Environmental Profile

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

Ecochain v3.5.80

Product:	3024598 - Wfx PVC Branch 88° BR/GD 160 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	0.33	0.01	0.02	0.36	0	0.11	0	-0.17	0.3
ADPE	kg Sb-eq	2.82E-3	1.09E-6	4.78E-6	2.82E-3	1.00E-6	8.71E-6	1.11E-8	-3.35E-5	2.80E-3
ADPF	kg Sb-eq	3.70E-2	3.14E-4	8.22E-4	3.82E-2	2.81E-4	3.02E-3	1.55E-5	-2.00E-2	2.15E-2
GWP	kg CO2-eq	3.00E+0	4.28E-2	1.56E-1	3.20E+0	3.83E-2	1.08E+0	1.09E-2	-1.69E+0	2.64E+0
ODP	kg CFC-11-eq	1.56E-6	7.59E-9	1.23E-8	1.58E-6	7.11E-9	1.22E-7	3.69E-10	-8.04E-7	9.07E-7
POCP	kg ethene-eq	1.84E-3	2.58E-5	6.77E-5	1.93E-3	2.30E-5	2.42E-4	2.80E-6	-8.91E-4	1.31E-3
AP	kg SO2-eq	1.20E-2	1.88E-4	6.70E-4	1.28E-2	1.65E-4	1.75E-3	8.31E-6	-5.66E-3	9.09E-3
EP	kg PO4 3−-eq	1.52E-3	3.69E-5	8.62E-5	1.64E-3	3.29E-5	2.68E-4	3.50E-6	-7.58E-4	1.19E-3
HTP	kg 1,4-DB-eq	1.14E+0	1.80E-2	7.24E-2	1.23E+0	1.64E-2	4.67E-1	8.94E-4	-5.29E-1	1.19E+0
FAETP	kg 1,4-DB-eq	3.42E-2	5.26E-4	2.47E-3	3.72E-2	4.80E-4	7.21E-3	3.32E-4	-1.48E-2	3.04E-2
MAETP	kg 1,4-DB-eq	8.07E+1	1.89E+0	9.75E+0	9.23E+1	1.72E+0	2.42E+1	3.87E-1	-3.42E+1	8.44E+1
TETP	kg 1,4-DB-eq	8.18E-3	6.36E-5	5.39E-3	1.36E-2	5.81E-5	1.65E-3	2.89E-6	-4.92E-3	1.04E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	3.10E+0	4.32E-2	1.78E-1	3.32E+0	3.87E-2	1.15E+0	1.28E-2	-1.59E+0	2.93E+0
GWP-f	kg CO2 eq	3.07E+0	4.31E-2	1.37E-1	3.25E+0	3.86E-2	1.09E+0	1.28E-2	-1.72E+0	2.67E+0
GWP-b	kg CO2 eq	2.68E-2	1.99E-5	2.83E-2	5.52E-2	2.35E-5	6.26E-2	1.56E-5	1.35E-1	2.52E-1
GWP-luluc	kg CO2 eq	3.32E-3	1.58E-5	1.30E-2	1.64E-2	1.37E-5	4.64E-4	3.21E-7	-2.04E-3	1.48E-2
ODP	kg CFC11 eq	1.55E-6	9.52E-9	1.45E-8	1.57E-6	8.90E-9	1.26E-7	4.58E-10	-7.96E-7	9.09E-7
AP	mol H+ eq	1.46E-2	2.50E-4	8.36E-4	1.56E-2	2.20E-4	2.20E-3	1.11E-5	-6.85E-3	1.12E-2
EP-fw	kg P eq	1.42E-4	4.35E-7	2.40E-6	1.45E-4	3.18E-7	1.55E-5	1.46E-8	-7.11E-5	8.96E-5
EP-m	kg N eq	2.58E-3	8.81E-5	1.97E-4	2.87E-3	7.88E-5	5.43E-4	7.36E-6	-1.22E-3	2.27E-3
EP-T	mol N eq	2.80E-2	9.72E-4	2.18E-3	3.11E-2	8.68E-4	5.98E-3	4.44E-5	-1.32E-2	2.48E-2
POCP	kg NMVOC eq	9.27E-3	2.77E-4	6.20E-4	1.02E-2	2.48E-4	1.79E-3	1.54E-5	-4.46E-3	7.76E-3
ADP-mm	kg Sb eq	2.82E-3	1.09E-6	4.78E-6	2.82E-3	1.00E-6	8.71E-6	1.11E-8	-3.35E-5	2.80E-3
ADP-f	MJ	7.89E+1	6.50E-1	1.53E+0	8.11E+1	5.93E-1	5.99E+0	3.34E-2	-4.22E+1	4.55E+1
WDP	m3 depriv.	4.79E+0	2.33E-3	1.19E+0	5.97E+0	1.82E-3	2.31E-1	2.12E-4	-2.51E+0	3.70E+0
PM	disease inc.	1.03E-7	3.87E-9	1.03E-8	1.17E-7	3.49E-9	2.76E-8	2.30E-10	-5.34E-8	9.52E-8
IR	kBq U-235 eq	1.74E-1	2.73E-3	2.44E-3	1.79E-1	2.59E-3	2.10E-2	1.54E-4	-8.28E-2	1.20E-1
ETP-fw	CTUe	8.94E+1	5.80E-1	3.56E+0	9.35E+1	4.82E-1	4.44E+1	4.89E-1	-3.30E+1	1.06E+2
HTP-c	CTUh	2.41E-9	1.88E-11	1.23E-10	2.55E-9	1.71E-11	6.71E-10	9.16E-13	-9.23E-10	2.32E-9
HTP-nc	CTUh	7.89E-8	6.34E-10	3.85E-9	8.34E-8	5.74E-10	1.58E-8	9.50E-11	-3.18E-8	6.80E-8
SQP	Pt	1.58E+1	5.64E-1	1.15E-1	1.65E+1	5.07E-1	3.71E+0	8.56E-2	-3.02E+1	-9.46E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.91E+0	8.14E-3	7.45E+0	1.24E+1	8.51E-3	4.25E-1	1.26E-3	-6.41E+0	6.39E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.91E+0	8.14E-3	7.45E+0	1.24E+1	8.51E-3	4.25E-1	1.26E-3	-6.41E+0	6.39E+0
PENRE	MJ	8.46E+1	6.91E-1	1.66E+0	8.69E+1	6.30E-1	6.37E+0	3.55E-2	-4.54E+1	4.86E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.46E+1	6.91E-1	1.66E+0	8.69E+1	6.30E-1	6.37E+0	3.55E-2	-4.54E+1	4.86E+1
PET	MJ	8.95E+1	6.99E-1	9.11E+0	9.93E+1	6.38E-1	6.79E+0	3.67E-2	-5.18E+1	5.50E+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	5.55E-2	7.92E-5	2.80E-2	8.36E-2	6.71E-5	6.35E-3	4.10E-5	-2.97E-2	6.03E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.01E-4	1.65E-6	1.63E-6	4.04E-4	1.52E-6	9.80E-6	4.07E-8	-3.37E-5	3.82E-4
NHWD	kg	3.07E-1	4.13E-2	2.51E-3	3.50E-1	3.68E-2	2.21E-1	1.47E-1	-1.33E-1	6.21E-1
RWD	kg	1.56E-4	4.27E-6	3.02E-6	1.64E-4	4.03E-6	2.27E-5	2.18E-7	-7.36E-5	1.17E-4
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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