Environmental Profile

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

Ecochain v3.5.80

Product:	3001300 - Wafix PVC Bend 15° GY 125 SN4 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	0.09	0	0	0.09	0	0.03	0	-0.04	0.08
ADPE	kg Sb-eq	6.59E-4	2.97E-7	1.19E-6	6.61E-4	2.63E-7	2.15E-6	2.93E-9	-8.32E-6	6.55E-4
ADPF	kg Sb-eq	1.03E-2	8.53E-5	2.04E-4	1.06E-2	7.40E-5	7.52E-4	4.06E-6	-5.44E-3	5.95E-3
GWP	kg CO2-eq	7.93E-1	1.16E-2	3.88E-2	8.43E-1	1.01E-2	2.88E-1	3.03E-3	-4.45E-1	6.99E-1
ODP	kg CFC-11-eq	3.66E-7	2.06E-9	3.07E-9	3.71E-7	1.87E-9	2.85E-8	9.69E-11	-1.95E-7	2.06E-7
POCP	kg ethene-eq	5.34E-4	7.00E-6	1.68E-5	5.58E-4	6.05E-6	6.14E-5	7.60E-7	-2.40E-4	3.86E-4
AP	kg SO2-eq	3.15E-3	5.10E-5	1.67E-4	3.36E-3	4.34E-5	4.31E-4	2.18E-6	-1.46E-3	2.38E-3
EP	kg PO4 3−-eq	3.91E-4	1.00E-5	2.14E-5	4.22E-4	8.66E-6	6.69E-5	1.01E-6	-1.91E-4	3.08E-4
HTP	kg 1,4-DB-eq	2.90E-1	4.89E-3	1.80E-2	3.13E-1	4.31E-3	1.19E-1	2.42E-4	-1.32E-1	3.05E-1
FAETP	kg 1,4-DB-eq	8.48E-3	1.43E-4	6.15E-4	9.23E-3	1.26E-4	1.88E-3	1.09E-4	-3.65E-3	7.70E-3
MAETP	kg 1,4-DB-eq	2.05E+1	5.13E-1	2.42E+0	2.35E+1	4.51E-1	6.05E+0	1.22E-1	-8.50E+0	2.16E+1
TETP	kg 1,4-DB-eq	1.97E-3	1.73E-5	1.34E-3	3.33E-3	1.53E-5	4.16E-4	7.41E-7	-1.20E-3	2.56E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	8.19E-1	1.17E-2	4.44E-2	8.75E-1	1.02E-2	3.05E-1	3.54E-3	-4.24E-1	7.70E-1
GWP-f	kg CO2 eq	8.13E-1	1.17E-2	3.41E-2	8.59E-1	1.02E-2	2.90E-1	3.54E-3	-4.56E-1	7.06E-1
GWP-b	kg CO2 eq	5.58E-3	5.40E-6	7.04E-3	1.26E-2	6.17E-6	1.50E-2	4.12E-6	3.21E-2	5.97E-2
GWP-luluc	kg CO2 eq	8.16E-4	4.29E-6	3.24E-3	4.06E-3	3.60E-6	1.13E-4	8.42E-8	-4.98E-4	3.68E-3
ODP	kg CFC11 eq	3.64E-7	2.58E-9	3.60E-9	3.70E-7	2.34E-9	2.96E-8	1.20E-10	-1.93E-7	2.09E-7
AP	mol H+ eq	3.82E-3	6.79E-5	2.08E-4	4.09E-3	5.79E-5	5.43E-4	2.92E-6	-1.76E-3	2.94E-3
EP-fw	kg P eq	3.52E-5	1.18E-7	5.97E-7	3.59E-5	8.36E-8	3.73E-6	3.82E-9	-1.75E-5	2.22E-5
EP-m	kg N eq	6.67E-4	2.39E-5	4.91E-5	7.40E-4	2.07E-5	1.36E-4	2.12E-6	-3.15E-4	5.84E-4
EP-T	mol N eq	7.25E-3	2.64E-4	5.41E-4	8.06E-3	2.28E-4	1.50E-3	1.17E-5	-3.39E-3	6.40E-3
POCP	kg NMVOC eq	2.54E-3	7.53E-5	1.54E-4	2.77E-3	6.52E-5	4.51E-4	4.09E-6	-1.18E-3	2.11E-3
ADP-mm	kg Sb eq	6.59E-4	2.97E-7	1.19E-6	6.61E-4	2.63E-7	2.15E-6	2.93E-9	-8.32E-6	6.55E-4
ADP-f	MJ	2.19E+1	1.77E-1	3.81E-1	2.24E+1	1.56E-1	1.50E+0	8.79E-3	-1.14E+1	1.26E+1
WDP	m3 depriv.	1.17E+0	6.31E-4	2.95E-1	1.46E+0	4.79E-4	5.50E-2	5.36E-5	-6.25E-1	8.91E-1
PM	disease inc.	2.88E-8	1.05E-9	2.57E-9	3.24E-8	9.17E-10	6.98E-9	6.05E-11	-1.38E-8	2.66E-8
IR	kBq U-235 eq	4.61E-2	7.40E-4	6.06E-4	4.74E-2	6.82E-4	5.18E-3	4.06E-5	-2.05E-2	3.28E-2
ETP-fw	CTUe	2.18E+1	1.57E-1	8.85E-1	2.28E+1	1.27E-1	1.02E+1	1.12E-1	-8.08E+0	2.52E+1
HTP-c	CTUh	5.88E-10	5.11E-12	3.06E-11	6.23E-10	4.51E-12	1.69E-10	2.38E-13	-2.29E-10	5.68E-10
HTP-nc	CTUh	1.89E-8	1.72E-10	9.57E-10	2.00E-8	1.51E-10	3.80E-9	2.23E-11	-7.85E-9	1.62E-8
SQP	Pt	4.04E+0	1.53E-1	2.85E-2	4.22E+0	1.33E-1	9.52E-1	2.25E-2	-7.28E+0	-1.95E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.23E+0	2.21E-3	1.85E+0	3.09E+0	2.24E-3	1.03E-1	3.36E-4	-1.55E+0	1.64E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.23E+0	2.21E-3	1.85E+0	3.09E+0	2.24E-3	1.03E-1	3.36E-4	-1.55E+0	1.64E+0
PENRE	MJ	2.34E+1	1.87E-1	4.12E-1	2.40E+1	1.66E-1	1.59E+0	9.33E-3	-1.23E+1	1.35E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.34E+1	1.87E-1	4.12E-1	2.40E+1	1.66E-1	1.59E+0	9.33E-3	-1.23E+1	1.35E+1
PET	MJ	2.47E+1	1.90E-1	2.27E+0	2.71E+1	1.68E-1	1.69E+0	9.67E-3	-1.39E+1	1.51E+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	1.42E-2	2.15E-5	6.97E-3	2.12E-2	1.76E-5	1.53E-3	1.08E-5	-7.47E-3	1.53E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	9.18E-5	4.47E-7	4.05E-7	9.27E-5	3.99E-7	2.45E-6	1.07E-8	-8.42E-6	8.71E-5
NHWD	kg	7.58E-2	1.12E-2	6.25E-4	8.76E-2	9.67E-3	5.70E-2	3.86E-2	-3.31E-2	1.60E-1
RWD	kg	4.35E-5	1.16E-6	7.50E-7	4.54E-5	1.06E-6	5.69E-6	5.73E-8	-1.82E-5	3.40E-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