Environmental Profile

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

Ecochain v3.5.80

Product:	3001336 - Wafix PVC Branch 88° GY 125x50 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	0.11	0	0.01	0.12	0	0.04	0	-0.06	0.1
ADPE	kg Sb-eq	8.75E-4	3.77E-7	1.52E-6	8.77E-4	3.34E-7	2.81E-6	3.72E-9	-1.09E-5	8.69E-4
ADPF	kg Sb-eq	1.29E-2	1.09E-4	2.62E-4	1.32E-2	9.39E-5	9.79E-4	5.16E-6	-6.87E-3	7.45E-3
GWP	kg CO2-eq	1.01E+0	1.48E-2	4.97E-2	1.08E+0	1.28E-2	3.65E-1	3.77E-3	-5.70E-1	8.90E-1
ODP	kg CFC-11-eq	4.86E-7	2.62E-9	3.93E-9	4.93E-7	2.37E-9	3.79E-8	1.23E-10	-2.56E-7	2.77E-7
POCP	kg ethene-eq	6.60E-4	8.91E-6	2.16E-5	6.90E-4	7.68E-6	7.97E-5	9.53E-7	-3.06E-4	4.72E-4
AP	kg SO2-eq	4.03E-3	6.49E-5	2.14E-4	4.31E-3	5.51E-5	5.64E-4	2.77E-6	-1.90E-3	3.03E-3
EP	kg PO4 3−-eq	5.11E-4	1.28E-5	2.74E-5	5.51E-4	1.10E-5	8.73E-5	1.24E-6	-2.57E-4	3.94E-4
HTP	kg 1,4-DB-eq	3.76E-1	6.22E-3	2.31E-2	4.05E-1	5.47E-3	1.54E-1	3.04E-4	-1.73E-1	3.91E-1
FAETP	kg 1,4-DB-eq	1.14E-2	1.82E-4	7.88E-4	1.23E-2	1.60E-4	2.41E-3	1.29E-4	-5.04E-3	1.00E-2
MAETP	kg 1,4-DB-eq	2.67E+1	6.53E-1	3.10E+0	3.04E+1	5.73E-1	7.93E+0	1.46E-1	-1.12E+1	2.79E+1
TETP	kg 1,4-DB-eq	2.62E-3	2.20E-5	1.72E-3	4.36E-3	1.94E-5	5.37E-4	9.49E-7	-1.67E-3	3.25E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.05E+0	1.49E-2	5.68E-2	1.12E+0	1.29E-2	3.91E-1	4.41E-3	-5.31E-1	9.97E-1
GWP-f	kg CO2 eq	1.04E+0	1.49E-2	4.37E-2	1.10E+0	1.29E-2	3.67E-1	4.40E-3	-5.83E-1	8.99E-1
GWP-b	kg CO2 eq	7.89E-3	6.88E-6	9.01E-3	1.69E-2	7.83E-6	2.42E-2	5.22E-6	5.25E-2	9.36E-2
GWP-luluc	kg CO2 eq	1.12E-3	5.46E-6	4.15E-3	5.27E-3	4.56E-6	1.48E-4	1.07E-7	-7.22E-4	4.70E-3
ODP	kg CFC11 eq	4.83E-7	3.29E-9	4.62E-9	4.91E-7	2.97E-9	3.93E-8	1.53E-10	-2.54E-7	2.80E-7
AP	mol H+ eq	4.90E-3	8.64E-5	2.66E-4	5.26E-3	7.35E-5	7.10E-4	3.71E-6	-2.30E-3	3.74E-3
EP-fw	kg P eq	4.63E-5	1.50E-7	7.65E-7	4.72E-5	1.06E-7	4.90E-6	4.86E-9	-2.37E-5	2.85E-5
EP-m	kg N eq	8.70E-4	3.04E-5	6.29E-5	9.63E-4	2.63E-5	1.78E-4	2.61E-6	-4.14E-4	7.56E-4
EP-T	mol N eq	9.42E-3	3.36E-4	6.94E-4	1.04E-2	2.90E-4	1.95E-3	1.48E-5	-4.47E-3	8.24E-3
POCP	kg NMVOC eq	3.21E-3	9.58E-5	1.97E-4	3.51E-3	8.28E-5	5.88E-4	5.17E-6	-1.52E-3	2.66E-3
ADP-mm	kg Sb eq	8.75E-4	3.77E-7	1.52E-6	8.77E-4	3.34E-7	2.81E-6	3.72E-9	-1.09E-5	8.69E-4
ADP-f	MJ	2.74E+1	2.25E-1	4.88E-1	2.81E+1	1.98E-1	1.94E+0	1.12E-2	-1.44E+1	1.58E+1
WDP	m3 depriv.	1.53E+0	8.03E-4	3.78E-1	1.90E+0	6.08E-4	7.25E-2	6.89E-5	-8.25E-1	1.15E+0
PM	disease inc.	3.66E-8	1.34E-9	3.29E-9	4.12E-8	1.16E-9	9.06E-9	7.68E-11	-1.86E-8	3.30E-8
IR	kBq U-235 eq	5.88E-2	9.41E-4	7.76E-4	6.06E-2	8.65E-4	6.78E-3	5.15E-5	-2.72E-2	4.10E-2
ETP-fw	CTUe	2.97E+1	2.00E-1	1.13E+0	3.11E+1	1.61E-1	1.37E+1	1.50E-1	-1.13E+1	3.37E+1
HTP-c	CTUh	7.72E-10	6.50E-12	3.93E-11	8.18E-10	5.72E-12	2.19E-10	3.03E-13	-3.03E-10	7.41E-10
HTP-nc	CTUh	2.50E-8	2.19E-10	1.23E-9	2.64E-8	1.92E-10	5.00E-9	2.95E-11	-1.04E-8	2.13E-8
SQP	Pt	5.59E+0	1.95E-1	3.65E-2	5.82E+0	1.69E-1	1.22E+0	2.86E-2	-1.14E+1	-4.14E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.68E+0	2.81E-3	2.37E+0	4.05E+0	2.84E-3	1.35E-1	4.25E-4	-2.37E+0	1.83E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.68E+0	2.81E-3	2.37E+0	4.05E+0	2.84E-3	1.35E-1	4.25E-4	-2.37E+0	1.83E+0
PENRE	MJ	2.94E+1	2.38E-1	5.28E-1	3.01E+1	2.10E-1	2.07E+0	1.18E-2	-1.56E+1	1.69E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.94E+1	2.38E-1	5.28E-1	3.01E+1	2.10E-1	2.07E+0	1.18E-2	-1.56E+1	1.69E+1
PET	MJ	3.10E+1	2.41E-1	2.90E+0	3.42E+1	2.13E-1	2.20E+0	1.23E-2	-1.79E+1	1.87E+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	1.84E-2	2.74E-5	8.93E-3	2.73E-2	2.24E-5	2.01E-3	1.37E-5	-1.00E-2	1.93E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.23E-4	5.69E-7	5.19E-7	1.24E-4	5.06E-7	3.20E-6	1.36E-8	-1.10E-5	1.17E-4
NHWD	kg	1.00E-1	1.42E-2	8.01E-4	1.15E-1	1.23E-2	7.32E-2	4.91E-2	-4.37E-2	2.06E-1
RWD	kg	5.47E-5	1.47E-6	9.61E-7	5.71E-5	1.35E-6	7.41E-6	7.27E-8	-2.43E-5	4.17E-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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