Environmental Profile

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

Ecochain v3.5.80

Product:	3009529 - PVC KG Bend 45° GY 125 SN4 S/SP
Unit:	1 piece
Manufacturer:	Wavin - NL - Hardenberg - Verified
Address:	J.C. Kellerlaan 3 7772 SG Hardenberg Netherlands

The Wavin KG sewer pipes and fittings are suitable for drain and underground sewer applications. This easy push-fit rubber ring jointing system is durable, corrosion free and light weight.

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	0.09	0	0.01	0.1	0	0.03	0	-0.05	0.09
ADPE	kg Sb-eq	7.95E-4	2.85E-7	1.28E-6	7.97E-4	2.61E-7	2.31E-6	3.02E-9	-9.78E-6	7.89E-4
ADPF	kg Sb-eq	1.01E-2	8.21E-5	2.20E-4	1.04E-2	7.35E-5	7.98E-4	4.18E-6	-5.23E-3	6.02E-3
GWP	kg CO2-eq	8.33E-1	1.12E-2	4.17E-2	8.86E-1	1.00E-2	3.45E-1	2.92E-3	-4.55E-1	7.88E-1
ODP	kg CFC-11-eq	4.39E-7	1.98E-9	3.30E-9	4.45E-7	1.86E-9	3.33E-8	9.97E-11	-2.17E-7	2.63E-7
POCP	kg ethene-eq	5.23E-4	6.74E-6	1.81E-5	5.48E-4	6.01E-6	6.33E-5	7.50E-7	-2.28E-4	3.89E-4
AP	kg SO2-eq	3.41E-3	4.91E-5	1.79E-4	3.63E-3	4.31E-5	4.71E-4	2.25E-6	-1.49E-3	2.66E-3
EP	kg PO4 3−-eq	4.38E-4	9.64E-6	2.30E-5	4.70E-4	8.60E-6	7.29E-5	1.01E-6	-2.05E-4	3.48E-4
HTP	kg 1,4-DB-eq	3.30E-1	4.70E-3	1.94E-2	3.54E-1	4.28E-3	1.21E-1	2.36E-4	-1.42E-1	3.38E-1
FAETP	kg 1,4-DB-eq	9.88E-3	1.37E-4	6.62E-4	1.07E-2	1.25E-4	1.85E-3	7.25E-5	-4.07E-3	8.66E-3
MAETP	kg 1,4-DB-eq	2.37E+1	4.94E-1	2.61E+0	2.68E+1	4.48E-1	6.38E+0	8.83E-2	-9.16E+0	2.46E+1
TETP	kg 1,4-DB-eq	2.31E-3	1.66E-5	1.44E-3	3.77E-3	1.52E-5	4.33E-4	7.99E-7	-1.36E-3	2.86E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	8.59E-1	1.13E-2	4.77E-2	9.18E-1	1.01E-2	3.65E-1	3.40E-3	-4.25E-1	8.72E-1
GWP-f	kg CO2 eq	8.52E-1	1.13E-2	3.67E-2	9.00E-1	1.01E-2	3.46E-1	3.40E-3	-4.65E-1	7.95E-1
GWP-b	kg CO2 eq	6.38E-3	5.20E-6	7.57E-3	1.40E-2	6.13E-6	1.88E-2	4.22E-6	4.08E-2	7.36E-2
GWP-luluc	kg CO2 eq	9.62E-4	4.13E-6	3.48E-3	4.45E-3	3.57E-6	1.24E-4	8.72E-8	-5.75E-4	4.00E-3
ODP	kg CFC11 eq	4.37E-7	2.49E-9	3.88E-9	4.44E-7	2.33E-9	3.43E-8	1.24E-10	-2.15E-7	2.65E-7
AP	mol H+ eq	4.14E-3	6.53E-5	2.24E-4	4.43E-3	5.75E-5	5.92E-4	3.02E-6	-1.81E-3	3.28E-3
