Environmental Profile

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

Ecochain v3.5.80

Product:	3052474 - WfxPVC Bend 88° BR/GD 125 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]

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.15	0	0.01	0.16	0	0.05	0	-0.07	0.13
ADPE	kg Sb-eq	1.19E-3	4.85E-7	2.28E-6	1.19E-3	4.37E-7	3.74E-6	4.87E-9	-1.44E-5	1.18E-3
ADPF	kg Sb-eq	1.65E-2	1.39E-4	3.92E-4	1.70E-2	1.23E-4	1.30E-3	6.75E-6	-8.86E-3	9.60E-3
GWP	kg CO2-eq	1.32E+0	1.90E-2	7.44E-2	1.41E+0	1.67E-2	4.74E-1	4.86E-3	-7.40E-1	1.17E+0
ODP	kg CFC-11-eq	6.59E-7	3.36E-9	5.88E-9	6.68E-7	3.10E-9	5.14E-8	1.61E-10	-3.43E-7	3.80E-7
POCP	kg ethene-eq	8.34E-4	1.14E-5	3.23E-5	8.77E-4	1.00E-5	1.05E-4	1.23E-6	-3.94E-4	5.99E-4
AP	kg SO2-eq	5.25E-3	8.34E-5	3.20E-4	5.66E-3	7.20E-5	7.50E-4	3.63E-6	-2.47E-3	4.01E-3
EP	kg PO4 3−-eq	6.65E-4	1.64E-5	4.11E-5	7.23E-4	1.44E-5	1.15E-4	1.58E-6	-3.32E-4	5.23E-4
HTP	kg 1,4-DB-eq	4.95E-1	7.98E-3	3.46E-2	5.38E-1	7.16E-3	2.02E-1	3.94E-4	-2.28E-1	5.19E-1
FAETP	kg 1,4-DB-eq	1.49E-2	2.33E-4	1.18E-3	1.63E-2	2.10E-4	3.14E-3	1.56E-4	-6.49E-3	1.33E-2
MAETP	kg 1,4-DB-eq	3.51E+1	8.38E-1	4.65E+0	4.06E+1	7.49E-1	1.04E+1	1.80E-1	-1.48E+1	3.72E+1
TETP	kg 1,4-DB-eq	3.50E-3	2.82E-5	2.57E-3	6.10E-3	2.54E-5	7.11E-4	1.25E-6	-2.15E-3	4.69E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.36E+0	1.91E-2	8.51E-2	1.47E+0	1.69E-2	5.06E-1	5.67E-3	-6.95E-1	1.30E+0
GWP-f	kg CO2 eq	1.35E+0	1.91E-2	6.54E-2	1.43E+0	1.69E-2	4.77E-1	5.67E-3	-7.57E-1	1.18E+0
GWP-b	kg CO2 eq	1.10E-2	8.83E-6	1.35E-2	2.45E-2	1.02E-5	2.87E-2	6.81E-6	6.20E-2	1.15E-1
GWP-luluc	kg CO2 eq	1.45E-3	7.01E-6	6.21E-3	7.67E-3	5.97E-6	1.98E-4	1.40E-7	-9.06E-4	6.96E-3
ODP	kg CFC11 eq	6.53E-7	4.22E-9	6.91E-9	6.65E-7	3.89E-9	5.32E-8	2.00E-10	-3.40E-7	3.82E-7
AP	mol H+ eq	6.39E-3	1.11E-4	3.99E-4	6.90E-3	9.61E-5	9.44E-4	4.86E-6	-2.99E-3	4.95E-3
EP-fw	kg P eq	6.13E-5	1.93E-7	1.15E-6	6.26E-5	1.39E-7	6.58E-6	6.36E-9	-3.09E-5	3.84E-5
EP-m	kg N eq	1.13E-3	3.91E-5	9.42E-5	1.26E-3	3.44E-5	2.34E-4	3.32E-6	-5.36E-4	1.00E-3
EP-T	mol N eq	1.23E-2	4.31E-4	1.04E-3	1.37E-2	3.79E-4	2.58E-3	1.94E-5	-5.78E-3	1.09E-2
POCP	kg NMVOC eq	4.12E-3	1.23E-4	2.96E-4	4.54E-3	1.08E-4	7.75E-4	6.75E-6	-1.96E-3	3.47E-3
ADP-mm	kg Sb eq	1.19E-3	4.85E-7	2.28E-6	1.19E-3	4.36E-7	3.74E-6	4.87E-9	-1.44E-5	1.18E-3
ADP-f	MJ	3.51E+1	2.88E-1	7.31E-1	3.61E+1	2.59E-1	2.58E+0	1.46E-2	-1.86E+1	2.03E+1
WDP	m3 depriv.	2.04E+0	1.03E-3	5.66E-1	2.61E+0	7.95E-4	9.78E-2	9.15E-5	-1.09E+0	1.62E+0
PM	disease inc.	4.64E-8	1.72E-9	4.93E-9	5.31E-8	1.52E-9	1.19E-8	1.00E-10	-2.36E-8	4.30E-8
IR	kBq U-235 eq	7.65E-2	1.21E-3	1.16E-3	7.89E-2	1.13E-3	9.02E-3	6.73E-5	-3.58E-2	5.33E-2
ETP-fw	CTUe	3.88E+1	2.57E-1	1.70E+0	4.07E+1	2.10E-1	1.86E+1	2.05E-1	-1.45E+1	4.53E+1
HTP-c	CTUh	1.03E-9	8.34E-12	5.88E-11	1.10E-9	7.48E-12	2.90E-10	3.99E-13	-3.99E-10	9.99E-10
HTP-nc	CTUh	3.36E-8	2.81E-10	1.84E-9	3.57E-8	2.51E-10	6.71E-9	4.00E-11	-1.37E-8	2.90E-8
SQP	Pt	7.06E+0	2.50E-1	5.47E-2	7.36E+0	2.22E-1	1.61E+0	3.74E-2	-1.37E+1	-4.50E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.16E+0	3.61E-3	3.56E+0	5.71E+0	3.72E-3	1.81E-1	5.53E-4	-2.89E+0	3.01E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.16E+0	3.61E-3	3.56E+0	5.71E+0	3.72E-3	1.81E-1	5.53E-4	-2.89E+0	3.01E+0
PENRE	MJ	3.76E+1	3.06E-1	7.91E-1	3.87E+1	2.75E-1	2.74E+0	1.55E-2	-2.01E+1	2.17E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.76E+1	3.06E-1	7.91E-1	3.87E+1	2.75E-1	2.74E+0	1.55E-2	-2.01E+1	2.17E+1
PET	MJ	3.98E+1	3.10E-1	4.35E+0	4.45E+1	2.79E-1	2.92E+0	1.60E-2	-2.30E+1	2.47E+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	2.41E-2	3.51E-5	1.34E-2	3.75E-2	2.93E-5	2.70E-3	1.79E-5	-1.30E-2	2.73E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.68E-4	7.31E-7	7.77E-7	1.69E-4	6.62E-7	4.23E-6	1.77E-8	-1.46E-5	1.60E-4
NHWD	kg	1.33E-1	1.83E-2	1.20E-3	1.52E-1	1.61E-2	9.60E-2	6.42E-2	-5.76E-2	2.71E-1
RWD	kg	7.00E-5	1.89E-6	1.44E-6	7.33E-5	1.76E-6	9.80E-6	9.50E-8	-3.19E-5	5.31E-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