Environmental Profile

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

Ecochain v3.5.80

Product:	3004144 - PVC RWA Bend 45° GY 80 S/RSP
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	0.03	0	0	0.03	0	0.01	0	-0.01	0.02
ADPE	kg Sb-eq	2.20E-4	8.08E-8	3.41E-7	2.20E-4	7.22E-8	6.72E-7	8.06E-10	-2.56E-6	2.18E-4
ADPF	kg Sb-eq	2.62E-3	2.33E-5	5.86E-5	2.71E-3	2.03E-5	2.30E-4	1.12E-6	-1.44E-3	1.52E-3
GWP	kg CO2-eq	2.23E-1	3.16E-3	1.11E-2	2.37E-1	2.77E-3	7.80E-2	7.60E-4	-1.25E-1	1.93E-1
ODP	kg CFC-11-eq	1.22E-7	5.61E-10	8.79E-10	1.24E-7	5.13E-10	9.59E-9	2.66E-11	-6.19E-8	7.21E-8
POCP	kg ethene-eq	1.27E-4	1.91E-6	4.83E-6	1.34E-4	1.66E-6	1.85E-5	1.97E-7	-6.62E-5	8.77E-5
AP	kg SO2-eq	8.92E-4	1.39E-5	4.78E-5	9.54E-4	1.19E-5	1.35E-4	6.01E-7	-4.42E-4	6.58E-4
EP	kg PO4 3−-eq	1.19E-4	2.73E-6	6.14E-6	1.28E-4	2.38E-6	2.06E-5	2.37E-7	-6.41E-5	8.73E-5
HTP	kg 1,4-DB-eq	8.67E-2	1.33E-3	5.17E-3	9.32E-2	1.18E-3	3.49E-2	6.31E-5	-4.17E-2	8.77E-2
FAETP	kg 1,4-DB-eq	2.84E-3	3.89E-5	1.76E-4	3.05E-3	3.47E-5	5.36E-4	1.94E-5	-1.33E-3	2.31E-3
MAETP	kg 1,4-DB-eq	6.15E+0	1.40E-1	6.95E-1	6.99E+0	1.24E-1	1.88E+0	2.38E-2	-2.70E+0	6.31E+0
TETP	kg 1,4-DB-eq	6.55E-4	4.71E-6	3.84E-4	1.04E-3	4.19E-6	1.23E-4	2.12E-7	-4.45E-4	7.27E-4
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.30E-1	3.19E-3	1.27E-2	2.46E-1	2.79E-3	8.66E-2	8.86E-4	-1.11E-1	2.26E-1
GWP-f	kg CO2 eq	2.28E-1	3.19E-3	9.78E-3	2.41E-1	2.79E-3	7.85E-2	8.86E-4	-1.28E-1	1.95E-1
GWP-b	kg CO2 eq	2.31E-3	1.47E-6	2.02E-3	4.33E-3	1.69E-6	8.02E-3	1.12E-6	1.77E-2	3.01E-2
GWP-luluc	kg CO2 eq	2.92E-4	1.17E-6	9.28E-4	1.22E-3	9.88E-7	3.55E-5	2.32E-8	-2.06E-4	1.05E-3
ODP	kg CFC11 eq	1.21E-7	7.04E-10	1.03E-9	1.23E-7	6.43E-10	9.89E-9	3.30E-11	-6.13E-8	7.19E-8
AP	mol H+ eq	1.09E-3	1.85E-5	5.96E-5	1.17E-3	1.59E-5	1.69E-4	8.04E-7	-5.37E-4	8.18E-4
EP-fw	kg P eq	1.12E-5	3.22E-8	1.71E-7	1.14E-5	2.30E-8	1.19E-6	1.05E-9	-6.00E-6	6.58E-6
EP-m	kg N eq	2.02E-4	6.52E-6	1.41E-5	2.22E-4	5.69E-6	4.19E-5	4.98E-7	-9.79E-5	1.73E-4
EP-T	mol N eq	2.16E-3	7.19E-5	1.55E-4	2.38E-3	6.27E-5	4.61E-4	3.21E-6	-1.06E-3	1.85E-3
POCP	kg NMVOC eq	6.78E-4	2.05E-5	4.42E-5	7.42E-4	1.79E-5	1.38E-4	1.10E-6	-3.44E-4	5.55E-4
ADP-mm	kg Sb eq	2.20E-4	8.08E-8	3.41E-7	2.20E-4	7.22E-8	6.72E-7	8.06E-10	-2.56E-6	2.18E-4
ADP-f	MJ	5.59E+0	4.81E-2	1.09E-1	5.75E+0	4.28E-2	4.54E-1	2.41E-3	-3.05E+0	3.20E+0
WDP	m3 depriv.	3.66E-1	1.72E-4	8.46E-2	4.51E-1	1.31E-4	1.78E-2	1.56E-5	-1.99E-1	2.71E-1
PM	disease inc.	7.70E-9	2.86E-10	7.36E-10	8.72E-9	2.52E-10	2.10E-9	1.66E-11	-4.60E-9	6.49E-9
IR	kBq U-235 eq	1.29E-2	2.02E-4	1.74E-4	1.33E-2	1.87E-4	1.62E-3	1.11E-5	-6.68E-3	8.40E-3
ETP-fw	CTUe	7.71E+0	4.29E-2	2.54E-1	8.01E+0	3.48E-2	3.50E+0	3.85E-2	-3.05E+0	8.53E+0
HTP-c	CTUh	1.87E-10	1.39E-12	8.79E-12	1.97E-10	1.24E-12	5.08E-11	6.67E-14	-7.38E-11	1.75E-10
HTP-nc	CTUh	6.16E-9	4.69E-11	2.74E-10	6.48E-9	4.15E-11	1.22E-9	7.39E-12	-2.55E-9	5.20E-9
SQP	Pt	1.46E+0	4.17E-2	8.17E-3	1.51E+0	3.66E-2	2.77E-1	6.18E-3	-3.63E+0	-1.80E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.28E-1	6.02E-4	5.31E-1	9.60E-1	6.14E-4	3.26E-2	9.01E-5	-7.27E-1	2.66E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.28E-1	6.02E-4	5.31E-1	9.60E-1	6.14E-4	3.26E-2	9.01E-5	-7.27E-1	2.66E-1
PENRE	MJ	6.00E+0	5.11E-2	1.18E-1	6.17E+0	4.55E-2	4.83E-1	2.56E-3	-3.28E+0	3.42E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	6.00E+0	5.11E-2	1.18E-1	6.17E+0	4.55E-2	4.83E-1	2.56E-3	-3.28E+0	3.42E+0
PET	MJ	6.42E+0	5.17E-2	6.50E-1	7.13E+0	4.61E-2	5.16E-1	2.65E-3	-4.01E+0	3.68E+0
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	4.18E-3	5.86E-6	2.00E-3	6.18E-3	4.85E-6	4.89E-4	2.96E-6	-2.49E-3	4.19E-3
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.17E-5	1.22E-7	1.16E-7	3.20E-5	1.10E-7	7.50E-7	2.94E-9	-2.62E-6	3.02E-5
NHWD	kg	2.43E-2	3.05E-3	1.79E-4	2.75E-2	2.65E-3	1.64E-2	1.06E-2	-1.06E-2	4.66E-2
RWD	kg	1.13E-5	3.16E-7	2.15E-7	1.18E-5	2.91E-7	1.74E-6	1.57E-8	-5.97E-6	7.87E-6
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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