Environmental Profile

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

Ecochain v3.5.80

Product:	3001346 - Wafix PVC Branch 88° GY 160x125 SN4S/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	0.29	0	0.02	0.31	0	0.09	0	-0.15	0.26
ADPE	kg Sb-eq	2.31E-3	9.62E-7	4.26E-6	2.31E-3	8.57E-7	7.33E-6	9.55E-9	-2.82E-5	2.29E-3
ADPF	kg Sb-eq	3.26E-2	2.77E-4	7.32E-4	3.36E-2	2.41E-4	2.55E-3	1.33E-5	-1.75E-2	1.89E-2
GWP	kg CO2-eq	2.60E+0	3.76E-2	1.39E-1	2.78E+0	3.29E-2	9.33E-1	9.58E-3	-1.46E+0	2.29E+0
ODP	kg CFC-11-eq	1.28E-6	6.68E-9	1.10E-8	1.30E-6	6.10E-9	1.00E-7	3.16E-10	-6.69E-7	7.38E-7
POCP	kg ethene-eq	1.65E-3	2.27E-5	6.04E-5	1.74E-3	1.97E-5	2.07E-4	2.43E-6	-7.82E-4	1.18E-3
AP	kg SO2-eq	1.03E-2	1.65E-4	5.97E-4	1.11E-2	1.41E-4	1.47E-3	7.13E-6	-4.90E-3	7.83E-3
EP	kg PO4 3−-eq	1.32E-3	3.25E-5	7.68E-5	1.43E-3	2.83E-5	2.27E-4	3.11E-6	-6.65E-4	1.02E-3
HTP	kg 1,4-DB-eq	9.72E-1	1.58E-2	6.46E-2	1.05E+0	1.41E-2	3.97E-1	7.77E-4	-4.51E-1	1.01E+0
FAETP	kg 1,4-DB-eq	2.95E-2	4.63E-4	2.20E-3	3.22E-2	4.12E-4	6.20E-3	3.14E-4	-1.31E-2	2.60E-2
MAETP	kg 1,4-DB-eq	6.89E+1	1.66E+0	8.69E+0	7.92E+1	1.47E+0	2.06E+1	3.60E-1	-2.91E+1	7.25E+1
TETP	kg 1,4-DB-eq	6.88E-3	5.60E-5	4.80E-3	1.17E-2	4.98E-5	1.39E-3	2.45E-6	-4.34E-3	8.84E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.69E+0	3.80E-2	1.59E-1	2.89E+0	3.32E-2	1.00E+0	1.12E-2	-1.36E+0	2.57E+0
GWP-f	kg CO2 eq	2.66E+0	3.80E-2	1.22E-1	2.82E+0	3.31E-2	9.39E-1	1.12E-2	-1.50E+0	2.31E+0
GWP-b	kg CO2 eq	2.15E-2	1.75E-5	2.52E-2	4.68E-2	2.01E-5	6.28E-2	1.34E-5	1.36E-1	2.46E-1
GWP-luluc	kg CO2 eq	2.91E-3	1.39E-5	1.16E-2	1.45E-2	1.17E-5	3.87E-4	2.75E-7	-1.88E-3	1.30E-2
ODP	kg CFC11 eq	1.27E-6	8.38E-9	1.29E-8	1.29E-6	7.64E-9	1.04E-7	3.92E-10	-6.63E-7	7.43E-7
AP	mol H+ eq	1.26E-2	2.20E-4	7.45E-4	1.36E-2	1.89E-4	1.85E-3	9.54E-6	-5.94E-3	9.67E-3
EP-fw	kg P eq	1.20E-4	3.83E-7	2.14E-6	1.23E-4	2.73E-7	1.28E-5	1.25E-8	-6.16E-5	7.45E-5
EP-m	kg N eq	2.24E-3	7.76E-5	1.76E-4	2.50E-3	6.75E-5	4.61E-4	6.55E-6	-1.07E-3	1.96E-3
EP-T	mol N eq	2.43E-2	8.55E-4	1.94E-3	2.71E-2	7.44E-4	5.08E-3	3.81E-5	-1.15E-2	2.14E-2
POCP	kg NMVOC eq	8.16E-3	2.44E-4	5.52E-4	8.96E-3	2.13E-4	1.53E-3	1.33E-5	-3.91E-3	6.81E-3
ADP-mm	kg Sb eq	2.31E-3	9.62E-7	4.26E-6	2.31E-3	8.57E-7	7.33E-6	9.55E-9	-2.82E-5	2.29E-3
ADP-f	MJ	6.95E+1	5.72E-1	1.37E+0	7.14E+1	5.09E-1	5.05E+0	2.87E-2	-3.69E+1	4.01E+1
WDP	m3 depriv.	3.99E+0	2.05E-3	1.06E+0	5.05E+0	1.56E-3	1.91E-1	1.79E-4	-2.14E+0	3.10E+0
PM	disease inc.	9.25E-8	3.41E-9	9.20E-9	1.05E-7	2.99E-9	2.35E-8	1.97E-10	-4.78E-8	8.40E-8
IR	kBq U-235 eq	1.51E-1	2.40E-3	2.17E-3	1.55E-1	2.22E-3	1.77E-2	1.32E-4	-7.08E-2	1.04E-1
ETP-fw	CTUe	7.75E+1	5.10E-1	3.17E+0	8.12E+1	4.13E-1	3.62E+1	3.98E-1	-2.94E+1	8.88E+1
HTP-c	CTUh	2.02E-9	1.66E-11	1.10E-10	2.15E-9	1.47E-11	5.69E-10	7.82E-13	-7.88E-10	1.94E-9
HTP-nc	CTUh	6.56E-8	5.58E-10	3.43E-9	6.96E-8	4.92E-10	1.31E-8	7.80E-11	-2.71E-8	5.62E-8
SQP	Pt	1.44E+1	4.97E-1	1.02E-1	1.50E+1	4.35E-1	3.16E+0	7.34E-2	-2.96E+1	-1.09E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.34E+0	7.17E-3	6.64E+0	1.10E+1	7.30E-3	3.54E-1	1.09E-3	-6.14E+0	5.21E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.34E+0	7.17E-3	6.64E+0	1.10E+1	7.30E-3	3.54E-1	1.09E-3	-6.14E+0	5.21E+0
PENRE	MJ	7.45E+1	6.08E-1	1.48E+0	7.66E+1	5.40E-1	5.38E+0	3.04E-2	-3.97E+1	4.28E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	7.45E+1	6.08E-1	1.48E+0	7.66E+1	5.40E-1	5.38E+0	3.04E-2	-3.97E+1	4.28E+1
PET	MJ	7.88E+1	6.15E-1	8.12E+0	8.75E+1	5.47E-1	5.73E+0	3.15E-2	-4.58E+1	4.80E+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	4.74E-2	6.97E-5	2.50E-2	7.24E-2	5.76E-5	5.28E-3	3.52E-5	-2.60E-2	5.18E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.26E-4	1.45E-6	1.45E-6	3.29E-4	1.30E-6	8.31E-6	3.48E-8	-2.86E-5	3.10E-4
NHWD	kg	2.61E-1	3.63E-2	2.24E-3	3.00E-1	3.15E-2	1.89E-1	1.26E-1	-1.14E-1	5.33E-1
RWD	kg	1.38E-4	3.76E-6	2.69E-6	1.44E-4	3.46E-6	1.93E-5	1.87E-7	-6.31E-5	1.04E-4
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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