Environmental Profile

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

Ecochain v3.5.80

Product:	3001713 - KG Bend 45° DN125
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	0.11	0	0.01	0.12	0	0.03	0	-0.06	0.09
ADPE	kg Sb-eq	7.97E-4	4.50E-7	1.28E-6	7.99E-4	2.62E-7	2.32E-6	3.03E-9	-1.05E-5	7.91E-4
ADPF	kg Sb-eq	1.05E-2	1.30E-4	2.20E-4	1.09E-2	7.37E-5	8.12E-4	4.19E-6	-5.63E-3	6.14E-3
GWP	kg CO2-eq	8.78E-1	1.76E-2	4.18E-2	9.38E-1	1.00E-2	3.51E-1	2.93E-3	-4.99E-1	8.02E-1
ODP	kg CFC-11-eq	4.43E-7	3.13E-9	3.31E-9	4.50E-7	1.86E-9	3.36E-8	1.00E-10	-2.21E-7	2.64E-7
POCP	kg ethene-eq	6.22E-4	1.06E-5	1.82E-5	6.51E-4	6.02E-6	6.39E-5	7.52E-7	-3.07E-4	4.15E-4
AP	kg SO2-eq	3.64E-3	7.75E-5	1.80E-4	3.90E-3	4.32E-5	4.82E-4	2.26E-6	-1.66E-3	2.77E-3
EP	kg PO4 3−-eq	4.57E-4	1.52E-5	2.31E-5	4.95E-4	8.63E-6	7.51E-5	1.01E-6	-2.23E-4	3.57E-4
HTP	kg 1,4-DB-eq	4.43E-1	7.42E-3	1.94E-2	4.70E-1	4.29E-3	1.21E-1	2.37E-4	-2.32E-1	3.63E-1
FAETP	kg 1,4-DB-eq	1.09E-2	2.17E-4	6.63E-4	1.18E-2	1.26E-4	1.87E-3	7.27E-5	-4.95E-3	8.88E-3
MAETP	kg 1,4-DB-eq	2.53E+1	7.79E-1	2.61E+0	2.87E+1	4.49E-1	6.22E+0	8.86E-2	-1.05E+1	2.50E+1
TETP	kg 1,4-DB-eq	2.75E-3	2.62E-5	1.44E-3	4.22E-3	1.52E-5	4.37E-4	8.01E-7	-1.44E-3	3.24E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	6.12E-1	1.78E-2	4.78E-2	6.78E-1	1.01E-2	6.46E-1	3.41E-3	-5.14E-1	8.24E-1
GWP-f	kg CO2 eq	8.99E-1	1.78E-2	3.68E-2	9.54E-1	1.01E-2	3.53E-1	3.41E-3	-5.10E-1	8.10E-1
GWP-b	kg CO2 eq	-2.88E-1	8.20E-6	7.59E-3	-2.80E-1	6.14E-6	2.93E-1	4.23E-6	-2.88E-3	1.01E-2
GWP-luluc	kg CO2 eq	9.11E-4	6.51E-6	3.49E-3	4.41E-3	3.58E-6	1.25E-4	8.74E-8	-4.58E-4	4.08E-3
ODP	kg CFC11 eq	4.41E-7	3.92E-9	3.89E-9	4.49E-7	2.33E-9	3.47E-8	1.24E-10	-2.20E-7	2.66E-7
AP	mol H+ eq	4.41E-3	1.03E-4	2.24E-4	4.74E-3	5.76E-5	6.07E-4	3.02E-6	-2.03E-3	3.38E-3
EP-fw	kg P eq	4.19E-5	1.79E-7	6.44E-7	4.27E-5	8.33E-8	4.18E-6	3.96E-9	-1.91E-5	2.79E-5
EP-m	kg N eq	7.78E-4	3.63E-5	5.30E-5	8.67E-4	2.06E-5	1.52E-4	2.15E-6	-3.87E-4	6.56E-4
EP-T	mol N eq	8.57E-3	4.00E-4	5.84E-4	9.55E-3	2.27E-4	1.68E-3	1.21E-5	-4.27E-3	7.20E-3
POCP	kg NMVOC eq	3.00E-3	1.14E-4	1.66E-4	3.28E-3	6.50E-5	4.96E-4	4.17E-6	-1.48E-3	2.37E-3
ADP-mm	kg Sb eq	7.97E-4	4.50E-7	1.28E-6	7.99E-4	2.62E-7	2.32E-6	3.03E-9	-1.05E-5	7.91E-4
ADP-f	MJ	2.22E+1	2.68E-1	4.11E-1	2.29E+1	1.55E-1	1.61E+0	9.07E-3	-1.17E+1	1.30E+1
WDP	m3 depriv.	1.33E+0	9.59E-4	3.18E-1	1.65E+0	4.77E-4	6.30E-2	5.77E-5	-6.21E-1	1.09E+0
PM	disease inc.	3.59E-8	1.60E-9	2.77E-9	4.03E-8	9.13E-10	7.38E-9	6.24E-11	-1.77E-8	3.10E-8
IR	kBq U-235 eq	5.32E-2	1.12E-3	6.53E-4	5.50E-2	6.79E-4	5.73E-3	4.18E-5	-2.32E-2	3.83E-2
ETP-fw	CTUe	2.28E+1	2.39E-1	9.55E-1	2.40E+1	1.26E-1	1.23E+1	1.36E-1	-8.21E+0	2.84E+1
HTP-c	CTUh	9.77E-10	7.75E-12	3.30E-11	1.02E-9	4.49E-12	1.83E-10	2.50E-13	-4.81E-10	7.24E-10
HTP-nc	CTUh	2.49E-8	2.61E-10	1.03E-9	2.61E-8	1.50E-10	4.30E-9	2.63E-11	-1.05E-8	2.01E-8
SQP	Pt	2.76E+1	2.32E-1	3.07E-2	2.79E+1	1.33E-1	9.91E-1	2.32E-2	-2.35E+1	5.57E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.65E+0	3.35E-3	2.00E+0	6.65E+0	2.23E-3	1.15E-1	3.44E-4	-3.98E+0	2.79E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.65E+0	3.35E-3	2.00E+0	6.65E+0	2.23E-3	1.15E-1	3.44E-4	-3.98E+0	2.79E+0
PENRE	MJ	2.38E+1	2.85E-1	4.44E-1	2.46E+1	1.65E-1	1.71E+0	9.62E-3	-1.26E+1	1.39E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.38E+1	2.85E-1	4.44E-1	2.46E+1	1.65E-1	1.71E+0	9.62E-3	-1.26E+1	1.39E+1
PET	MJ	2.85E+1	2.88E-1	2.44E+0	3.12E+1	1.67E-1	1.83E+0	9.97E-3	-1.65E+1	1.67E+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	1.59E-2	3.26E-5	7.52E-3	2.34E-2	1.76E-5	1.81E-3	1.11E-5	-6.93E-3	1.83E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.14E-4	6.79E-7	4.36E-7	1.15E-4	3.97E-7	2.68E-6	1.10E-8	-1.18E-5	1.07E-4
NHWD	kg	1.05E-1	1.70E-2	6.74E-4	1.23E-1	9.63E-3	6.07E-2	3.98E-2	-5.16E-2	1.81E-1
RWD	kg	5.00E-5	1.76E-6	8.09E-7	5.26E-5	1.06E-6	6.19E-6	5.90E-8	-2.13E-5	3.86E-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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