Environmental Profile

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

Ecochain v3.5.80

Product:	3001722 - KG Bend 67° DN200
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	0.42	0.01	0.02	0.45	0	0.12	0	-0.23	0.35
ADPE	kg Sb-eq	3.16E-3	1.81E-6	4.76E-6	3.16E-3	1.04E-6	9.30E-6	1.19E-8	-4.10E-5	3.13E-3
ADPF	kg Sb-eq	4.07E-2	5.21E-4	8.18E-4	4.20E-2	2.92E-4	3.24E-3	1.64E-5	-2.22E-2	2.34E-2
GWP	kg CO2-eq	3.41E+0	7.09E-2	1.55E-1	3.64E+0	3.97E-2	1.30E+0	1.14E-2	-1.96E+0	3.02E+0
ODP	kg CFC-11-eq	1.76E-6	1.26E-8	1.23E-8	1.78E-6	7.37E-9	1.35E-7	3.92E-10	-8.83E-7	1.04E-6
POCP	kg ethene-eq	2.38E-3	4.28E-5	6.75E-5	2.49E-3	2.38E-5	2.56E-4	2.93E-6	-1.24E-3	1.53E-3
AP	kg SO2-eq	1.41E-2	3.12E-4	6.68E-4	1.51E-2	1.71E-4	1.92E-3	8.85E-6	-6.67E-3	1.05E-2
EP	kg PO4 3−-eq	1.78E-3	6.13E-5	8.58E-5	1.92E-3	3.41E-5	2.98E-4	3.82E-6	-8.96E-4	1.36E-3
HTP	kg 1,4-DB-eq	1.75E+0	2.99E-2	7.22E-2	1.85E+0	1.70E-2	4.83E-1	9.28E-4	-9.44E-1	1.40E+0
FAETP	kg 1,4-DB-eq	4.29E-2	8.72E-4	2.46E-3	4.63E-2	4.98E-4	7.37E-3	2.85E-4	-2.01E-2	3.43E-2
MAETP	kg 1,4-DB-eq	9.77E+1	3.14E+0	9.71E+0	1.11E+2	1.78E+0	2.47E+1	3.48E-1	-4.20E+1	9.54E+1
TETP	kg 1,4-DB-eq	1.10E-2	1.06E-4	5.36E-3	1.64E-2	6.02E-5	1.74E-3	3.13E-6	-5.84E-3	1.24E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.30E+0	7.16E-2	1.78E-1	2.55E+0	4.01E-2	2.53E+0	1.33E-2	-2.02E+0	3.11E+0
GWP-f	kg CO2 eq	3.50E+0	7.15E-2	1.37E-1	3.70E+0	4.00E-2	1.30E+0	1.33E-2	-2.01E+0	3.06E+0
GWP-b	kg CO2 eq	-1.20E+0	3.30E-5	2.82E-2	-1.17E+0	2.43E-5	1.22E+0	1.65E-5	-1.16E-2	4.03E-2
GWP-luluc	kg CO2 eq	3.58E-3	2.62E-5	1.30E-2	1.66E-2	1.42E-5	4.99E-4	3.42E-7	-1.86E-3	1.52E-2
ODP	kg CFC11 eq	1.74E-6	1.58E-8	1.44E-8	1.77E-6	9.23E-9	1.39E-7	4.86E-10	-8.78E-7	1.05E-6
AP	mol H+ eq	1.71E-2	4.15E-4	8.33E-4	1.83E-2	2.28E-4	2.42E-3	1.18E-5	-8.16E-3	1.28E-2
EP-fw	kg P eq	1.64E-4	7.21E-7	2.39E-6	1.68E-4	3.30E-7	1.67E-5	1.55E-8	-7.67E-5	1.08E-4
EP-m	kg N eq	3.03E-3	1.46E-4	1.97E-4	3.37E-3	8.16E-5	6.04E-4	8.10E-6	-1.55E-3	2.51E-3
EP-T	mol N eq	3.33E-2	1.61E-3	2.17E-3	3.71E-2	9.00E-4	6.68E-3	4.72E-5	-1.72E-2	2.75E-2
POCP	kg NMVOC eq	1.15E-2	4.60E-4	6.17E-4	1.26E-2	2.57E-4	1.98E-3	1.63E-5	-5.93E-3	8.94E-3
ADP-mm	kg Sb eq	3.16E-3	1.81E-6	4.76E-6	3.16E-3	1.04E-6	9.30E-6	1.19E-8	-4.10E-5	3.13E-3
ADP-f	MJ	8.60E+1	1.08E+0	1.53E+0	8.86E+1	6.15E-1	6.43E+0	3.55E-2	-4.60E+1	4.96E+1
WDP	m3 depriv.	5.26E+0	3.86E-3	1.18E+0	6.45E+0	1.89E-3	2.51E-1	2.28E-4	-2.49E+0	4.21E+0
PM	disease inc.	1.38E-7	6.42E-9	1.03E-8	1.54E-7	3.62E-9	2.95E-8	2.44E-10	-7.17E-8	1.16E-7
IR	kBq U-235 eq	2.05E-1	4.52E-3	2.43E-3	2.12E-1	2.69E-3	2.29E-2	1.64E-4	-9.29E-2	1.45E-1
ETP-fw	CTUe	8.94E+1	9.62E-1	3.55E+0	9.39E+1	4.99E-1	4.91E+1	5.42E-1	-3.31E+1	1.11E+2
HTP-c	CTUh	3.90E-9	3.12E-11	1.23E-10	4.06E-9	1.78E-11	7.30E-10	9.80E-13	-1.96E-9	2.84E-9
HTP-nc	CTUh	9.86E-8	1.05E-9	3.83E-9	1.04E-7	5.95E-10	1.72E-8	1.05E-10	-4.25E-8	7.89E-8
SQP	Pt	1.14E+2	9.36E-1	1.14E-1	1.15E+2	5.26E-1	3.96E+0	9.09E-2	-9.75E+1	2.20E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.91E+1	1.35E-2	7.42E+0	2.65E+1	8.82E-3	4.59E-1	1.34E-3	-1.65E+1	1.05E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.91E+1	1.35E-2	7.42E+0	2.65E+1	8.82E-3	4.59E-1	1.34E-3	-1.65E+1	1.05E+1
PENRE	MJ	9.21E+1	1.15E+0	1.65E+0	9.49E+1	6.53E-1	6.84E+0	3.77E-2	-4.95E+1	5.29E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	9.21E+1	1.15E+0	1.65E+0	9.49E+1	6.53E-1	6.84E+0	3.77E-2	-4.95E+1	5.29E+1
PET	MJ	1.11E+2	1.16E+0	9.07E+0	1.21E+2	6.61E-1	7.30E+0	3.90E-2	-6.60E+1	6.34E+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	6.17E-2	1.31E-4	2.79E-2	8.98E-2	6.96E-5	7.14E-3	4.35E-5	-2.78E-2	6.93E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.56E-4	2.73E-6	1.62E-6	4.60E-4	1.57E-6	1.07E-5	4.32E-8	-4.66E-5	4.26E-4
NHWD	kg	4.12E-1	6.84E-2	2.50E-3	4.83E-1	3.81E-2	2.40E-1	1.56E-1	-2.09E-1	7.08E-1
RWD	kg	1.89E-4	7.08E-6	3.00E-6	1.99E-4	4.18E-6	2.48E-5	2.31E-7	-8.51E-5	1.43E-4
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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