Environmental Profile

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

Ecochain v3.5.80

Product:	3024592 - Wfx PVC Bend 15° BR/GD 160 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	0.18	0	0.01	0.19	0	0.06	0	-0.09	0.16
ADPE	kg Sb-eq	1.48E-3	5.98E-7	2.61E-6	1.49E-3	5.37E-7	4.66E-6	5.98E-9	-1.79E-5	1.47E-3
ADPF	kg Sb-eq	2.02E-2	1.72E-4	4.48E-4	2.08E-2	1.51E-4	1.61E-3	8.30E-6	-1.09E-2	1.17E-2
GWP	kg CO2-eq	1.63E+0	2.34E-2	8.51E-2	1.74E+0	2.06E-2	5.82E-1	5.93E-3	-9.15E-1	1.43E+0
ODP	kg CFC-11-eq	8.24E-7	4.15E-9	6.73E-9	8.35E-7	3.82E-9	6.44E-8	1.98E-10	-4.27E-7	4.77E-7
POCP	kg ethene-eq	1.01E-3	1.41E-5	3.70E-5	1.06E-3	1.23E-5	1.30E-4	1.51E-6	-4.87E-4	7.20E-4
AP	kg SO2-eq	6.48E-3	1.03E-4	3.66E-4	6.95E-3	8.85E-5	9.35E-4	4.46E-6	-3.09E-3	4.89E-3
EP	kg PO4 3−-eq	8.30E-4	2.02E-5	4.70E-5	8.97E-4	1.77E-5	1.44E-4	1.91E-6	-4.21E-4	6.39E-4
HTP	kg 1,4-DB-eq	6.13E-1	9.85E-3	3.95E-2	6.63E-1	8.80E-3	2.51E-1	4.83E-4	-2.86E-1	6.37E-1
FAETP	kg 1,4-DB-eq	1.88E-2	2.88E-4	1.35E-3	2.04E-2	2.58E-4	3.89E-3	1.86E-4	-8.34E-3	1.64E-2
MAETP	kg 1,4-DB-eq	4.35E+1	1.03E+0	5.32E+0	4.98E+1	9.21E-1	1.30E+1	2.15E-1	-1.85E+1	4.55E+1
TETP	kg 1,4-DB-eq	4.39E-3	3.48E-5	2.94E-3	7.37E-3	3.12E-5	8.81E-4	1.54E-6	-2.77E-3	5.51E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.68E+0	2.36E-2	9.74E-2	1.80E+0	2.08E-2	6.27E-1	6.91E-3	-8.49E-1	1.61E+0
GWP-f	kg CO2 eq	1.67E+0	2.36E-2	7.48E-2	1.76E+0	2.07E-2	5.86E-1	6.91E-3	-9.36E-1	1.44E+0
GWP-b	kg CO2 eq	1.42E-2	1.09E-5	1.54E-2	2.96E-2	1.26E-5	4.04E-2	8.37E-6	8.78E-2	1.58E-1
GWP-luluc	kg CO2 eq	1.85E-3	8.65E-6	7.10E-3	8.97E-3	7.34E-6	2.46E-4	1.72E-7	-1.20E-3	8.02E-3
ODP	kg CFC11 eq	8.17E-7	5.21E-9	7.91E-9	8.30E-7	4.78E-9	6.66E-8	2.46E-10	-4.23E-7	4.79E-7
AP	mol H+ eq	7.90E-3	1.37E-4	4.56E-4	8.49E-3	1.18E-4	1.18E-3	5.97E-6	-3.74E-3	6.05E-3
EP-fw	kg P eq	7.65E-5	2.38E-7	1.31E-6	7.81E-5	1.71E-7	8.20E-6	7.82E-9	-3.92E-5	4.73E-5
EP-m	kg N eq	1.41E-3	4.82E-5	1.08E-4	1.57E-3	4.23E-5	2.92E-4	4.01E-6	-6.73E-4	1.23E-3
EP-T	mol N eq	1.52E-2	5.32E-4	1.19E-3	1.70E-2	4.66E-4	3.22E-3	2.38E-5	-7.26E-3	1.34E-2
POCP	kg NMVOC eq	5.07E-3	1.52E-4	3.38E-4	5.56E-3	1.33E-4	9.66E-4	8.28E-6	-2.45E-3	4.22E-3
ADP-mm	kg Sb eq	1.48E-3	5.98E-7	2.61E-6	1.49E-3	5.37E-7	4.66E-6	5.98E-9	-1.79E-5	1.47E-3
ADP-f	MJ	4.30E+1	3.56E-1	8.36E-1	4.42E+1	3.18E-1	3.20E+0	1.79E-2	-2.29E+1	2.48E+1
WDP	m3 depriv.	2.54E+0	1.27E-3	6.47E-1	3.19E+0	9.77E-4	1.22E-1	1.13E-4	-1.36E+0	1.96E+0
PM	disease inc.	5.72E-8	2.12E-9	5.63E-9	6.49E-8	1.87E-9	1.48E-8	1.23E-10	-3.01E-8	5.16E-8
IR	kBq U-235 eq	9.41E-2	1.49E-3	1.33E-3	9.70E-2	1.39E-3	1.12E-2	8.27E-5	-4.50E-2	6.47E-2
ETP-fw	CTUe	4.95E+1	3.17E-1	1.94E+0	5.17E+1	2.59E-1	2.34E+1	2.57E-1	-1.88E+1	5.68E+1
HTP-c	CTUh	1.29E-9	1.03E-11	6.72E-11	1.36E-9	9.20E-12	3.60E-10	4.91E-13	-5.00E-10	1.23E-9
HTP-nc	CTUh	4.19E-8	3.47E-10	2.10E-9	4.44E-8	3.08E-10	8.37E-9	5.01E-11	-1.72E-8	3.59E-8
SQP	Pt	9.10E+0	3.09E-1	6.25E-2	9.47E+0	2.72E-1	1.99E+0	4.60E-2	-1.90E+1	-7.20E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.75E+0	4.46E-3	4.07E+0	6.82E+0	4.57E-3	2.26E-1	6.78E-4	-3.94E+0	3.12E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.75E+0	4.46E-3	4.07E+0	6.82E+0	4.57E-3	2.26E-1	6.78E-4	-3.94E+0	3.12E+0
PENRE	MJ	4.61E+1	3.78E-1	9.04E-1	4.74E+1	3.38E-1	3.41E+0	1.90E-2	-2.47E+1	2.64E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.61E+1	3.78E-1	9.04E-1	4.74E+1	3.38E-1	3.41E+0	1.90E-2	-2.47E+1	2.64E+1
PET	MJ	4.88E+1	3.82E-1	4.97E+0	5.42E+1	3.43E-1	3.63E+0	1.97E-2	-2.86E+1	2.96E+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	2.98E-2	4.34E-5	1.53E-2	4.52E-2	3.60E-5	3.37E-3	2.20E-5	-1.64E-2	3.22E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.11E-4	9.02E-7	8.88E-7	2.13E-4	8.14E-7	5.26E-6	2.18E-8	-1.81E-5	2.00E-4
NHWD	kg	1.66E-1	2.26E-2	1.37E-3	1.90E-1	1.97E-2	1.19E-1	7.89E-2	-7.22E-2	3.35E-1
RWD	kg	8.54E-5	2.34E-6	1.65E-6	8.94E-5	2.17E-6	1.22E-5	1.17E-7	-4.01E-5	6.38E-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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