Environmental Profile

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

Ecochain v3.5.80

Product:	3001330 - Wafix PVC Branch 88° GY 110x75 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	8.35E-4	3.46E-7	1.41E-6	8.37E-4	3.08E-7	2.65E-6	3.43E-9	-1.02E-5	8.30E-4
ADPF	kg Sb-eq	1.17E-2	9.97E-5	2.43E-4	1.20E-2	8.67E-5	9.19E-4	4.76E-6	-6.29E-3	6.76E-3
GWP	kg CO2-eq	9.37E-1	1.36E-2	4.61E-2	9.96E-1	1.18E-2	3.35E-1	3.43E-3	-5.27E-1	8.20E-1
ODP	kg CFC-11-eq	4.64E-7	2.40E-9	3.65E-9	4.70E-7	2.19E-9	3.63E-8	1.14E-10	-2.42E-7	2.67E-7
POCP	kg ethene-eq	5.91E-4	8.18E-6	2.00E-5	6.19E-4	7.08E-6	7.46E-5	8.71E-7	-2.82E-4	4.19E-4
AP	kg SO2-eq	3.73E-3	5.96E-5	1.98E-4	3.98E-3	5.08E-5	5.32E-4	2.56E-6	-1.78E-3	2.79E-3
EP	kg PO4 3−-eq	4.77E-4	1.17E-5	2.55E-5	5.14E-4	1.01E-5	8.20E-5	1.11E-6	-2.43E-4	3.64E-4
HTP	kg 1,4-DB-eq	3.50E-1	5.71E-3	2.14E-2	3.77E-1	5.05E-3	1.43E-1	2.78E-4	-1.63E-1	3.63E-1
FAETP	kg 1,4-DB-eq	1.08E-2	1.67E-4	7.32E-4	1.17E-2	1.48E-4	2.24E-3	1.11E-4	-4.82E-3	9.34E-3
MAETP	kg 1,4-DB-eq	2.48E+1	5.99E-1	2.88E+0	2.83E+1	5.28E-1	7.46E+0	1.28E-1	-1.06E+1	2.59E+1
TETP	kg 1,4-DB-eq	2.50E-3	2.02E-5	1.59E-3	4.11E-3	1.79E-5	5.02E-4	8.82E-7	-1.60E-3	3.03E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	9.68E-1	1.37E-2	5.28E-2	1.03E+0	1.19E-2	3.62E-1	4.00E-3	-4.87E-1	9.25E-1
GWP-f	kg CO2 eq	9.59E-1	1.37E-2	4.05E-2	1.01E+0	1.19E-2	3.37E-1	4.00E-3	-5.39E-1	8.28E-1
GWP-b	kg CO2 eq	7.89E-3	6.31E-6	8.37E-3	1.63E-2	7.22E-6	2.42E-2	4.80E-6	5.28E-2	9.32E-2
GWP-luluc	kg CO2 eq	1.07E-3	5.01E-6	3.85E-3	4.92E-3	4.21E-6	1.40E-4	9.88E-8	-7.01E-4	4.37E-3
ODP	kg CFC11 eq	4.61E-7	3.02E-9	4.28E-9	4.68E-7	2.74E-9	3.76E-8	1.41E-10	-2.39E-7	2.69E-7
AP	mol H+ eq	4.54E-3	7.93E-5	2.47E-4	4.86E-3	6.78E-5	6.69E-4	3.43E-6	-2.15E-3	3.45E-3
EP-fw	kg P eq	4.36E-5	1.38E-7	7.10E-7	4.45E-5	9.79E-8	4.64E-6	4.48E-9	-2.25E-5	2.67E-5
EP-m	kg N eq	8.12E-4	2.79E-5	5.84E-5	8.98E-4	2.43E-5	1.67E-4	2.34E-6	-3.88E-4	7.04E-4
EP-T	mol N eq	8.77E-3	3.08E-4	6.44E-4	9.72E-3	2.67E-4	1.84E-3	1.37E-5	-4.19E-3	7.64E-3
POCP	kg NMVOC eq	2.93E-3	8.79E-5	1.83E-4	3.21E-3	7.64E-5	5.52E-4	4.76E-6	-1.41E-3	2.43E-3
ADP-mm	kg Sb eq	8.35E-4	3.46E-7	1.41E-6	8.37E-4	3.08E-7	2.65E-6	3.43E-9	-1.02E-5	8.30E-4
ADP-f	MJ	2.49E+1	2.06E-1	4.53E-1	2.56E+1	1.83E-1	1.82E+0	1.03E-2	-1.32E+1	1.43E+1
WDP	m3 depriv.	1.44E+0	7.37E-4	3.51E-1	1.79E+0	5.60E-4	6.89E-2	6.43E-5	-7.77E-1	1.09E+0
PM	disease inc.	3.33E-8	1.23E-9	3.05E-9	3.76E-8	1.07E-9	8.48E-9	7.08E-11	-1.75E-8	2.97E-8
IR	kBq U-235 eq	5.41E-2	8.64E-4	7.21E-4	5.57E-2	7.98E-4	6.39E-3	4.75E-5	-2.57E-2	3.72E-2
ETP-fw	CTUe	2.84E+1	1.84E-1	1.05E+0	2.96E+1	1.48E-1	1.31E+1	1.44E-1	-1.09E+1	3.22E+1
HTP-c	CTUh	7.30E-10	5.96E-12	3.64E-11	7.72E-10	5.28E-12	2.05E-10	2.81E-13	-2.86E-10	6.97E-10
HTP-nc	CTUh	2.37E-8	2.01E-10	1.14E-9	2.51E-8	1.77E-10	4.74E-9	2.82E-11	-9.84E-9	2.02E-8
SQP	Pt	5.31E+0	1.79E-1	3.39E-2	5.52E+0	1.56E-1	1.14E+0	2.64E-2	-1.13E+1	-4.46E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.59E+0	2.58E-3	2.20E+0	3.80E+0	2.62E-3	1.28E-1	3.90E-4	-2.33E+0	1.60E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.59E+0	2.58E-3	2.20E+0	3.80E+0	2.62E-3	1.28E-1	3.90E-4	-2.33E+0	1.60E+0
PENRE	MJ	2.67E+1	2.19E-1	4.90E-1	2.74E+1	1.94E-1	1.94E+0	1.09E-2	-1.43E+1	1.53E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.67E+1	2.19E-1	4.90E-1	2.74E+1	1.94E-1	1.94E+0	1.09E-2	-1.43E+1	1.53E+1
PET	MJ	2.83E+1	2.21E-1	2.69E+0	3.12E+1	1.97E-1	2.07E+0	1.13E-2	-1.66E+1	1.69E+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	1.71E-2	2.51E-5	8.29E-3	2.54E-2	2.07E-5	1.91E-3	1.26E-5	-9.48E-3	1.79E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.18E-4	5.22E-7	4.81E-7	1.19E-4	4.67E-7	3.00E-6	1.25E-8	-1.04E-5	1.12E-4
NHWD	kg	9.45E-2	1.31E-2	7.43E-4	1.08E-1	1.13E-2	6.80E-2	4.53E-2	-4.12E-2	1.92E-1
RWD	kg	4.95E-5	1.35E-6	8.92E-7	5.17E-5	1.24E-6	6.96E-6	6.70E-8	-2.29E-5	3.70E-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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