Environmental Profile

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

Ecochain v3.5.80

Product:	3001599 - KG Bend 15° DN250
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	0.58	0.01	0.03	0.62	0.01	0.17	0	-0.3	0.5
ADPE	kg Sb-eq	4.33E-3	2.37E-6	6.43E-6	4.34E-3	1.42E-6	1.25E-5	1.65E-8	-5.72E-5	4.30E-3
ADPF	kg Sb-eq	5.72E-2	6.81E-4	1.10E-3	5.89E-2	4.01E-4	4.38E-3	2.29E-5	-3.03E-2	3.34E-2
GWP	kg CO2-eq	4.75E+0	9.26E-2	2.10E-1	5.05E+0	5.46E-2	1.94E+0	1.60E-2	-2.68E+0	4.38E+0
ODP	kg CFC-11-eq	2.41E-6	1.64E-8	1.66E-8	2.44E-6	1.01E-8	1.82E-7	5.46E-10	-1.20E-6	1.44E-6
POCP	kg ethene-eq	3.37E-3	5.59E-5	9.11E-5	3.51E-3	3.27E-5	3.44E-4	4.12E-6	-1.62E-3	2.27E-3
AP	kg SO2-eq	1.98E-2	4.07E-4	9.01E-4	2.11E-2	2.35E-4	2.60E-3	1.23E-5	-8.86E-3	1.50E-2
EP	kg PO4 3−-eq	2.47E-3	8.00E-5	1.16E-4	2.67E-3	4.69E-5	4.05E-4	5.63E-6	-1.18E-3	1.94E-3
HTP	kg 1,4-DB-eq	2.37E+0	3.90E-2	9.74E-2	2.50E+0	2.33E-2	6.52E-1	1.29E-3	-1.22E+0	1.96E+0
FAETP	kg 1,4-DB-eq	5.83E-2	1.14E-3	3.33E-3	6.28E-2	6.84E-4	9.95E-3	3.97E-4	-2.59E-2	4.79E-2
MAETP	kg 1,4-DB-eq	1.37E+2	4.09E+0	1.31E+1	1.55E+2	2.44E+0	3.33E+1	4.83E-1	-5.57E+1	1.35E+2
TETP	kg 1,4-DB-eq	1.47E-2	1.38E-4	7.24E-3	2.21E-2	8.27E-5	2.36E-3	4.38E-6	-7.59E-3	1.69E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	3.43E+0	9.35E-2	2.40E-1	3.77E+0	5.51E-2	3.41E+0	1.87E-2	-2.76E+0	4.49E+0
GWP-f	kg CO2 eq	4.87E+0	9.34E-2	1.84E-1	5.14E+0	5.50E-2	1.95E+0	1.87E-2	-2.74E+0	4.42E+0
GWP-b	kg CO2 eq	-1.44E+0	4.31E-5	3.80E-2	-1.40E+0	3.34E-5	1.47E+0	2.31E-5	-1.55E-2	5.10E-2
GWP-luluc	kg CO2 eq	4.88E-3	3.42E-5	1.75E-2	2.24E-2	1.95E-5	6.74E-4	4.78E-7	-2.40E-3	2.07E-2
ODP	kg CFC11 eq	2.40E-6	2.06E-8	1.95E-8	2.44E-6	1.27E-8	1.87E-7	6.78E-10	-1.19E-6	1.45E-6
AP	mol H+ eq	2.39E-2	5.42E-4	1.12E-3	2.56E-2	3.13E-4	3.27E-3	1.65E-5	-1.08E-2	1.84E-2
EP-fw	kg P eq	2.26E-4	9.42E-7	3.23E-6	2.30E-4	4.53E-7	2.26E-5	2.16E-8	-1.02E-4	1.52E-4
EP-m	kg N eq	4.20E-3	1.91E-4	2.65E-4	4.65E-3	1.12E-4	8.19E-4	1.20E-5	-2.05E-3	3.55E-3
EP-T	mol N eq	4.62E-2	2.10E-3	2.93E-3	5.12E-2	1.24E-3	9.05E-3	6.59E-5	-2.26E-2	3.90E-2
POCP	kg NMVOC eq	1.62E-2	6.01E-4	8.33E-4	1.76E-2	3.53E-4	2.67E-3	2.28E-5	-7.82E-3	1.29E-2
ADP-mm	kg Sb eq	4.33E-3	2.37E-6	6.43E-6	4.34E-3	1.42E-6	1.25E-5	1.65E-8	-5.72E-5	4.30E-3
ADP-f	MJ	1.21E+2	1.41E+0	2.06E+0	1.24E+2	8.44E-1	8.67E+0	4.96E-2	-6.28E+1	7.10E+1
WDP	m3 depriv.	7.21E+0	5.04E-3	1.59E+0	8.81E+0	2.59E-3	3.41E-1	3.15E-4	-3.35E+0	5.80E+0
PM	disease inc.	1.94E-7	8.39E-9	1.39E-8	2.17E-7	4.97E-9	3.97E-8	3.41E-10	-9.27E-8	1.69E-7
IR	kBq U-235 eq	2.91E-1	5.90E-3	3.28E-3	3.00E-1	3.69E-3	3.09E-2	2.29E-4	-1.24E-1	2.11E-1
ETP-fw	CTUe	1.24E+2	1.26E+0	4.79E+0	1.30E+2	6.86E-1	6.65E+1	7.35E-1	-4.35E+1	1.54E+2
HTP-c	CTUh	5.18E-9	4.07E-11	1.66E-10	5.38E-9	2.44E-11	9.81E-10	1.37E-12	-2.50E-9	3.89E-9
HTP-nc	CTUh	1.34E-7	1.37E-9	5.17E-9	1.40E-7	8.17E-10	2.33E-8	1.43E-10	-5.57E-8	1.09E-7
SQP	Pt	1.40E+2	1.22E+0	1.54E-1	1.41E+2	7.22E-1	5.34E+0	1.27E-1	-1.18E+2	2.93E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.37E+1	1.76E-2	1.00E+1	3.37E+1	1.21E-2	6.20E-1	1.89E-3	-2.01E+1	1.43E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.37E+1	1.76E-2	1.00E+1	3.37E+1	1.21E-2	6.20E-1	1.89E-3	-2.01E+1	1.43E+1
PENRE	MJ	1.29E+2	1.50E+0	2.23E+0	1.33E+2	8.96E-1	9.23E+0	5.26E-2	-6.77E+1	7.56E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.29E+2	1.50E+0	2.23E+0	1.33E+2	8.96E-1	9.23E+0	5.26E-2	-6.77E+1	7.56E+1
PET	MJ	1.53E+2	1.51E+0	1.22E+1	1.67E+2	9.09E-1	9.85E+0	5.45E-2	-8.78E+1	8.99E+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	8.61E-2	1.72E-4	3.77E-2	1.24E-1	9.56E-5	9.86E-3	6.08E-5	-3.73E-2	9.67E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	6.17E-4	3.57E-6	2.19E-6	6.22E-4	2.16E-6	1.45E-5	6.03E-8	-6.27E-5	5.77E-4
NHWD	kg	5.61E-1	8.93E-2	3.38E-3	6.53E-1	5.23E-2	3.27E-1	2.18E-1	-2.72E-1	9.79E-1
RWD	kg	2.76E-4	9.25E-6	4.05E-6	2.89E-4	5.74E-6	3.33E-5	3.23E-7	-1.14E-4	2.14E-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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