Environmental Profile

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

Ecochain v3.5.80

Product:	3024570 - WfxPVC Branch 88° 125 GY/GD SN8 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	0.19	0	0.01	0.2	0	0.06	0	-0.09	0.17
ADPE	kg Sb-eq	1.50E-3	6.22E-7	2.89E-6	1.50E-3	5.62E-7	4.74E-6	6.27E-9	-1.83E-5	1.49E-3
ADPF	kg Sb-eq	2.14E-2	1.79E-4	4.97E-4	2.20E-2	1.58E-4	1.65E-3	8.69E-6	-1.14E-2	1.24E-2
GWP	kg CO2-eq	1.69E+0	2.43E-2	9.43E-2	1.81E+0	2.16E-2	6.11E-1	6.31E-3	-9.47E-1	1.50E+0
ODP	kg CFC-11-eq	8.32E-7	4.32E-9	7.46E-9	8.43E-7	4.00E-9	6.48E-8	2.07E-10	-4.35E-7	4.77E-7
POCP	kg ethene-eq	1.09E-3	1.47E-5	4.10E-5	1.14E-3	1.29E-5	1.33E-4	1.60E-6	-5.05E-4	7.85E-4
AP	kg SO2-eq	6.72E-3	1.07E-4	4.05E-4	7.24E-3	9.28E-5	9.52E-4	4.67E-6	-3.13E-3	5.15E-3
EP	kg PO4 3−-eq	8.41E-4	2.10E-5	5.21E-5	9.14E-4	1.85E-5	1.47E-4	2.06E-6	-4.11E-4	6.70E-4
HTP	kg 1,4-DB-eq	6.30E-1	1.02E-2	4.38E-2	6.84E-1	9.23E-3	2.58E-1	5.11E-4	-2.88E-1	6.64E-1
FAETP	kg 1,4-DB-eq	1.85E-2	2.99E-4	1.50E-3	2.03E-2	2.70E-4	4.03E-3	2.09E-4	-7.91E-3	1.69E-2
MAETP	kg 1,4-DB-eq	4.46E+1	1.08E+0	5.90E+0	5.16E+1	9.65E-1	1.32E+1	2.39E-1	-1.86E+1	4.74E+1
TETP	kg 1,4-DB-eq	4.40E-3	3.62E-5	3.26E-3	7.69E-3	3.27E-5	9.09E-4	1.61E-6	-2.62E-3	6.02E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.74E+0	2.46E-2	1.08E-1	1.88E+0	2.18E-2	6.46E-1	7.37E-3	-9.04E-1	1.65E+0
GWP-f	kg CO2 eq	1.73E+0	2.45E-2	8.29E-2	1.84E+0	2.17E-2	6.15E-1	7.37E-3	-9.69E-1	1.51E+0
GWP-b	kg CO2 eq	1.34E-2	1.13E-5	1.71E-2	3.06E-2	1.32E-5	3.10E-2	8.79E-6	6.63E-2	1.28E-1
GWP-luluc	kg CO2 eq	1.78E-3	8.99E-6	7.87E-3	9.66E-3	7.70E-6	2.52E-4	1.81E-7	-1.07E-3	8.85E-3
ODP	kg CFC11 eq	8.25E-7	5.42E-9	8.76E-9	8.40E-7	5.01E-9	6.71E-8	2.57E-10	-4.31E-7	4.81E-7
AP	mol H+ eq	8.16E-3	1.42E-4	5.06E-4	8.81E-3	1.24E-4	1.20E-3	6.26E-6	-3.79E-3	6.35E-3
EP-fw	kg P eq	7.74E-5	2.47E-7	1.45E-6	7.91E-5	1.79E-7	8.34E-6	8.19E-9	-3.83E-5	4.93E-5
EP-m	kg N eq	1.43E-3	5.01E-5	1.19E-4	1.60E-3	4.43E-5	2.97E-4	4.35E-6	-6.75E-4	1.27E-3
EP-T	mol N eq	1.56E-2	5.53E-4	1.32E-3	1.74E-2	4.88E-4	3.27E-3	2.50E-5	-7.27E-3	1.39E-2
POCP	kg NMVOC eq	5.31E-3	1.58E-4	3.75E-4	5.84E-3	1.40E-4	9.85E-4	8.71E-6	-2.49E-3	4.48E-3
ADP-mm	kg Sb eq	1.50E-3	6.22E-7	2.89E-6	1.50E-3	5.62E-7	4.74E-6	6.27E-9	-1.83E-5	1.49E-3
ADP-f	MJ	4.55E+1	3.70E-1	9.27E-1	4.68E+1	3.34E-1	3.28E+0	1.88E-2	-2.40E+1	2.64E+1
WDP	m3 depriv.	2.59E+0	1.32E-3	7.17E-1	3.31E+0	1.02E-3	1.24E-1	1.17E-4	-1.37E+0	2.07E+0
PM	disease inc.	5.95E-8	2.20E-9	6.24E-9	6.79E-8	1.96E-9	1.52E-8	1.29E-10	-2.92E-8	5.60E-8
IR	kBq U-235 eq	9.82E-2	1.55E-3	1.47E-3	1.01E-1	1.46E-3	1.14E-2	8.68E-5	-4.49E-2	6.93E-2
ETP-fw	CTUe	4.78E+1	3.30E-1	2.15E+0	5.03E+1	2.71E-1	2.35E+1	2.58E-1	-1.75E+1	5.68E+1
HTP-c	CTUh	1.31E-9	1.07E-11	7.45E-11	1.39E-9	9.64E-12	3.69E-10	5.12E-13	-5.02E-10	1.27E-9
HTP-nc	CTUh	4.24E-8	3.61E-10	2.33E-9	4.51E-8	3.23E-10	8.50E-9	5.06E-11	-1.73E-8	3.67E-8
SQP	Pt	8.55E+0	3.21E-1	6.93E-2	8.94E+0	2.86E-1	2.06E+0	4.82E-2	-1.52E+1	-3.90E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.65E+0	4.63E-3	4.51E+0	7.16E+0	4.79E-3	2.30E-1	7.14E-4	-3.27E+0	4.13E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.65E+0	4.63E-3	4.51E+0	7.16E+0	4.79E-3	2.30E-1	7.14E-4	-3.27E+0	4.13E+0
PENRE	MJ	4.88E+1	3.93E-1	1.00E+0	5.02E+1	3.54E-1	3.49E+0	2.00E-2	-2.59E+1	2.82E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.88E+1	3.93E-1	1.00E+0	5.02E+1	3.54E-1	3.49E+0	2.00E-2	-2.59E+1	2.82E+1
PET	MJ	5.14E+1	3.98E-1	5.51E+0	5.73E+1	3.59E-1	3.72E+0	2.07E-2	-2.91E+1	3.23E+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	3.08E-2	4.51E-5	1.70E-2	4.78E-2	3.78E-5	3.43E-3	2.31E-5	-1.61E-2	3.51E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.11E-4	9.38E-7	9.85E-7	2.13E-4	8.54E-7	5.37E-6	2.29E-8	-1.84E-5	2.01E-4
NHWD	kg	1.67E-1	2.35E-2	1.52E-3	1.92E-1	2.07E-2	1.23E-1	8.27E-2	-7.25E-2	3.46E-1
RWD	kg	9.04E-5	2.43E-6	1.82E-6	9.47E-5	2.27E-6	1.25E-5	1.23E-7	-3.99E-5	6.96E-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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