Environmental Profile

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

Ecochain v3.5.80

Product:	3052463 - Wafix PVC Bend 88° BR/GY 110 SN8 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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.11	0	0.01	0.11	0	0.03	0	-0.05	0.1
ADPE	kg Sb-eq	8.70E-4	3.52E-7	1.54E-6	8.72E-4	3.19E-7	2.73E-6	3.56E-9	-1.05E-5	8.65E-4
ADPF	kg Sb-eq	1.20E-2	1.01E-4	2.64E-4	1.24E-2	8.99E-5	9.49E-4	4.94E-6	-6.46E-3	6.96E-3
GWP	kg CO2-eq	9.58E-1	1.38E-2	5.01E-2	1.02E+0	1.22E-2	3.46E-1	3.55E-3	-5.38E-1	8.46E-1
ODP	kg CFC-11-eq	4.82E-7	2.44E-9	3.96E-9	4.89E-7	2.27E-9	3.77E-8	1.18E-10	-2.51E-7	2.78E-7
POCP	kg ethene-eq	6.04E-4	8.30E-6	2.18E-5	6.34E-4	7.35E-6	7.64E-5	9.03E-7	-2.86E-4	4.33E-4
AP	kg SO2-eq	3.82E-3	6.05E-5	2.15E-4	4.09E-3	5.27E-5	5.48E-4	2.65E-6	-1.79E-3	2.91E-3
EP	kg PO4 3−-eq	4.80E-4	1.19E-5	2.77E-5	5.20E-4	1.05E-5	8.42E-5	1.15E-6	-2.37E-4	3.79E-4
HTP	kg 1,4-DB-eq	3.60E-1	5.79E-3	2.33E-2	3.89E-1	5.24E-3	1.48E-1	2.88E-4	-1.66E-1	3.76E-1
FAETP	kg 1,4-DB-eq	1.07E-2	1.69E-4	7.95E-4	1.16E-2	1.53E-4	2.29E-3	1.14E-4	-4.60E-3	9.60E-3
MAETP	kg 1,4-DB-eq	2.55E+1	6.08E-1	3.13E+0	2.92E+1	5.48E-1	7.60E+0	1.31E-1	-1.07E+1	2.68E+1
TETP	kg 1,4-DB-eq	2.54E-3	2.05E-5	1.73E-3	4.29E-3	1.86E-5	5.20E-4	9.16E-7	-1.52E-3	3.31E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	9.91E-1	1.39E-2	5.73E-2	1.06E+0	1.24E-2	3.67E-1	4.14E-3	-5.11E-1	9.34E-1
GWP-f	kg CO2 eq	9.82E-1	1.39E-2	4.41E-2	1.04E+0	1.23E-2	3.48E-1	4.14E-3	-5.51E-1	8.54E-1
GWP-b	kg CO2 eq	8.04E-3	6.41E-6	9.09E-3	1.71E-2	7.50E-6	1.87E-2	4.98E-6	4.01E-2	7.60E-2
GWP-luluc	kg CO2 eq	1.03E-3	5.08E-6	4.18E-3	5.22E-3	4.37E-6	1.45E-4	1.03E-7	-6.26E-4	4.74E-3
ODP	kg CFC11 eq	4.78E-7	3.06E-9	4.65E-9	4.86E-7	2.84E-9	3.89E-8	1.46E-10	-2.48E-7	2.80E-7
AP	mol H+ eq	4.64E-3	8.05E-5	2.69E-4	4.99E-3	7.03E-5	6.89E-4	3.55E-6	-2.17E-3	3.58E-3
EP-fw	kg P eq	4.45E-5	1.40E-7	7.71E-7	4.54E-5	1.02E-7	4.82E-6	4.65E-9	-2.21E-5	2.82E-5
EP-m	kg N eq	8.18E-4	2.84E-5	6.34E-5	9.10E-4	2.52E-5	1.71E-4	2.42E-6	-3.87E-4	7.21E-4
EP-T	mol N eq	8.87E-3	3.13E-4	6.99E-4	9.88E-3	2.77E-4	1.88E-3	1.42E-5	-4.16E-3	7.89E-3
POCP	kg NMVOC eq	2.99E-3	8.93E-5	1.99E-4	3.28E-3	7.93E-5	5.65E-4	4.93E-6	-1.42E-3	2.51E-3
ADP-mm	kg Sb eq	8.70E-4	3.52E-7	1.54E-6	8.72E-4	3.19E-7	2.73E-6	3.56E-9	-1.05E-5	8.65E-4
ADP-f	MJ	2.56E+1	2.09E-1	4.92E-1	2.63E+1	1.90E-1	1.88E+0	1.07E-2	-1.36E+1	1.48E+1
WDP	m3 depriv.	1.49E+0	7.49E-4	3.81E-1	1.88E+0	5.82E-4	7.16E-2	6.70E-5	-7.86E-1	1.16E+0
PM	disease inc.	3.34E-8	1.25E-9	3.32E-9	3.79E-8	1.11E-9	8.71E-9	7.35E-11	-1.68E-8	3.10E-8
IR	kBq U-235 eq	5.55E-2	8.77E-4	7.83E-4	5.72E-2	8.28E-4	6.59E-3	4.92E-5	-2.59E-2	3.88E-2
ETP-fw	CTUe	2.77E+1	1.87E-1	1.14E+0	2.90E+1	1.54E-1	1.37E+1	1.50E-1	-1.02E+1	3.28E+1
HTP-c	CTUh	7.53E-10	6.05E-12	3.96E-11	7.98E-10	5.48E-12	2.11E-10	2.92E-13	-2.89E-10	7.27E-10
HTP-nc	CTUh	2.45E-8	2.04E-10	1.24E-9	2.60E-8	1.83E-10	4.91E-9	2.94E-11	-9.94E-9	2.11E-8
SQP	Pt	4.93E+0	1.82E-1	3.68E-2	5.15E+0	1.62E-1	1.18E+0	2.74E-2	-9.11E+0	-2.60E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.53E+0	2.62E-3	2.39E+0	3.93E+0	2.72E-3	1.33E-1	4.04E-4	-1.94E+0	2.12E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.53E+0	2.62E-3	2.39E+0	3.93E+0	2.72E-3	1.33E-1	4.04E-4	-1.94E+0	2.12E+0
PENRE	MJ	2.74E+1	2.22E-1	5.32E-1	2.82E+1	2.01E-1	2.00E+0	1.13E-2	-1.46E+1	1.58E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.74E+1	2.22E-1	5.32E-1	2.82E+1	2.01E-1	2.00E+0	1.13E-2	-1.46E+1	1.58E+1
PET	MJ	2.90E+1	2.25E-1	2.93E+0	3.21E+1	2.04E-1	2.14E+0	1.17E-2	-1.66E+1	1.79E+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	1.76E-2	2.55E-5	9.01E-3	2.66E-2	2.14E-5	1.98E-3	1.31E-5	-9.30E-3	1.93E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.23E-4	5.30E-7	5.23E-7	1.24E-4	4.85E-7	3.08E-6	1.30E-8	-1.06E-5	1.17E-4
NHWD	kg	9.59E-2	1.33E-2	8.07E-4	1.10E-1	1.17E-2	7.00E-2	4.70E-2	-4.17E-2	1.97E-1
RWD	kg	5.06E-5	1.37E-6	9.69E-7	5.29E-5	1.29E-6	7.15E-6	6.95E-8	-2.30E-5	3.84E-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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