Environmental Profile

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

Ecochain v3.5.80

Product:	3009530 - PVC KG Bend 87° 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	0.12	0	0.01	0.13	0	0.04	0	-0.06	0.11
ADPE	kg Sb-eq	1.02E-3	3.58E-7	1.53E-6	1.02E-3	3.35E-7	2.96E-6	3.84E-9	-1.23E-5	1.01E-3
ADPF	kg Sb-eq	1.26E-2	1.03E-4	2.63E-4	1.30E-2	9.42E-5	1.02E-3	5.32E-6	-6.62E-3	7.48E-3
GWP	kg CO2-eq	1.04E+0	1.40E-2	4.99E-2	1.11E+0	1.28E-2	4.22E-1	3.69E-3	-5.73E-1	9.72E-1
ODP	kg CFC-11-eq	5.62E-7	2.49E-9	3.94E-9	5.69E-7	2.38E-9	4.29E-8	1.27E-10	-2.79E-7	3.35E-7
POCP	kg ethene-eq	6.44E-4	8.46E-6	2.17E-5	6.74E-4	7.70E-6	8.07E-5	9.51E-7	-2.88E-4	4.75E-4
AP	kg SO2-eq	4.25E-3	6.17E-5	2.14E-4	4.52E-3	5.52E-5	6.02E-4	2.87E-6	-1.87E-3	3.31E-3
EP	kg PO4 3−-eq	5.39E-4	1.21E-5	2.76E-5	5.79E-4	1.10E-5	9.24E-5	1.25E-6	-2.51E-4	4.33E-4
HTP	kg 1,4-DB-eq	4.13E-1	5.90E-3	2.32E-2	4.42E-1	5.49E-3	1.55E-1	3.00E-4	-1.79E-1	4.24E-1
FAETP	kg 1,4-DB-eq	1.21E-2	1.72E-4	7.91E-4	1.30E-2	1.61E-4	2.36E-3	9.23E-5	-4.88E-3	1.08E-2
MAETP	kg 1,4-DB-eq	2.95E+1	6.20E-1	3.12E+0	3.32E+1	5.74E-1	8.11E+0	1.13E-1	-1.16E+1	3.05E+1
TETP	kg 1,4-DB-eq	2.91E-3	2.09E-5	1.72E-3	4.65E-3	1.94E-5	5.57E-4	1.01E-6	-1.63E-3	3.60E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.08E+0	1.42E-2	5.71E-2	1.15E+0	1.29E-2	4.44E-1	4.31E-3	-5.46E-1	1.06E+0
GWP-f	kg CO2 eq	1.07E+0	1.41E-2	4.39E-2	1.12E+0	1.29E-2	4.25E-1	4.31E-3	-5.85E-1	9.81E-1
GWP-b	kg CO2 eq	8.46E-3	6.53E-6	9.05E-3	1.75E-2	7.85E-6	1.87E-2	5.36E-6	4.00E-2	7.62E-2
GWP-luluc	kg CO2 eq	1.15E-3	5.18E-6	4.16E-3	5.32E-3	4.58E-6	1.59E-4	1.11E-7	-6.54E-4	4.83E-3
ODP	kg CFC11 eq	5.58E-7	3.12E-9	4.64E-9	5.66E-7	2.98E-9	4.42E-8	1.57E-10	-2.77E-7	3.37E-7
AP	mol H+ eq	5.16E-3	8.20E-5	2.67E-4	5.51E-3	7.37E-5	7.55E-4	3.84E-6	-2.27E-3	4.08E-3
EP-fw	kg P eq	5.04E-5	1.43E-7	7.68E-7	5.13E-5	1.06E-7	5.34E-6	5.02E-9	-2.37E-5	3.31E-5
EP-m	kg N eq	9.10E-4	2.89E-5	6.32E-5	1.00E-3	2.64E-5	1.86E-4	2.65E-6	-4.06E-4	8.11E-4
EP-T	mol N eq	9.86E-3	3.19E-4	6.97E-4	1.09E-2	2.91E-4	2.05E-3	1.53E-5	-4.36E-3	8.87E-3
POCP	kg NMVOC eq	3.27E-3	9.10E-5	1.98E-4	3.56E-3	8.30E-5	6.10E-4	5.28E-6	-1.46E-3	2.79E-3
ADP-mm	kg Sb eq	1.02E-3	3.58E-7	1.53E-6	1.02E-3	3.35E-7	2.96E-6	3.84E-9	-1.23E-5	1.01E-3
ADP-f	MJ	2.68E+1	2.13E-1	4.90E-1	2.75E+1	1.99E-1	2.02E+0	1.15E-2	-1.39E+1	1.58E+1
WDP	m3 depriv.	1.68E+0	7.63E-4	3.79E-1	2.06E+0	6.09E-4	8.08E-2	7.34E-5	-8.39E-1	1.31E+0
PM	disease inc.	3.70E-8	1.27E-9	3.30E-9	4.16E-8	1.17E-9	9.26E-9	7.92E-11	-1.72E-8	3.49E-8
IR	kBq U-235 eq	6.31E-2	8.94E-4	7.79E-4	6.48E-2	8.68E-4	7.15E-3	5.30E-5	-2.80E-2	4.48E-2
ETP-fw	CTUe	3.14E+1	1.90E-1	1.14E+0	3.28E+1	1.61E-1	1.58E+1	1.75E-1	-1.08E+1	3.81E+1
HTP-c	CTUh	8.62E-10	6.17E-12	3.94E-11	9.07E-10	5.74E-12	2.24E-10	3.17E-13	-3.12E-10	8.25E-10
HTP-nc	CTUh	2.81E-8	2.08E-10	1.23E-9	2.96E-8	1.92E-10	5.48E-9	3.38E-11	-1.07E-8	2.45E-8
SQP	Pt	5.42E+0	1.85E-1	3.67E-2	5.65E+0	1.70E-1	1.23E+0	2.95E-2	-9.23E+0	-2.16E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.68E+0	2.67E-3	2.38E+0	4.07E+0	2.85E-3	1.46E-1	4.35E-4	-1.99E+0	2.23E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.68E+0	2.67E-3	2.38E+0	4.07E+0	2.85E-3	1.46E-1	4.35E-4	-1.99E+0	2.23E+0
PENRE	MJ	2.87E+1	2.26E-1	5.30E-1	2.95E+1	2.11E-1	2.15E+0	1.22E-2	-1.50E+1	1.69E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.87E+1	2.26E-1	5.30E-1	2.95E+1	2.11E-1	2.15E+0	1.22E-2	-1.50E+1	1.69E+1
PET	MJ	3.04E+1	2.29E-1	2.91E+0	3.36E+1	2.14E-1	2.30E+0	1.26E-2	-1.69E+1	1.91E+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	1.96E-2	2.60E-5	8.97E-3	2.85E-2	2.25E-5	2.28E-3	1.41E-5	-9.77E-3	2.11E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.43E-4	5.40E-7	5.21E-7	1.44E-4	5.08E-7	3.35E-6	1.40E-8	-1.19E-5	1.36E-4
NHWD	kg	1.10E-1	1.35E-2	8.04E-4	1.24E-1	1.23E-2	7.43E-2	5.06E-2	-4.50E-2	2.17E-1
RWD	kg	5.80E-5	1.40E-6	9.65E-7	6.03E-5	1.35E-6	7.66E-6	7.49E-8	-2.50E-5	4.44E-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