Environmental Profile

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

Ecochain v3.5.80

Product:	3001287 - Wafix PVC Bend 30° GY 160 SN4 S/SP
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	0.21	0	0.01	0.22	0	0.07	0	-0.11	0.18
ADPE	kg Sb-eq	1.73E-3	6.75E-7	2.81E-6	1.74E-3	6.07E-7	5.38E-6	6.78E-9	-2.07E-5	1.72E-3
ADPF	kg Sb-eq	2.26E-2	1.94E-4	4.83E-4	2.32E-2	1.71E-4	1.86E-3	9.39E-6	-1.22E-2	1.30E-2
GWP	kg CO2-eq	1.85E+0	2.64E-2	9.16E-2	1.96E+0	2.33E-2	6.57E-1	6.61E-3	-1.04E+0	1.61E+0
ODP	kg CFC-11-eq	9.64E-7	4.69E-9	7.24E-9	9.76E-7	4.32E-9	7.54E-8	2.24E-10	-4.95E-7	5.61E-7
POCP	kg ethene-eq	1.12E-3	1.59E-5	3.98E-5	1.17E-3	1.40E-5	1.50E-4	1.69E-6	-5.51E-4	7.87E-4
AP	kg SO2-eq	7.37E-3	1.16E-4	3.94E-4	7.88E-3	1.00E-4	1.08E-3	5.05E-6	-3.55E-3	5.51E-3
EP	kg PO4 3−-eq	9.54E-4	2.28E-5	5.06E-5	1.03E-3	2.00E-5	1.66E-4	2.11E-6	-4.91E-4	7.24E-4
HTP	kg 1,4-DB-eq	7.03E-1	1.11E-2	4.26E-2	7.57E-1	9.96E-3	2.86E-1	5.42E-4	-3.31E-1	7.23E-1
FAETP	kg 1,4-DB-eq	2.19E-2	3.25E-4	1.45E-3	2.36E-2	2.92E-4	4.43E-3	1.96E-4	-9.84E-3	1.87E-2
MAETP	kg 1,4-DB-eq	4.98E+1	1.17E+0	5.73E+0	5.67E+1	1.04E+0	1.50E+1	2.30E-1	-2.14E+1	5.17E+1
TETP	kg 1,4-DB-eq	5.12E-3	3.93E-5	3.16E-3	8.32E-3	3.53E-5	1.01E-3	1.76E-6	-3.28E-3	6.09E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.91E+0	2.67E-2	1.05E-1	2.04E+0	2.35E-2	7.12E-1	7.71E-3	-9.53E-1	1.83E+0
GWP-f	kg CO2 eq	1.89E+0	2.66E-2	8.05E-2	2.00E+0	2.35E-2	6.62E-1	7.71E-3	-1.06E+0	1.63E+0
GWP-b	kg CO2 eq	1.70E-2	1.23E-5	1.66E-2	3.37E-2	1.43E-5	5.03E-2	9.45E-6	1.10E-1	1.94E-1
GWP-luluc	kg CO2 eq	2.18E-3	9.76E-6	7.65E-3	9.84E-3	8.31E-6	2.85E-4	1.95E-7	-1.44E-3	8.69E-3
ODP	kg CFC11 eq	9.54E-7	5.88E-9	8.51E-9	9.68E-7	5.41E-9	7.78E-8	2.78E-10	-4.90E-7	5.62E-7
AP	mol H+ eq	8.98E-3	1.55E-4	4.91E-4	9.63E-3	1.34E-4	1.36E-3	6.76E-6	-4.30E-3	6.82E-3
EP-fw	kg P eq	8.86E-5	2.69E-7	1.41E-6	9.03E-5	1.93E-7	9.51E-6	8.85E-9	-4.59E-5	5.41E-5
EP-m	kg N eq	1.62E-3	5.45E-5	1.16E-4	1.79E-3	4.79E-5	3.36E-4	4.43E-6	-7.75E-4	1.40E-3
EP-T	mol N eq	1.74E-2	6.00E-4	1.28E-3	1.93E-2	5.27E-4	3.71E-3	2.70E-5	-8.37E-3	1.52E-2
POCP	kg NMVOC eq	5.70E-3	1.71E-4	3.64E-4	6.24E-3	1.51E-4	1.11E-3	9.34E-6	-2.79E-3	4.72E-3
ADP-mm	kg Sb eq	1.73E-3	6.75E-7	2.81E-6	1.74E-3	6.07E-7	5.38E-6	6.77E-9	-2.06E-5	1.72E-3
ADP-f	MJ	4.80E+1	4.02E-1	9.00E-1	4.93E+1	3.60E-1	3.68E+0	2.03E-2	-2.58E+1	2.76E+1
WDP	m3 depriv.	2.94E+0	1.44E-3	6.97E-1	3.64E+0	1.11E-3	1.42E-1	1.29E-4	-1.57E+0	2.21E+0
PM	disease inc.	6.42E-8	2.39E-9	6.06E-9	7.27E-8	2.12E-9	1.71E-8	1.40E-10	-3.50E-8	5.70E-8
IR	kBq U-235 eq	1.07E-1	1.68E-3	1.43E-3	1.10E-1	1.58E-3	1.30E-2	9.35E-5	-5.23E-2	7.24E-2
ETP-fw	CTUe	5.81E+1	3.58E-1	2.09E+0	6.06E+1	2.93E-1	2.74E+1	3.02E-1	-2.22E+1	6.63E+1
HTP-c	CTUh	1.49E-9	1.16E-11	7.24E-11	1.57E-9	1.04E-11	4.13E-10	5.57E-13	-5.80E-10	1.42E-9
HTP-nc	CTUh	4.88E-8	3.92E-10	2.26E-9	5.14E-8	3.49E-10	9.72E-9	5.84E-11	-2.00E-8	4.15E-8
SQP	Pt	1.07E+1	3.49E-1	6.73E-2	1.11E+1	3.08E-1	2.28E+0	5.20E-2	-2.34E+1	-9.64E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.23E+0	5.03E-3	4.38E+0	7.61E+0	5.17E-3	2.61E-1	7.65E-4	-4.81E+0	3.07E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.23E+0	5.03E-3	4.38E+0	7.61E+0	5.17E-3	2.61E-1	7.65E-4	-4.81E+0	3.07E+0
PENRE	MJ	5.15E+1	4.27E-1	9.73E-1	5.29E+1	3.83E-1	3.92E+0	2.16E-2	-2.78E+1	2.95E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.15E+1	4.27E-1	9.73E-1	5.29E+1	3.83E-1	3.92E+0	2.16E-2	-2.78E+1	2.95E+1
PET	MJ	5.47E+1	4.32E-1	5.35E+0	6.05E+1	3.88E-1	4.18E+0	2.23E-2	-3.26E+1	3.25E+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	3.41E-2	4.89E-5	1.65E-2	5.07E-2	4.08E-5	3.91E-3	2.49E-5	-1.91E-2	3.55E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.48E-4	1.02E-6	9.56E-7	2.49E-4	9.22E-7	6.05E-6	2.47E-8	-2.09E-5	2.36E-4
NHWD	kg	1.92E-1	2.55E-2	1.48E-3	2.19E-1	2.23E-2	1.35E-1	8.93E-2	-8.37E-2	3.82E-1
RWD	kg	9.58E-5	2.64E-6	1.77E-6	1.00E-4	2.45E-6	1.40E-5	1.32E-7	-4.66E-5	7.02E-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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