Environmental Profile

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

Ecochain v3.5.80

Product:	3001718 - KG Bend 67° DN150
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	0.23	0	0.01	0.24	0	0.06	0	-0.12	0.19
ADPE	kg Sb-eq	1.65E-3	9.77E-7	2.62E-6	1.65E-3	5.41E-7	4.86E-6	6.21E-9	-2.17E-5	1.64E-3
ADPF	kg Sb-eq	2.15E-2	2.81E-4	4.51E-4	2.23E-2	1.52E-4	1.69E-3	8.61E-6	-1.17E-2	1.24E-2
GWP	kg CO2-eq	1.81E+0	3.82E-2	8.56E-2	1.93E+0	2.07E-2	6.93E-1	5.98E-3	-1.04E+0	1.61E+0
ODP	kg CFC-11-eq	9.19E-7	6.78E-9	6.77E-9	9.32E-7	3.85E-9	7.02E-8	2.05E-10	-4.61E-7	5.45E-7
POCP	kg ethene-eq	1.28E-3	2.31E-5	3.72E-5	1.34E-3	1.25E-5	1.34E-4	1.54E-6	-6.60E-4	8.25E-4
AP	kg SO2-eq	7.49E-3	1.68E-4	3.68E-4	8.03E-3	8.93E-5	1.00E-3	4.64E-6	-3.53E-3	5.60E-3
EP	kg PO4 3−-eq	9.45E-4	3.30E-5	4.73E-5	1.03E-3	1.78E-5	1.56E-4	2.03E-6	-4.78E-4	7.24E-4
HTP	kg 1,4-DB-eq	9.37E-1	1.61E-2	3.98E-2	9.93E-1	8.87E-3	2.52E-1	4.86E-4	-5.09E-1	7.46E-1
FAETP	kg 1,4-DB-eq	2.29E-2	4.70E-4	1.36E-3	2.48E-2	2.60E-4	3.86E-3	1.49E-4	-1.08E-2	1.82E-2
MAETP	kg 1,4-DB-eq	5.19E+1	1.69E+0	5.35E+0	5.90E+1	9.29E-1	1.29E+1	1.82E-1	-2.22E+1	5.08E+1
TETP	kg 1,4-DB-eq	5.83E-3	5.69E-5	2.96E-3	8.84E-3	3.14E-5	9.09E-4	1.64E-6	-3.12E-3	6.66E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.18E+0	3.86E-2	9.80E-2	1.32E+0	2.09E-2	1.38E+0	6.97E-3	-1.07E+0	1.66E+0
GWP-f	kg CO2 eq	1.85E+0	3.86E-2	7.53E-2	1.97E+0	2.09E-2	6.98E-1	6.97E-3	-1.06E+0	1.63E+0
GWP-b	kg CO2 eq	-6.72E-1	1.78E-5	1.55E-2	-6.56E-1	1.27E-5	6.84E-1	8.67E-6	-6.00E-3	2.15E-2
GWP-luluc	kg CO2 eq	1.91E-3	1.41E-5	7.15E-3	9.07E-3	7.40E-6	2.60E-4	1.79E-7	-1.00E-3	8.34E-3
ODP	kg CFC11 eq	9.13E-7	8.51E-9	7.96E-9	9.29E-7	4.82E-9	7.25E-8	2.55E-10	-4.59E-7	5.48E-7
AP	mol H+ eq	9.08E-3	2.24E-4	4.59E-4	9.76E-3	1.19E-4	1.27E-3	6.21E-6	-4.32E-3	6.83E-3
EP-fw	kg P eq	8.69E-5	3.89E-7	1.32E-6	8.86E-5	1.72E-7	8.71E-6	8.13E-9	-4.05E-5	5.70E-5
EP-m	kg N eq	1.61E-3	7.88E-5	1.08E-4	1.80E-3	4.26E-5	3.18E-4	4.30E-6	-8.27E-4	1.34E-3
EP-T	mol N eq	1.77E-2	8.69E-4	1.20E-3	1.98E-2	4.70E-4	3.51E-3	2.47E-5	-9.16E-3	1.46E-2
POCP	kg NMVOC eq	6.18E-3	2.48E-4	3.40E-4	6.76E-3	1.34E-4	1.04E-3	8.54E-6	-3.17E-3	4.78E-3
ADP-mm	kg Sb eq	1.65E-3	9.77E-7	2.62E-6	1.65E-3	5.41E-7	4.86E-6	6.21E-9	-2.17E-5	1.64E-3
ADP-f	MJ	4.55E+1	5.81E-1	8.42E-1	4.69E+1	3.21E-1	3.36E+0	1.86E-2	-2.43E+1	2.64E+1
WDP	m3 depriv.	2.75E+0	2.08E-3	6.51E-1	3.41E+0	9.85E-4	1.31E-1	1.19E-4	-1.30E+0	2.24E+0
PM	disease inc.	7.43E-8	3.46E-9	5.67E-9	8.34E-8	1.89E-9	1.54E-8	1.28E-10	-3.86E-8	6.22E-8
IR	kBq U-235 eq	1.09E-1	2.44E-3	1.34E-3	1.13E-1	1.40E-3	1.20E-2	8.58E-5	-4.90E-2	7.70E-2
ETP-fw	CTUe	4.73E+1	5.18E-1	1.95E+0	4.97E+1	2.61E-1	2.56E+1	2.82E-1	-1.76E+1	5.82E+1
HTP-c	CTUh	2.09E-9	1.68E-11	6.77E-11	2.18E-9	9.28E-12	3.82E-10	5.13E-13	-1.07E-9	1.50E-9
HTP-nc	CTUh	5.21E-8	5.67E-10	2.11E-9	5.48E-8	3.11E-10	8.96E-9	5.46E-11	-2.26E-8	4.15E-8
SQP	Pt	6.35E+1	5.04E-1	6.29E-2	6.40E+1	2.75E-1	2.07E+0	4.77E-2	-5.44E+1	1.20E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.05E+1	7.28E-3	4.09E+0	1.46E+1	4.61E-3	2.39E-1	7.04E-4	-9.17E+0	5.71E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.05E+1	7.28E-3	4.09E+0	1.46E+1	4.61E-3	2.39E-1	7.04E-4	-9.17E+0	5.71E+0
PENRE	MJ	4.87E+1	6.17E-1	9.10E-1	5.03E+1	3.41E-1	3.57E+0	1.98E-2	-2.61E+1	2.81E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.87E+1	6.17E-1	9.10E-1	5.03E+1	3.41E-1	3.57E+0	1.98E-2	-2.61E+1	2.81E+1
PET	MJ	5.93E+1	6.25E-1	5.00E+0	6.49E+1	3.45E-1	3.81E+0	2.05E-2	-3.53E+1	3.38E+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	3.26E-2	7.08E-5	1.54E-2	4.80E-2	3.63E-5	3.74E-3	2.28E-5	-1.46E-2	3.73E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.38E-4	1.47E-6	8.94E-7	2.41E-4	8.21E-7	5.60E-6	2.26E-8	-2.48E-5	2.22E-4
NHWD	kg	2.20E-1	3.69E-2	1.38E-3	2.59E-1	1.99E-2	1.26E-1	8.18E-2	-1.12E-1	3.74E-1
RWD	kg	1.01E-4	3.82E-6	1.66E-6	1.07E-4	2.18E-6	1.30E-5	1.21E-7	-4.50E-5	7.69E-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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