Environmental Profile

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

Ecochain v3.5.80

Product:	3004224 - PVC RWA Bend 45° WT 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	2.88E-4	7.94E-8	3.50E-7	2.88E-4	7.22E-8	6.62E-7	8.20E-10	-2.56E-6	2.86E-4
ADPF	kg Sb-eq	2.68E-3	2.28E-5	6.02E-5	2.76E-3	2.03E-5	2.27E-4	1.12E-6	-1.44E-3	1.57E-3
GWP	kg CO2-eq	2.35E-1	3.11E-3	1.14E-2	2.50E-1	2.77E-3	7.81E-2	7.71E-4	-1.25E-1	2.06E-1
ODP	kg CFC-11-eq	1.16E-7	5.51E-10	9.03E-10	1.18E-7	5.13E-10	9.33E-9	2.67E-11	-6.19E-8	6.55E-8
POCP	kg ethene-eq	1.42E-4	1.87E-6	4.96E-6	1.49E-4	1.66E-6	1.83E-5	1.99E-7	-6.61E-5	1.03E-4
AP	kg SO2-eq	9.79E-4	1.37E-5	4.91E-5	1.04E-3	1.19E-5	1.33E-4	6.05E-7	-4.42E-4	7.45E-4
EP	kg PO4 3−-eq	1.29E-4	2.68E-6	6.31E-6	1.38E-4	2.38E-6	2.03E-5	2.35E-7	-6.41E-5	9.65E-5
HTP	kg 1,4-DB-eq	8.84E-2	1.31E-3	5.31E-3	9.50E-2	1.18E-3	3.47E-2	6.31E-5	-4.17E-2	8.93E-2
FAETP	kg 1,4-DB-eq	3.02E-3	3.82E-5	1.81E-4	3.24E-3	3.47E-5	5.34E-4	1.96E-5	-1.33E-3	2.50E-3
MAETP	kg 1,4-DB-eq	6.40E+0	1.37E-1	7.14E-1	7.25E+0	1.24E-1	1.87E+0	2.41E-2	-2.70E+0	6.56E+0
TETP	kg 1,4-DB-eq	6.44E-4	4.62E-6	3.95E-4	1.04E-3	4.19E-6	1.22E-4	2.13E-7	-4.45E-4	7.25E-4
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.43E-1	3.14E-3	1.31E-2	2.60E-1	2.79E-3	8.66E-2	8.99E-4	-1.10E-1	2.40E-1
GWP-f	kg CO2 eq	2.41E-1	3.13E-3	1.00E-2	2.54E-1	2.79E-3	7.86E-2	8.99E-4	-1.28E-1	2.08E-1
GWP-b	kg CO2 eq	2.38E-3	1.45E-6	2.07E-3	4.46E-3	1.69E-6	8.02E-3	1.11E-6	1.77E-2	3.02E-2
GWP-luluc	kg CO2 eq	2.96E-4	1.15E-6	9.53E-4	1.25E-3	9.88E-7	3.48E-5	2.42E-8	-2.06E-4	1.08E-3
ODP	kg CFC11 eq	1.15E-7	6.91E-10	1.06E-9	1.16E-7	6.43E-10	9.63E-9	3.31E-11	-6.13E-8	6.55E-8
AP	mol H+ eq	1.20E-3	1.82E-5	6.12E-5	1.27E-3	1.59E-5	1.67E-4	8.09E-7	-5.37E-4	9.21E-4
EP-fw	kg P eq	1.17E-5	3.16E-8	1.76E-7	1.19E-5	2.30E-8	1.16E-6	1.08E-9	-6.00E-6	7.05E-6
EP-m	kg N eq	2.21E-4	6.40E-6	1.45E-5	2.41E-4	5.69E-6	4.14E-5	4.92E-7	-9.78E-5	1.91E-4
EP-T	mol N eq	2.32E-3	7.06E-5	1.60E-4	2.55E-3	6.27E-5	4.55E-4	3.22E-6	-1.06E-3	2.01E-3
POCP	kg NMVOC eq	7.44E-4	2.02E-5	4.54E-5	8.09E-4	1.79E-5	1.36E-4	1.11E-6	-3.44E-4	6.21E-4
ADP-mm	kg Sb eq	2.88E-4	7.94E-8	3.50E-7	2.88E-4	7.22E-8	6.62E-7	8.20E-10	-2.56E-6	2.86E-4
ADP-f	MJ	5.68E+0	4.72E-2	1.12E-1	5.84E+0	4.28E-2	4.49E-1	2.42E-3	-3.04E+0	3.29E+0
WDP	m3 depriv.	3.55E-1	1.69E-4	8.69E-2	4.43E-1	1.31E-4	1.74E-2	1.90E-5	-1.99E-1	2.61E-1
PM	disease inc.	8.49E-9	2.81E-10	7.56E-10	9.53E-9	2.52E-10	2.08E-9	1.67E-11	-4.60E-9	7.29E-9
IR	kBq U-235 eq	1.27E-2	1.98E-4	1.78E-4	1.30E-2	1.87E-4	1.59E-3	1.11E-5	-6.68E-3	8.14E-3
ETP-fw	CTUe	8.30E+0	4.21E-2	2.61E-1	8.60E+0	3.48E-2	3.39E+0	3.73E-2	-3.05E+0	9.01E+0
HTP-c	CTUh	2.02E-10	1.37E-12	9.03E-12	2.12E-10	1.24E-12	5.24E-11	6.92E-14	-7.37E-11	1.92E-10
HTP-nc	CTUh	6.46E-9	4.61E-11	2.82E-10	6.79E-9	4.15E-11	1.20E-9	7.20E-12	-2.55E-9	5.49E-9
SQP	Pt	1.46E+0	4.10E-2	8.39E-3	1.51E+0	3.66E-2	2.75E-1	6.19E-3	-3.63E+0	-1.80E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.24E-1	5.92E-4	5.46E-1	9.71E-1	6.14E-4	3.20E-2	8.86E-5	-7.27E-1	2.76E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.24E-1	5.92E-4	5.46E-1	9.71E-1	6.14E-4	3.20E-2	8.86E-5	-7.27E-1	2.76E-1
PENRE	MJ	6.10E+0	5.02E-2	1.21E-1	6.27E+0	4.55E-2	4.77E-1	2.57E-3	-3.27E+0	3.52E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	6.10E+0	5.02E-2	1.21E-1	6.27E+0	4.55E-2	4.77E-1	2.57E-3	-3.27E+0	3.52E+0
PET	MJ	6.52E+0	5.08E-2	6.67E-1	7.24E+0	4.61E-2	5.09E-1	2.66E-3	-4.00E+0	3.80E+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	4.21E-3	5.75E-6	2.05E-3	6.27E-3	4.85E-6	4.77E-4	2.95E-6	-2.49E-3	4.27E-3
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.02E-5	1.20E-7	1.19E-7	4.04E-5	1.10E-7	7.43E-7	2.98E-9	-2.61E-6	3.87E-5
NHWD	kg	2.45E-2	3.00E-3	1.84E-4	2.77E-2	2.65E-3	1.64E-2	1.06E-2	-1.06E-2	4.67E-2
RWD	kg	1.10E-5	3.10E-7	2.21E-7	1.16E-5	2.91E-7	1.72E-6	1.57E-8	-5.97E-6	7.61E-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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