Environmental Profile

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

Ecochain v3.5.80

Product:	3001593 - KG Bend 87° BR DN150 EXP
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	0.22	0	0.01	0.23	0	0.07	0	-0.11	0.2
ADPE	kg Sb-eq	1.87E-3	6.75E-7	2.83E-6	1.88E-3	6.15E-7	5.52E-6	7.04E-9	-2.27E-5	1.86E-3
ADPF	kg Sb-eq	2.33E-2	1.94E-4	4.86E-4	2.40E-2	1.73E-4	1.90E-3	9.75E-6	-1.23E-2	1.37E-2
GWP	kg CO2-eq	1.94E+0	2.64E-2	9.22E-2	2.06E+0	2.36E-2	7.67E-1	6.76E-3	-1.07E+0	1.79E+0
ODP	kg CFC-11-eq	1.04E-6	4.69E-9	7.29E-9	1.05E-6	4.38E-9	7.94E-8	2.33E-10	-5.17E-7	6.17E-7
POCP	kg ethene-eq	1.18E-3	1.59E-5	4.01E-5	1.24E-3	1.42E-5	1.51E-4	1.74E-6	-5.44E-4	8.63E-4
AP	kg SO2-eq	7.88E-3	1.16E-4	3.96E-4	8.40E-3	1.02E-4	1.12E-3	5.25E-6	-3.58E-3	6.05E-3
EP	kg PO4 3−-eq	1.02E-3	2.28E-5	5.10E-5	1.10E-3	2.03E-5	1.73E-4	2.27E-6	-4.99E-4	7.93E-4
HTP	kg 1,4-DB-eq	7.65E-1	1.11E-2	4.28E-2	8.19E-1	1.01E-2	2.89E-1	5.51E-4	-3.39E-1	7.79E-1
FAETP	kg 1,4-DB-eq	2.34E-2	3.25E-4	1.46E-3	2.52E-2	2.96E-4	4.41E-3	1.69E-4	-1.00E-2	2.01E-2
MAETP	kg 1,4-DB-eq	5.47E+1	1.17E+0	5.76E+0	6.17E+1	1.06E+0	1.53E+1	2.07E-1	-2.19E+1	5.63E+1
TETP	kg 1,4-DB-eq	5.48E-3	3.93E-5	3.19E-3	8.70E-3	3.58E-5	1.03E-3	1.86E-6	-3.34E-3	6.43E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.00E+0	2.67E-2	1.06E-1	2.13E+0	2.38E-2	8.22E-1	7.88E-3	-9.85E-1	2.00E+0
GWP-f	kg CO2 eq	1.98E+0	2.67E-2	8.11E-2	2.09E+0	2.38E-2	7.71E-1	7.88E-3	-1.09E+0	1.80E+0
GWP-b	kg CO2 eq	1.64E-2	1.23E-5	1.67E-2	3.31E-2	1.44E-5	5.00E-2	9.82E-6	1.09E-1	1.92E-1
GWP-luluc	kg CO2 eq	2.31E-3	9.77E-6	7.70E-3	1.00E-2	8.42E-6	2.94E-4	2.03E-7	-1.45E-3	8.87E-3
ODP	kg CFC11 eq	1.03E-6	5.88E-9	8.57E-9	1.04E-6	5.48E-9	8.19E-8	2.89E-10	-5.12E-7	6.20E-7
AP	mol H+ eq	9.61E-3	1.55E-4	4.94E-4	1.03E-2	1.35E-4	1.41E-3	7.03E-6	-4.34E-3	7.47E-3
EP-fw	kg P eq	9.47E-5	2.69E-7	1.42E-6	9.63E-5	1.96E-7	9.87E-6	9.21E-9	-4.67E-5	5.97E-5
EP-m	kg N eq	1.73E-3	5.45E-5	1.17E-4	1.90E-3	4.85E-5	3.48E-4	4.81E-6	-7.85E-4	1.51E-3
EP-T	mol N eq	1.86E-2	6.01E-4	1.29E-3	2.05E-2	5.34E-4	3.83E-3	2.80E-5	-8.47E-3	1.64E-2
POCP	kg NMVOC eq	6.08E-3	1.71E-4	3.66E-4	6.62E-3	1.53E-4	1.14E-3	9.68E-6	-2.80E-3	5.12E-3
ADP-mm	kg Sb eq	1.87E-3	6.75E-7	2.83E-6	1.88E-3	6.15E-7	5.52E-6	7.04E-9	-2.27E-5	1.86E-3
ADP-f	MJ	4.95E+1	4.02E-1	9.07E-1	5.08E+1	3.65E-1	3.76E+0	2.11E-2	-2.58E+1	2.91E+1
WDP	m3 depriv.	3.11E+0	1.44E-3	7.02E-1	3.81E+0	1.12E-3	1.49E-1	1.35E-4	-1.60E+0	2.36E+0
PM	disease inc.	6.99E-8	2.39E-9	6.10E-9	7.84E-8	2.15E-9	1.73E-8	1.45E-10	-3.49E-8	6.31E-8
IR	kBq U-235 eq	1.17E-1	1.68E-3	1.44E-3	1.20E-1	1.60E-3	1.33E-2	9.72E-5	-5.38E-2	8.09E-2
ETP-fw	CTUe	6.21E+1	3.58E-1	2.11E+0	6.45E+1	2.96E-1	2.92E+1	3.22E-1	-2.26E+1	7.17E+1
HTP-c	CTUh	1.60E-9	1.16E-11	7.29E-11	1.68E-9	1.05E-11	4.19E-10	5.82E-13	-5.95E-10	1.52E-9
HTP-nc	CTUh	5.22E-8	3.92E-10	2.28E-9	5.49E-8	3.53E-10	1.01E-8	6.22E-11	-2.05E-8	4.49E-8
SQP	Pt	1.13E+1	3.49E-1	6.78E-2	1.17E+1	3.12E-1	2.29E+0	5.40E-2	-2.34E+1	-8.95E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.38E+0	5.03E-3	4.41E+0	7.79E+0	5.24E-3	2.71E-1	7.97E-4	-4.81E+0	3.26E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.38E+0	5.03E-3	4.41E+0	7.79E+0	5.24E-3	2.71E-1	7.97E-4	-4.81E+0	3.26E+0
PENRE	MJ	5.30E+1	4.27E-1	9.80E-1	5.44E+1	3.88E-1	4.00E+0	2.24E-2	-2.78E+1	3.10E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.30E+1	4.27E-1	9.80E-1	5.44E+1	3.88E-1	4.00E+0	2.24E-2	-2.78E+1	3.10E+1
PET	MJ	5.64E+1	4.32E-1	5.39E+0	6.22E+1	3.93E-1	4.27E+0	2.32E-2	-3.26E+1	3.43E+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	3.63E-2	4.90E-5	1.66E-2	5.29E-2	4.13E-5	4.21E-3	2.59E-5	-1.93E-2	3.78E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.65E-4	1.02E-6	9.63E-7	2.67E-4	9.34E-7	6.25E-6	2.57E-8	-2.23E-5	2.52E-4
NHWD	kg	2.08E-1	2.55E-2	1.49E-3	2.35E-1	2.26E-2	1.38E-1	9.27E-2	-8.57E-2	4.02E-1
RWD	kg	1.07E-4	2.64E-6	1.78E-6	1.11E-4	2.48E-6	1.43E-5	1.37E-7	-4.82E-5	7.99E-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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