Environmental Profile

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

Ecochain v3.5.80

Product:	3001332 - Wafix PVC Branch 88° GY 125 SN4 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	0.17	0	0.01	0.18	0	0.06	0	-0.09	0.15
ADPE	kg Sb-eq	1.35E-3	5.72E-7	2.32E-6	1.35E-3	5.12E-7	4.30E-6	5.70E-9	-1.66E-5	1.34E-3
ADPF	kg Sb-eq	1.96E-2	1.65E-4	3.99E-4	2.02E-2	1.44E-4	1.50E-3	7.92E-6	-1.05E-2	1.14E-2
GWP	kg CO2-eq	1.54E+0	2.24E-2	7.57E-2	1.64E+0	1.96E-2	5.58E-1	5.78E-3	-8.67E-1	1.36E+0
ODP	kg CFC-11-eq	7.47E-7	3.97E-9	5.98E-9	7.57E-7	3.64E-9	5.83E-8	1.89E-10	-3.93E-7	4.27E-7
POCP	kg ethene-eq	1.00E-3	1.35E-5	3.29E-5	1.05E-3	1.18E-5	1.21E-4	1.46E-6	-4.64E-4	7.20E-4
AP	kg SO2-eq	6.14E-3	9.84E-5	3.25E-4	6.56E-3	8.45E-5	8.63E-4	4.26E-6	-2.87E-3	4.65E-3
EP	kg PO4 3−-eq	7.70E-4	1.93E-5	4.18E-5	8.31E-4	1.69E-5	1.33E-4	1.90E-6	-3.80E-4	6.03E-4
HTP	kg 1,4-DB-eq	5.73E-1	9.42E-3	3.52E-2	6.17E-1	8.40E-3	2.35E-1	4.67E-4	-2.63E-1	5.98E-1
FAETP	kg 1,4-DB-eq	1.70E-2	2.75E-4	1.20E-3	1.84E-2	2.46E-4	3.67E-3	1.96E-4	-7.35E-3	1.52E-2
MAETP	kg 1,4-DB-eq	4.06E+1	9.89E-1	4.73E+0	4.63E+1	8.79E-1	1.20E+1	2.22E-1	-1.70E+1	4.25E+1
TETP	kg 1,4-DB-eq	3.98E-3	3.33E-5	2.61E-3	6.63E-3	2.98E-5	8.24E-4	1.46E-6	-2.43E-3	5.06E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.59E+0	2.26E-2	8.66E-2	1.70E+0	1.98E-2	5.93E-1	6.75E-3	-8.21E-1	1.50E+0
GWP-f	kg CO2 eq	1.58E+0	2.26E-2	6.65E-2	1.67E+0	1.98E-2	5.61E-1	6.75E-3	-8.87E-1	1.37E+0
GWP-b	kg CO2 eq	1.20E-2	1.04E-5	1.37E-2	2.57E-2	1.20E-5	3.11E-2	8.01E-6	6.69E-2	1.24E-1
GWP-luluc	kg CO2 eq	1.64E-3	8.27E-6	6.32E-3	7.97E-3	7.01E-6	2.27E-4	1.64E-7	-1.01E-3	7.19E-3
ODP	kg CFC11 eq	7.42E-7	4.98E-9	7.03E-9	7.54E-7	4.56E-9	6.04E-8	2.34E-10	-3.89E-7	4.30E-7
AP	mol H+ eq	7.46E-3	1.31E-4	4.06E-4	7.99E-3	1.13E-4	1.09E-3	5.70E-6	-3.47E-3	5.72E-3
EP-fw	kg P eq	7.03E-5	2.28E-7	1.17E-6	7.17E-5	1.63E-7	7.53E-6	7.45E-9	-3.52E-5	4.42E-5
EP-m	kg N eq	1.31E-3	4.61E-5	9.58E-5	1.45E-3	4.03E-5	2.70E-4	4.00E-6	-6.20E-4	1.15E-3
EP-T	mol N eq	1.42E-2	5.08E-4	1.06E-3	1.58E-2	4.45E-4	2.98E-3	2.28E-5	-6.69E-3	1.26E-2
POCP	kg NMVOC eq	4.87E-3	1.45E-4	3.01E-4	5.32E-3	1.27E-4	8.96E-4	7.94E-6	-2.29E-3	4.06E-3
ADP-mm	kg Sb eq	1.35E-3	5.72E-7	2.32E-6	1.35E-3	5.12E-7	4.30E-6	5.70E-9	-1.66E-5	1.34E-3
ADP-f	MJ	4.18E+1	3.40E-1	7.44E-1	4.28E+1	3.04E-1	2.98E+0	1.71E-2	-2.20E+1	2.41E+1
WDP	m3 depriv.	2.34E+0	1.22E-3	5.76E-1	2.92E+0	9.32E-4	1.12E-1	1.06E-4	-1.25E+0	1.78E+0
PM	disease inc.	5.50E-8	2.03E-9	5.01E-9	6.20E-8	1.79E-9	1.38E-8	1.18E-10	-2.72E-8	5.05E-8
IR	kBq U-235 eq	8.97E-2	1.43E-3	1.18E-3	9.23E-2	1.33E-3	1.04E-2	7.90E-5	-4.10E-2	6.31E-2
ETP-fw	CTUe	4.40E+1	3.03E-1	1.73E+0	4.60E+1	2.47E-1	2.10E+1	2.31E-1	-1.63E+1	5.12E+1
HTP-c	CTUh	1.18E-9	9.84E-12	5.98E-11	1.25E-9	8.78E-12	3.35E-10	4.66E-13	-4.58E-10	1.14E-9
HTP-nc	CTUh	3.83E-8	3.32E-10	1.87E-9	4.05E-8	2.94E-10	7.67E-9	4.55E-11	-1.57E-8	3.28E-8
SQP	Pt	8.02E+0	2.95E-1	5.56E-2	8.37E+0	2.60E-1	1.87E+0	4.39E-2	-1.50E+1	-4.47E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.46E+0	4.26E-3	3.62E+0	6.08E+0	4.36E-3	2.08E-1	6.52E-4	-3.19E+0	3.11E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.46E+0	4.26E-3	3.62E+0	6.08E+0	4.36E-3	2.08E-1	6.52E-4	-3.19E+0	3.11E+0
PENRE	MJ	4.48E+1	3.61E-1	8.04E-1	4.59E+1	3.23E-1	3.17E+0	1.82E-2	-2.37E+1	2.57E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.48E+1	3.61E-1	8.04E-1	4.59E+1	3.23E-1	3.17E+0	1.82E-2	-2.37E+1	2.57E+1
PET	MJ	4.72E+1	3.66E-1	4.42E+0	5.20E+1	3.27E-1	3.37E+0	1.88E-2	-2.69E+1	2.88E+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	2.80E-2	4.14E-5	1.36E-2	4.17E-2	3.44E-5	3.09E-3	2.10E-5	-1.49E-2	2.99E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.89E-4	8.62E-7	7.90E-7	1.91E-4	7.77E-7	4.88E-6	2.08E-8	-1.68E-5	1.80E-4
NHWD	kg	1.52E-1	2.16E-2	1.22E-3	1.74E-1	1.88E-2	1.12E-1	7.53E-2	-6.61E-2	3.14E-1
RWD	kg	8.31E-5	2.23E-6	1.46E-6	8.68E-5	2.07E-6	1.13E-5	1.12E-7	-3.65E-5	6.38E-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