Environmental Profile

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

Ecochain v3.5.80

Product:	3052460 - Wafix PVC Bend 45° BR/GY 110 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]

Statement of Confidentiality

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.08	0	0	0.09	0	0.03	0	-0.04	0.07
ADPE	kg Sb-eq	6.40E-4	2.72E-7	1.23E-6	6.42E-4	2.44E-7	2.05E-6	2.72E-9	-7.89E-6	6.36E-4
ADPF	kg Sb-eq	9.34E-3	7.84E-5	2.11E-4	9.63E-3	6.86E-5	7.13E-4	3.77E-6	-4.99E-3	5.42E-3
GWP	kg CO2-eq	7.35E-1	1.07E-2	4.00E-2	7.86E-1	9.35E-3	2.65E-1	2.75E-3	-4.13E-1	6.50E-1
ODP	kg CFC-11-eq	3.55E-7	1.89E-9	3.16E-9	3.60E-7	1.73E-9	2.77E-8	8.99E-11	-1.87E-7	2.03E-7
POCP	kg ethene-eq	4.76E-4	6.43E-6	1.74E-5	5.00E-4	5.61E-6	5.78E-5	6.96E-7	-2.21E-4	3.43E-4
AP	kg SO2-eq	2.92E-3	4.68E-5	1.72E-4	3.14E-3	4.02E-5	4.11E-4	2.03E-6	-1.37E-3	2.23E-3
EP	kg PO4 3−-eq	3.67E-4	9.20E-6	2.21E-5	3.98E-4	8.03E-6	6.34E-5	8.99E-7	-1.81E-4	2.89E-4
HTP	kg 1,4-DB-eq	2.72E-1	4.49E-3	1.86E-2	2.95E-1	4.00E-3	1.12E-1	2.22E-4	-1.25E-1	2.87E-1
FAETP	kg 1,4-DB-eq	8.09E-3	1.31E-4	6.35E-4	8.86E-3	1.17E-4	1.75E-3	9.40E-5	-3.51E-3	7.31E-3
MAETP	kg 1,4-DB-eq	1.93E+1	4.71E-1	2.50E+0	2.23E+1	4.18E-1	5.74E+0	1.07E-1	-8.07E+0	2.05E+1
TETP	kg 1,4-DB-eq	1.90E-3	1.59E-5	1.38E-3	3.30E-3	1.42E-5	3.92E-4	6.93E-7	-1.16E-3	2.54E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	7.60E-1	1.08E-2	4.58E-2	8.16E-1	9.43E-3	2.82E-1	3.22E-3	-3.91E-1	7.20E-1
GWP-f	kg CO2 eq	7.53E-1	1.07E-2	3.52E-2	7.99E-1	9.42E-3	2.67E-1	3.21E-3	-4.23E-1	6.56E-1
GWP-b	kg CO2 eq	5.77E-3	4.96E-6	7.26E-3	1.30E-2	5.72E-6	1.50E-2	3.81E-6	3.23E-2	6.03E-2
GWP-luluc	kg CO2 eq	7.84E-4	3.94E-6	3.34E-3	4.13E-3	3.34E-6	1.08E-4	7.82E-8	-4.85E-4	3.76E-3
ODP	kg CFC11 eq	3.53E-7	2.37E-9	3.72E-9	3.59E-7	2.17E-9	2.87E-8	1.12E-10	-1.85E-7	2.05E-7
AP	mol H+ eq	3.55E-3	6.23E-5	2.15E-4	3.83E-3	5.37E-5	5.17E-4	2.71E-6	-1.65E-3	2.75E-3
EP-fw	kg P eq	3.34E-5	1.08E-7	6.17E-7	3.42E-5	7.75E-8	3.58E-6	3.55E-9	-1.68E-5	2.11E-5
EP-m	kg N eq	6.25E-4	2.20E-5	5.07E-5	6.98E-4	1.92E-5	1.29E-4	1.89E-6	-2.96E-4	5.52E-4
EP-T	mol N eq	6.79E-3	2.42E-4	5.59E-4	7.59E-3	2.12E-4	1.42E-3	1.08E-5	-3.19E-3	6.04E-3
POCP	kg NMVOC eq	2.32E-3	6.91E-5	1.59E-4	2.55E-3	6.05E-5	4.27E-4	3.78E-6	-1.09E-3	1.94E-3
ADP-mm	kg Sb eq	6.40E-4	2.72E-7	1.23E-6	6.42E-4	2.44E-7	2.05E-6	2.72E-9	-7.89E-6	6.36E-4
ADP-f	MJ	1.99E+1	1.62E-1	3.94E-1	2.04E+1	1.45E-1	1.42E+0	8.15E-3	-1.05E+1	1.15E+1
WDP	m3 depriv.	1.11E+0	5.80E-4	3.05E-1	1.42E+0	4.44E-4	5.31E-2	5.06E-5	-5.94E-1	8.80E-1
PM	disease inc.	2.62E-8	9.65E-10	2.65E-9	2.98E-8	8.51E-10	6.58E-9	5.61E-11	-1.30E-8	2.43E-8
IR	kBq U-235 eq	4.25E-2	6.79E-4	6.26E-4	4.38E-2	6.32E-4	4.94E-3	3.76E-5	-1.95E-2	2.99E-2
ETP-fw	CTUe	2.10E+1	1.45E-1	9.14E-1	2.20E+1	1.17E-1	1.00E+1	1.10E-1	-7.80E+0	2.45E+1
HTP-c	CTUh	5.63E-10	4.69E-12	3.16E-11	5.99E-10	4.18E-12	1.60E-10	2.22E-13	-2.18E-10	5.45E-10
HTP-nc	CTUh	1.82E-8	1.58E-10	9.88E-10	1.94E-8	1.40E-10	3.65E-9	2.16E-11	-7.48E-9	1.57E-8
SQP	Pt	3.83E+0	1.41E-1	2.94E-2	4.00E+0	1.24E-1	8.92E-1	2.09E-2	-7.22E+0	-2.18E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.17E+0	2.03E-3	1.91E+0	3.09E+0	2.08E-3	9.88E-2	3.10E-4	-1.53E+0	1.66E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.17E+0	2.03E-3	1.91E+0	3.09E+0	2.08E-3	9.88E-2	3.10E-4	-1.53E+0	1.66E+0
PENRE	MJ	2.13E+1	1.72E-1	4.25E-1	2.19E+1	1.54E-1	1.51E+0	8.65E-3	-1.13E+1	1.23E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.13E+1	1.72E-1	4.25E-1	2.19E+1	1.54E-1	1.51E+0	8.65E-3	-1.13E+1	1.23E+1
PET	MJ	2.25E+1	1.74E-1	2.34E+0	2.50E+1	1.56E-1	1.61E+0	8.96E-3	-1.28E+1	1.39E+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	1.33E-2	1.97E-5	7.20E-3	2.05E-2	1.64E-5	1.47E-3	1.00E-5	-7.09E-3	1.49E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	9.01E-5	4.11E-7	4.18E-7	9.09E-5	3.70E-7	2.32E-6	9.91E-9	-7.98E-6	8.56E-5
NHWD	kg	7.24E-2	1.03E-2	6.45E-4	8.34E-2	8.97E-3	5.33E-2	3.58E-2	-3.14E-2	1.50E-1
RWD	kg	3.93E-5	1.06E-6	7.74E-7	4.11E-5	9.84E-7	5.39E-6	5.31E-8	-1.74E-5	3.02E-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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