EP-fw	kg P eq	4.02E-5	1.14E-7	6.42E-7	4.10E-5	8.30E-8	4.14E-6	3.95E-9	-1.92E-5	2.60E-5
EP-m	kg N eq	7.37E-4	2.30E-5	5.28E-5	8.13E-4	2.06E-5	1.47E-4	2.15E-6	-3.27E-4	6.56E-4
EP-T	mol N eq	7.98E-3	2.54E-4	5.82E-4	8.81E-3	2.27E-4	1.61E-3	1.20E-5	-3.52E-3	7.15E-3
POCP	kg NMVOC eq	2.64E-3	7.24E-5	1.66E-4	2.88E-3	6.48E-5	4.81E-4	4.15E-6	-1.17E-3	2.26E-3
ADP-mm	kg Sb eq	7.95E-4	2.85E-7	1.28E-6	7.97E-4	2.61E-7	2.31E-6	3.02E-9	-9.77E-6	7.89E-4
ADP-f	MJ	2.14E+1	1.70E-1	4.10E-1	2.19E+1	1.55E-1	1.58E+0	9.05E-3	-1.10E+1	1.27E+1
WDP	m3 depriv.	1.32E+0	6.07E-4	3.17E-1	1.64E+0	4.75E-4	6.28E-2	5.74E-5	-6.64E-1	1.03E+0
PM	disease inc.	3.06E-8	1.01E-9	2.76E-9	3.44E-8	9.11E-10	7.25E-9	6.22E-11	-1.43E-8	2.84E-8
IR	kBq U-235 eq	5.08E-2	7.11E-4	6.52E-4	5.21E-2	6.77E-4	5.58E-3	4.17E-5	-2.24E-2	3.61E-2
ETP-fw	CTUe	2.59E+1	1.51E-1	9.52E-1	2.70E+1	1.26E-1	1.23E+1	1.36E-1	-9.14E+0	3.05E+1
HTP-c	CTUh	6.81E-10	4.91E-12	3.30E-11	7.19E-10	4.48E-12	1.75E-10	2.49E-13	-2.48E-10	6.51E-10
HTP-nc	CTUh	2.21E-8	1.66E-10	1.03E-9	2.33E-8	1.50E-10	4.27E-9	2.63E-11	-8.52E-9	1.93E-8
SQP	Pt	4.70E+0	1.47E-1	3.07E-2	4.88E+0	1.33E-1	9.60E-1	2.32E-2	-8.92E+0	-2.92E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.40E+0	2.13E-3	1.99E+0	3.40E+0	2.22E-3	1.14E-1	3.43E-4	-1.86E+0	1.66E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.40E+0	2.13E-3	1.99E+0	3.40E+0	2.22E-3	1.14E-1	3.43E-4	-1.86E+0	1.66E+0
PENRE	MJ	2.29E+1	1.80E-1	4.43E-1	2.35E+1	1.64E-1	1.68E+0	9.60E-3	-1.18E+1	1.36E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.29E+1	1.80E-1	4.43E-1	2.35E+1	1.64E-1	1.68E+0	9.60E-3	-1.18E+1	1.36E+1
PET	MJ	2.43E+1	1.82E-1	2.44E+0	2.69E+1	1.67E-1	1.79E+0	9.94E-3	-1.37E+1	1.52E+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	1.55E-2	2.07E-5	7.50E-3	2.31E-2	1.75E-5	1.79E-3	1.11E-5	-7.95E-3	1.69E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.11E-4	4.30E-7	4.35E-7	1.12E-4	3.96E-7	2.63E-6	1.10E-8	-9.46E-6	1.06E-4
NHWD	kg	8.88E-2	1.08E-2	6.72E-4	1.00E-1	9.60E-3	5.83E-2	3.97E-2	-3.57E-2	1.72E-1
RWD	kg	4.74E-5	1.12E-6	8.07E-7	4.93E-5	1.05E-6	6.00E-6	5.89E-8	-2.01E-5	3.63E-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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