Environmental Profile

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

Ecochain v3.5.80

Product:	3009587 - KG Branch 87° DN150xDN100
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	0.26	0.01	0.01	0.28	0	0.08	0	-0.14	0.22
ADPE	kg Sb-eq	1.91E-3	1.13E-6	2.85E-6	1.91E-3	6.26E-7	5.59E-6	7.22E-9	-2.53E-5	1.89E-3
ADPF	kg Sb-eq	2.51E-2	3.24E-4	4.89E-4	2.59E-2	1.76E-4	1.95E-3	1.00E-5	-1.35E-2	1.45E-2
GWP	kg CO2-eq	2.11E+0	4.40E-2	9.28E-2	2.24E+0	2.40E-2	8.26E-1	6.98E-3	-1.20E+0	1.89E+0
ODP	kg CFC-11-eq	1.06E-6	7.81E-9	7.34E-9	1.08E-6	4.45E-9	8.07E-8	2.39E-10	-5.31E-7	6.31E-7
POCP	kg ethene-eq	1.50E-3	2.66E-5	4.03E-5	1.57E-3	1.44E-5	1.54E-4	1.79E-6	-7.60E-4	9.77E-4
AP	kg SO2-eq	8.75E-3	1.94E-4	3.99E-4	9.34E-3	1.03E-4	1.16E-3	5.39E-6	-4.06E-3	6.54E-3
EP	kg PO4 3−-eq	1.10E-3	3.80E-5	5.13E-5	1.19E-3	2.06E-5	1.81E-4	2.41E-6	-5.50E-4	8.45E-4
HTP	kg 1,4-DB-eq	1.09E+0	1.85E-2	4.31E-2	1.15E+0	1.03E-2	2.90E-1	5.65E-4	-5.84E-1	8.66E-1
FAETP	kg 1,4-DB-eq	2.66E-2	5.41E-4	1.47E-3	2.86E-2	3.01E-4	4.44E-3	1.73E-4	-1.24E-2	2.11E-2
MAETP	kg 1,4-DB-eq	6.07E+1	1.95E+0	5.80E+0	6.84E+1	1.07E+0	1.49E+1	2.11E-1	-2.56E+1	5.90E+1
TETP	kg 1,4-DB-eq	6.73E-3	6.55E-5	3.21E-3	1.00E-2	3.64E-5	1.05E-3	1.91E-6	-3.58E-3	7.50E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.39E+0	4.44E-2	1.06E-1	1.54E+0	2.42E-2	1.61E+0	8.14E-3	-1.24E+0	1.95E+0
GWP-f	kg CO2 eq	2.16E+0	4.44E-2	8.16E-2	2.28E+0	2.42E-2	8.31E-1	8.13E-3	-1.23E+0	1.91E+0
GWP-b	kg CO2 eq	-7.68E-1	2.05E-5	1.68E-2	-7.52E-1	1.47E-5	7.82E-1	1.01E-5	-6.89E-3	2.32E-2
GWP-luluc	kg CO2 eq	2.22E-3	1.63E-5	7.75E-3	9.98E-3	8.56E-6	2.99E-4	2.09E-7	-1.15E-3	9.14E-3
ODP	kg CFC11 eq	1.06E-6	9.80E-9	8.63E-9	1.07E-6	5.57E-9	8.33E-8	2.96E-10	-5.28E-7	6.36E-7
AP	mol H+ eq	1.06E-2	2.58E-4	4.98E-4	1.14E-2	1.38E-4	1.46E-3	7.22E-6	-4.97E-3	7.98E-3
EP-fw	kg P eq	1.01E-4	4.48E-7	1.43E-6	1.03E-4	1.99E-7	1.00E-5	9.45E-9	-4.66E-5	6.63E-5
EP-m	kg N eq	1.88E-3	9.08E-5	1.18E-4	2.09E-3	4.93E-5	3.67E-4	5.10E-6	-9.52E-4	1.55E-3
EP-T	mol N eq	2.07E-2	1.00E-3	1.30E-3	2.30E-2	5.43E-4	4.05E-3	2.88E-5	-1.05E-2	1.70E-2
POCP	kg NMVOC eq	7.23E-3	2.86E-4	3.69E-4	7.88E-3	1.55E-4	1.20E-3	9.94E-6	-3.65E-3	5.60E-3
ADP-mm	kg Sb eq	1.91E-3	1.13E-6	2.85E-6	1.91E-3	6.26E-7	5.59E-6	7.22E-9	-2.53E-5	1.89E-3
ADP-f	MJ	5.31E+1	6.70E-1	9.13E-1	5.47E+1	3.71E-1	3.86E+0	2.16E-2	-2.81E+1	3.09E+1
WDP	m3 depriv.	3.18E+0	2.40E-3	7.06E-1	3.89E+0	1.14E-3	1.51E-1	1.38E-4	-1.49E+0	2.55E+0
PM	disease inc.	8.73E-8	3.99E-9	6.15E-9	9.75E-8	2.18E-9	1.78E-8	1.49E-10	-4.44E-8	7.32E-8
IR	kBq U-235 eq	1.28E-1	2.81E-3	1.45E-3	1.32E-1	1.62E-3	1.38E-2	9.98E-5	-5.64E-2	9.10E-2
ETP-fw	CTUe	5.49E+1	5.97E-1	2.12E+0	5.76E+1	3.01E-1	2.94E+1	3.25E-1	-2.03E+1	6.74E+1
HTP-c	CTUh	2.42E-9	1.94E-11	7.34E-11	2.51E-9	1.07E-11	4.40E-10	5.97E-13	-1.22E-9	1.74E-9
HTP-nc	CTUh	6.02E-8	6.53E-10	2.29E-9	6.31E-8	3.59E-10	1.03E-8	6.30E-11	-2.59E-8	4.79E-8
SQP	Pt	7.27E+1	5.81E-1	6.82E-2	7.34E+1	3.18E-1	2.38E+0	5.54E-2	-6.22E+1	1.39E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.21E+1	8.39E-3	4.44E+0	1.65E+1	5.33E-3	2.75E-1	8.21E-4	-1.05E+1	6.33E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.21E+1	8.39E-3	4.44E+0	1.65E+1	5.33E-3	2.75E-1	8.21E-4	-1.05E+1	6.33E+0
PENRE	MJ	5.69E+1	7.11E-1	9.87E-1	5.86E+1	3.94E-1	4.11E+0	2.30E-2	-3.02E+1	3.29E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.69E+1	7.11E-1	9.87E-1	5.86E+1	3.94E-1	4.11E+0	2.30E-2	-3.02E+1	3.29E+1
PET	MJ	6.90E+1	7.20E-1	5.42E+0	7.51E+1	3.99E-1	4.39E+0	2.38E-2	-4.07E+1	3.92E+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	3.79E-2	8.16E-5	1.67E-2	5.47E-2	4.20E-5	4.34E-3	2.65E-5	-1.68E-2	4.23E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.74E-4	1.70E-6	9.69E-7	2.77E-4	9.49E-7	6.46E-6	2.63E-8	-2.87E-5	2.55E-4
NHWD	kg	2.55E-1	4.25E-2	1.50E-3	2.99E-1	2.30E-2	1.46E-1	9.51E-2	-1.29E-1	4.34E-1
RWD	kg	1.20E-4	4.40E-6	1.80E-6	1.26E-4	2.52E-6	1.49E-5	1.41E-7	-5.19E-5	9.16E-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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