5	7.62E-5	1.08E-3	2.89E-5	1.97E-4	2.85E-6	-4.64E-4	8.45E-4
EP-T	mol N eq	1.05E-2	3.72E-4	8.40E-4	1.17E-2	3.19E-4	2.17E-3	1.63E-5	-5.02E-3	9.19E-3
POCP	kg NMVOC eq	3.55E-3	1.06E-4	2.39E-4	3.90E-3	9.11E-5	6.53E-4	5.69E-6	-1.70E-3	2.95E-3
ADP-mm	kg Sb eq	9.65E-4	4.18E-7	1.84E-6	9.67E-4	3.67E-7	3.12E-6	4.09E-9	-1.20E-5	9.59E-4
ADP-f	MJ	3.02E+1	2.49E-1	5.91E-1	3.10E+1	2.18E-1	2.15E+0	1.23E-2	-1.60E+1	1.74E+1
WDP	m3 depriv.	1.69E+0	8.91E-4	4.58E-1	2.14E+0	6.68E-4	8.01E-2	7.60E-5	-9.19E-1	1.31E+0
PM	disease inc.	4.07E-8	1.48E-9	3.98E-9	4.61E-8	1.28E-9	1.00E-8	8.45E-11	-2.12E-8	3.63E-8
IR	kBq U-235 eq	6.47E-2	1.04E-3	9.40E-4	6.67E-2	9.52E-4	7.51E-3	5.66E-5	-3.05E-2	4.48E-2
ETP-fw	CTUe	3.37E+1	2.22E-1	1.37E+0	3.53E+1	1.77E-1	1.51E+1	1.66E-1	-1.30E+1	3.77E+1
HTP-c	CTUh	8.56E-10	7.20E-12	4.75E-11	9.11E-10	6.29E-12	2.43E-10	3.34E-13	-3.38E-10	8.22E-10
HTP-nc	CTUh	2.77E-8	2.43E-10	1.48E-9	2.94E-8	2.11E-10	5.53E-9	3.26E-11	-1.16E-8	2.36E-8
SQP	Pt	6.46E+0	2.16E-1	4.42E-2	6.72E+0	1.86E-1	1.35E+0	3.14E-2	-1.40E+1	-5.67E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.91E+0	3.12E-3	2.87E+0	4.79E+0	3.12E-3	1.49E-1	4.67E-4	-2.86E+0	2.08E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.91E+0	3.12E-3	2.87E+0	4.79E+0	3.12E-3	1.49E-1	4.67E-4	-2.86E+0	2.08E+0
PENRE	MJ	3.23E+1	2.64E-1	6.39E-1	3.32E+1	2.31E-1	2.29E+0	1.30E-2	-1.72E+1	1.86E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.23E+1	2.64E-1	6.39E-1	3.32E+1	2.31E-1	2.29E+0	1.30E-2	-1.72E+1	1.86E+1
PET	MJ	3.42E+1	2.67E-1	3.51E+0	3.80E+1	2.34E-1	2.44E+0	1.35E-2	-2.00E+1	2.07E+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	2.03E-2	3.03E-5	1.08E-2	3.11E-2	2.46E-5	2.22E-3	1.51E-5	-1.13E-2	2.21E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.36E-4	6.31E-7	6.28E-7	1.37E-4	5.57E-7	3.54E-6	1.49E-8	-1.22E-5	1.29E-4
NHWD	kg	1.12E-1	1.58E-2	9.69E-4	1.29E-1	1.35E-2	8.09E-2	5.40E-2	-4.87E-2	2.28E-1
RWD	kg	5.99E-5	1.64E-6	1.16E-6	6.27E-5	1.48E-6	8.21E-6	7.99E-8	-2.72E-5	4.53E-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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