Environmental Profile

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

Ecochain v3.5.80

Product:	3024574 - WfxPVC Branch 88° 160x125 GY/GDSN8 S/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	0.28	0	0.02	0.3	0	0.09	0	-0.15	0.26
ADPE	kg Sb-eq	2.35E-3	9.37E-7	4.05E-6	2.35E-3	8.43E-7	7.34E-6	9.40E-9	-2.82E-5	2.33E-3
ADPF	kg Sb-eq	3.16E-2	2.70E-4	6.97E-4	3.26E-2	2.37E-4	2.54E-3	1.30E-5	-1.71E-2	1.83E-2
GWP	kg CO2-eq	2.55E+0	3.67E-2	1.32E-1	2.72E+0	3.23E-2	9.13E-1	9.28E-3	-1.44E+0	2.24E+0
ODP	kg CFC-11-eq	1.30E-6	6.51E-9	1.05E-8	1.32E-6	5.99E-9	1.02E-7	3.11E-10	-6.74E-7	7.54E-7
POCP	kg ethene-eq	1.58E-3	2.21E-5	5.75E-5	1.66E-3	1.94E-5	2.05E-4	2.37E-6	-7.63E-4	1.12E-3
AP	kg SO2-eq	1.02E-2	1.61E-4	5.68E-4	1.09E-2	1.39E-4	1.47E-3	7.01E-6	-4.85E-3	7.68E-3
EP	kg PO4 3−-eq	1.30E-3	3.17E-5	7.31E-5	1.41E-3	2.78E-5	2.26E-4	2.98E-6	-6.61E-4	1.00E-3
HTP	kg 1,4-DB-eq	9.65E-1	1.54E-2	6.14E-2	1.04E+0	1.38E-2	3.94E-1	7.57E-4	-4.50E-1	1.00E+0
FAETP	kg 1,4-DB-eq	2.95E-2	4.51E-4	2.10E-3	3.20E-2	4.05E-4	6.11E-3	2.88E-4	-1.31E-2	2.57E-2
MAETP	kg 1,4-DB-eq	6.84E+1	1.62E+0	8.27E+0	7.82E+1	1.45E+0	2.05E+1	3.34E-1	-2.91E+1	7.15E+1
TETP	kg 1,4-DB-eq	6.93E-3	5.46E-5	4.57E-3	1.15E-2	4.90E-5	1.39E-3	2.43E-6	-4.35E-3	8.64E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.64E+0	3.70E-2	1.51E-1	2.83E+0	3.26E-2	9.83E-1	1.08E-2	-1.33E+0	2.52E+0
GWP-f	kg CO2 eq	2.61E+0	3.70E-2	1.16E-1	2.77E+0	3.26E-2	9.20E-1	1.08E-2	-1.47E+0	2.26E+0
GWP-b	kg CO2 eq	2.24E-2	1.71E-5	2.40E-2	4.64E-2	1.98E-5	6.28E-2	1.31E-5	1.36E-1	2.46E-1
GWP-luluc	kg CO2 eq	2.91E-3	1.36E-5	1.10E-2	1.40E-2	1.15E-5	3.89E-4	2.71E-7	-1.88E-3	1.25E-2
ODP	kg CFC11 eq	1.29E-6	8.16E-9	1.23E-8	1.31E-6	7.51E-9	1.05E-7	3.86E-10	-6.67E-7	7.58E-7
AP	mol H+ eq	1.24E-2	2.14E-4	7.09E-4	1.33E-2	1.86E-4	1.85E-3	9.38E-6	-5.88E-3	9.49E-3
EP-fw	kg P eq	1.21E-4	3.73E-7	2.04E-6	1.23E-4	2.68E-7	1.29E-5	1.23E-8	-6.16E-5	7.45E-5
EP-m	kg N eq	2.22E-3	7.56E-5	1.67E-4	2.46E-3	6.64E-5	4.60E-4	6.28E-6	-1.06E-3	1.93E-3
EP-T	mol N eq	2.39E-2	8.33E-4	1.85E-3	2.66E-2	7.32E-4	5.06E-3	3.75E-5	-1.14E-2	2.10E-2
POCP	kg NMVOC eq	7.94E-3	2.38E-4	5.26E-4	8.70E-3	2.09E-4	1.52E-3	1.30E-5	-3.84E-3	6.61E-3
ADP-mm	kg Sb eq	2.35E-3	9.37E-7	4.05E-6	2.35E-3	8.43E-7	7.34E-6	9.40E-9	-2.82E-5	2.33E-3
ADP-f	MJ	6.73E+1	5.58E-1	1.30E+0	6.91E+1	5.00E-1	5.04E+0	2.82E-2	-3.59E+1	3.88E+1
WDP	m3 depriv.	4.01E+0	2.00E-3	1.01E+0	5.02E+0	1.54E-3	1.93E-1	1.77E-4	-2.14E+0	3.07E+0
PM	disease inc.	8.94E-8	3.32E-9	8.76E-9	1.01E-7	2.94E-9	2.34E-8	1.94E-10	-4.72E-8	8.08E-8
IR	kBq U-235 eq	1.48E-1	2.34E-3	2.07E-3	1.52E-1	2.19E-3	1.77E-2	1.30E-4	-7.08E-2	1.02E-1
ETP-fw	CTUe	7.77E+1	4.97E-1	3.02E+0	8.13E+1	4.06E-1	3.70E+1	4.07E-1	-2.94E+1	8.96E+1
HTP-c	CTUh	2.03E-9	1.61E-11	1.05E-10	2.15E-9	1.45E-11	5.66E-10	7.71E-13	-7.88E-10	1.94E-9
HTP-nc	CTUh	6.62E-8	5.44E-10	3.26E-9	7.00E-8	4.84E-10	1.32E-8	7.91E-11	-2.71E-8	5.66E-8
SQP	Pt	1.42E+1	4.84E-1	9.72E-2	1.48E+1	4.28E-1	3.13E+0	7.22E-2	-2.96E+1	-1.11E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.32E+0	6.98E-3	6.32E+0	1.06E+1	7.18E-3	3.56E-1	1.06E-3	-6.14E+0	4.87E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.32E+0	6.98E-3	6.32E+0	1.06E+1	7.18E-3	3.56E-1	1.06E-3	-6.14E+0	4.87E+0
PENRE	MJ	7.21E+1	5.92E-1	1.41E+0	7.41E+1	5.31E-1	5.36E+0	2.99E-2	-3.87E+1	4.14E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	7.21E+1	5.92E-1	1.41E+0	7.41E+1	5.31E-1	5.36E+0	2.99E-2	-3.87E+1	4.14E+1
PET	MJ	7.65E+1	5.99E-1	7.73E+0	8.48E+1	5.38E-1	5.72E+0	3.10E-2	-4.48E+1	4.63E+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	4.69E-2	6.79E-5	2.38E-2	7.08E-2	5.66E-5	5.32E-3	3.46E-5	-2.58E-2	5.04E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.33E-4	1.41E-6	1.38E-6	3.36E-4	1.28E-6	8.28E-6	3.43E-8	-2.86E-5	3.17E-4
NHWD	kg	2.61E-1	3.54E-2	2.13E-3	2.98E-1	3.10E-2	1.87E-1	1.24E-1	-1.14E-1	5.26E-1
RWD	kg	1.34E-4	3.66E-6	2.56E-6	1.40E-4	3.40E-6	1.92E-5	1.84E-7	-6.31E-5	9.99E-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