Environmental Profile

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

Ecochain v3.5.80

Product:	3001694 - PVC Combi Cap BR 160
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	0.05	0	0	0.06	0	0.02	0	-0.03	0.05
ADPE	kg Sb-eq	5.01E-4	1.73E-7	7.78E-7	5.02E-4	1.65E-7	1.48E-6	1.84E-9	-5.70E-6	4.98E-4
ADPF	kg Sb-eq	5.83E-3	4.97E-5	1.34E-4	6.01E-3	4.64E-5	5.14E-4	2.55E-6	-3.20E-3	3.38E-3
GWP	kg CO2-eq	4.87E-1	6.76E-3	2.54E-2	5.19E-1	6.32E-3	1.76E-1	1.73E-3	-2.73E-1	4.29E-1
ODP	kg CFC-11-eq	2.77E-7	1.20E-9	2.00E-9	2.80E-7	1.17E-9	2.16E-8	6.08E-11	-1.40E-7	1.63E-7
POCP	kg ethene-eq	2.79E-4	4.08E-6	1.10E-5	2.94E-4	3.79E-6	4.03E-5	4.50E-7	-1.41E-4	1.98E-4
AP	kg SO2-eq	1.95E-3	2.97E-5	1.09E-4	2.09E-3	2.72E-5	2.99E-4	1.37E-6	-9.23E-4	1.50E-3
EP	kg PO4 3−-eq	2.47E-4	5.84E-6	1.40E-5	2.67E-4	5.43E-6	4.52E-5	5.41E-7	-1.21E-4	1.97E-4
HTP	kg 1,4-DB-eq	1.91E-1	2.85E-3	1.18E-2	2.05E-1	2.70E-3	7.81E-2	1.44E-4	-8.85E-2	1.98E-1
FAETP	kg 1,4-DB-eq	5.61E-3	8.31E-5	4.02E-4	6.09E-3	7.92E-5	1.18E-3	4.44E-5	-2.35E-3	5.04E-3
MAETP	kg 1,4-DB-eq	1.35E+1	2.99E-1	1.59E+0	1.53E+1	2.83E-1	4.06E+0	5.43E-2	-5.73E+0	1.40E+1
TETP	kg 1,4-DB-eq	1.40E-3	1.01E-5	8.76E-4	2.29E-3	9.58E-6	2.79E-4	4.85E-7	-7.86E-4	1.79E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.03E-1	6.82E-3	2.90E-2	5.39E-1	6.38E-3	1.85E-1	2.02E-3	-2.63E-1	4.70E-1
GWP-f	kg CO2 eq	4.98E-1	6.82E-3	2.23E-2	5.27E-1	6.37E-3	1.77E-1	2.02E-3	-2.79E-1	4.33E-1
GWP-b	kg CO2 eq	4.94E-3	3.15E-6	4.60E-3	9.54E-3	3.87E-6	7.92E-3	2.56E-6	1.66E-2	3.41E-2
GWP-luluc	kg CO2 eq	5.34E-4	2.50E-6	2.12E-3	2.65E-3	2.25E-6	8.03E-5	5.31E-8	-3.05E-4	2.43E-3
ODP	kg CFC11 eq	2.73E-7	1.50E-9	2.36E-9	2.77E-7	1.47E-9	2.22E-8	7.54E-11	-1.38E-7	1.63E-7
AP	mol H+ eq	2.37E-3	3.95E-5	1.36E-4	2.55E-3	3.63E-5	3.75E-4	1.84E-6	-1.12E-3	1.85E-3
EP-fw	kg P eq	2.40E-5	6.88E-8	3.91E-7	2.45E-5	5.24E-8	2.69E-6	2.40E-9	-1.16E-5	1.56E-5
EP-m	kg N eq	4.20E-4	1.39E-5	3.21E-5	4.66E-4	1.30E-5	9.13E-5	1.14E-6	-1.98E-4	3.74E-4
EP-T	mol N eq	4.54E-3	1.54E-4	3.54E-4	5.05E-3	1.43E-4	1.01E-3	7.32E-6	-2.12E-3	4.09E-3
POCP	kg NMVOC eq	1.46E-3	4.39E-5	1.01E-4	1.61E-3	4.09E-5	3.01E-4	2.52E-6	-7.13E-4	1.24E-3
ADP-mm	kg Sb eq	5.01E-4	1.73E-7	7.78E-7	5.02E-4	1.65E-7	1.48E-6	1.84E-9	-5.69E-6	4.98E-4
ADP-f	MJ	1.24E+1	1.03E-1	2.49E-1	1.28E+1	9.78E-2	1.02E+0	5.51E-3	-6.74E+0	7.16E+0
WDP	m3 depriv.	8.28E-1	3.68E-4	1.93E-1	1.02E+0	3.00E-4	4.05E-2	3.58E-5	-4.19E-1	6.43E-1
PM	disease inc.	1.58E-8	6.12E-10	1.68E-9	1.80E-8	5.75E-10	4.63E-9	3.79E-11	-8.25E-9	1.50E-8
IR	kBq U-235 eq	2.84E-2	4.31E-4	3.96E-4	2.92E-2	4.27E-4	3.59E-3	2.53E-5	-1.38E-2	1.95E-2
ETP-fw	CTUe	1.46E+1	9.17E-2	5.79E-1	1.53E+1	7.94E-2	7.95E+0	8.80E-2	-5.18E+0	1.83E+1
HTP-c	CTUh	4.15E-10	2.97E-12	2.00E-11	4.38E-10	2.83E-12	1.13E-10	1.52E-13	-1.55E-10	3.99E-10
HTP-nc	CTUh	1.37E-8	1.00E-10	6.26E-10	1.44E-8	9.47E-11	2.74E-9	1.69E-11	-5.35E-9	1.20E-8
SQP	Pt	2.37E+0	8.92E-2	1.86E-2	2.48E+0	8.37E-2	6.19E-1	1.41E-2	-4.02E+0	-8.21E-1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	7.79E-1	1.29E-3	1.21E+0	1.99E+0	1.40E-3	7.38E-2	2.06E-4	-8.88E-1	1.18E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	7.79E-1	1.29E-3	1.21E+0	1.99E+0	1.40E-3	7.38E-2	2.06E-4	-8.88E-1	1.18E+0
PENRE	MJ	1.33E+1	1.09E-1	2.69E-1	1.37E+1	1.04E-1	1.08E+0	5.85E-3	-7.25E+0	7.65E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.33E+1	1.09E-1	2.69E-1	1.37E+1	1.04E-1	1.08E+0	5.85E-3	-7.25E+0	7.65E+0
PET	MJ	1.41E+1	1.10E-1	1.48E+0	1.57E+1	1.05E-1	1.15E+0	6.05E-3	-8.14E+0	8.83E+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	9.23E-3	1.25E-5	4.56E-3	1.38E-2	1.11E-5	1.11E-3	6.75E-6	-4.79E-3	1.01E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.20E-5	2.61E-7	2.65E-7	7.25E-5	2.50E-7	1.65E-6	6.71E-9	-5.67E-6	6.87E-5
NHWD	kg	5.14E-2	6.52E-3	4.09E-4	5.84E-2	6.06E-3	3.65E-2	2.42E-2	-2.24E-2	1.03E-1
RWD	kg	2.46E-5	6.75E-7	4.91E-7	2.58E-5	6.65E-7	3.84E-6	3.58E-8	-1.22E-5	1.81E-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