Environmental Profile

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

Ecochain v3.5.80

Product:	3082831 - Wafix PVC Bend 88° BR/BR 110 SN8 S/SP
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	8.55E-4	3.23E-7	1.45E-6	8.57E-4	2.98E-7	2.62E-6	3.32E-9	-1.01E-5	8.49E-4
ADPF	kg Sb-eq	1.09E-2	9.31E-5	2.50E-4	1.13E-2	8.38E-5	9.07E-4	4.60E-6	-5.93E-3	6.33E-3
GWP	kg CO2-eq	8.92E-1	1.27E-2	4.74E-2	9.52E-1	1.14E-2	3.20E-1	3.23E-3	-5.01E-1	7.86E-1
ODP	kg CFC-11-eq	4.74E-7	2.25E-9	3.74E-9	4.80E-7	2.12E-9	3.70E-8	1.10E-10	-2.43E-7	2.76E-7
POCP	kg ethene-eq	5.38E-4	7.64E-6	2.06E-5	5.67E-4	6.85E-6	7.24E-5	8.28E-7	-2.64E-4	3.83E-4
AP	kg SO2-eq	3.56E-3	5.57E-5	2.04E-4	3.82E-3	4.91E-5	5.27E-4	2.48E-6	-1.69E-3	2.71E-3
EP	kg PO4 3−-eq	4.54E-4	1.09E-5	2.62E-5	4.91E-4	9.81E-6	8.04E-5	1.03E-6	-2.27E-4	3.55E-4
HTP	kg 1,4-DB-eq	3.41E-1	5.33E-3	2.20E-2	3.69E-1	4.88E-3	1.40E-1	2.65E-4	-1.59E-1	3.55E-1
FAETP	kg 1,4-DB-eq	1.03E-2	1.56E-4	7.51E-4	1.12E-2	1.43E-4	2.15E-3	9.43E-5	-4.45E-3	9.10E-3
MAETP	kg 1,4-DB-eq	2.41E+1	5.60E-1	2.96E+0	2.77E+1	5.11E-1	7.26E+0	1.11E-1	-1.03E+1	2.53E+1
TETP	kg 1,4-DB-eq	2.47E-3	1.88E-5	1.64E-3	4.12E-3	1.73E-5	4.94E-4	8.64E-7	-1.48E-3	3.16E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	9.22E-1	1.28E-2	5.42E-2	9.89E-1	1.15E-2	3.41E-1	3.76E-3	-4.73E-1	8.73E-1
GWP-f	kg CO2 eq	9.13E-1	1.28E-2	4.17E-2	9.68E-1	1.15E-2	3.23E-1	3.76E-3	-5.12E-1	7.93E-1
GWP-b	kg CO2 eq	8.25E-3	5.89E-6	8.60E-3	1.69E-2	6.99E-6	1.88E-2	4.63E-6	4.03E-2	7.59E-2
GWP-luluc	kg CO2 eq	9.97E-4	4.68E-6	3.95E-3	4.96E-3	4.07E-6	1.40E-4	9.57E-8	-6.13E-4	4.49E-3
ODP	kg CFC11 eq	4.68E-7	2.82E-9	4.40E-9	4.76E-7	2.65E-9	3.82E-8	1.36E-10	-2.40E-7	2.76E-7
AP	mol H+ eq	4.34E-3	7.40E-5	2.54E-4	4.66E-3	6.55E-5	6.61E-4	3.31E-6	-2.05E-3	3.35E-3
EP-fw	kg P eq	4.27E-5	1.29E-7	7.29E-7	4.36E-5	9.47E-8	4.67E-6	4.34E-9	-2.14E-5	2.70E-5
EP-m	kg N eq	7.71E-4	2.61E-5	6.00E-5	8.57E-4	2.34E-5	1.63E-4	2.16E-6	-3.65E-4	6.80E-4
EP-T	mol N eq	8.34E-3	2.88E-4	6.61E-4	9.29E-3	2.58E-4	1.79E-3	1.32E-5	-3.93E-3	7.42E-3
POCP	kg NMVOC eq	2.74E-3	8.21E-5	1.88E-4	3.01E-3	7.39E-5	5.38E-4	4.58E-6	-1.33E-3	2.30E-3
ADP-mm	kg Sb eq	8.55E-4	3.23E-7	1.45E-6	8.57E-4	2.98E-7	2.62E-6	3.32E-9	-1.01E-5	8.49E-4
ADP-f	MJ	2.33E+1	1.93E-1	4.66E-1	2.39E+1	1.77E-1	1.80E+0	9.95E-3	-1.25E+1	1.34E+1
WDP	m3 depriv.	1.44E+0	6.89E-4	3.60E-1	1.80E+0	5.42E-4	6.97E-2	6.35E-5	-7.53E-1	1.12E+0
PM	disease inc.	3.04E-8	1.15E-9	3.14E-9	3.46E-8	1.04E-9	8.27E-9	6.85E-11	-1.59E-8	2.81E-8
IR	kBq U-235 eq	5.18E-2	8.07E-4	7.40E-4	5.33E-2	7.72E-4	6.33E-3	4.58E-5	-2.49E-2	3.56E-2
ETP-fw	CTUe	2.69E+1	1.72E-1	1.08E+0	2.82E+1	1.43E-1	1.35E+1	1.49E-1	-9.90E+0	3.20E+1
HTP-c	CTUh	7.27E-10	5.57E-12	3.74E-11	7.70E-10	5.10E-12	2.01E-10	2.73E-13	-2.77E-10	6.98E-10
HTP-nc	CTUh	2.38E-8	1.88E-10	1.17E-9	2.52E-8	1.71E-10	4.76E-9	2.88E-11	-9.57E-9	2.06E-8
SQP	Pt	4.71E+0	1.67E-1	3.48E-2	4.91E+0	1.51E-1	1.11E+0	2.55E-2	-9.05E+0	-2.86E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.47E+0	2.41E-3	2.26E+0	3.74E+0	2.53E-3	1.28E-1	3.74E-4	-1.92E+0	1.95E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.47E+0	2.41E-3	2.26E+0	3.74E+0	2.53E-3	1.28E-1	3.74E-4	-1.92E+0	1.95E+0
PENRE	MJ	2.50E+1	2.04E-1	5.03E-1	2.57E+1	1.87E-1	1.91E+0	1.06E-2	-1.34E+1	1.43E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.50E+1	2.04E-1	5.03E-1	2.57E+1	1.87E-1	1.91E+0	1.06E-2	-1.34E+1	1.43E+1
PET	MJ	2.64E+1	2.07E-1	2.77E+0	2.94E+1	1.90E-1	2.04E+0	1.09E-2	-1.54E+1	1.63E+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	1.66E-2	2.34E-5	8.52E-3	2.51E-2	2.00E-5	1.92E-3	1.22E-5	-8.89E-3	1.82E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.22E-4	4.88E-7	4.94E-7	1.23E-4	4.52E-7	2.94E-6	1.21E-8	-1.01E-5	1.16E-4
NHWD	kg	9.22E-2	1.22E-2	7.63E-4	1.05E-1	1.09E-2	6.58E-2	4.37E-2	-4.01E-2	1.86E-1
RWD	kg	4.62E-5	1.26E-6	9.16E-7	4.84E-5	1.20E-6	6.82E-6	6.48E-8	-2.21E-5	3.43E-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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