Environmental Profile

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

Ecochain v3.5.80

Product:	3009598 - KG Branch 87° DN200xDN100
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	0.44	0.01	0.02	0.47	0.01	0.13	0	-0.24	0.37
ADPE	kg Sb-eq	3.33E-3	1.84E-6	5.01E-6	3.34E-3	1.09E-6	9.75E-6	1.26E-8	-4.32E-5	3.31E-3
ADPF	kg Sb-eq	4.30E-2	5.30E-4	8.60E-4	4.44E-2	3.08E-4	3.40E-3	1.74E-5	-2.32E-2	2.49E-2
GWP	kg CO2-eq	3.60E+0	7.21E-2	1.63E-1	3.83E+0	4.20E-2	1.40E+0	1.21E-2	-2.05E+0	3.23E+0
ODP	kg CFC-11-eq	1.85E-6	1.28E-8	1.29E-8	1.88E-6	7.78E-9	1.41E-7	4.15E-10	-9.27E-7	1.10E-6
POCP	kg ethene-eq	2.50E-3	4.35E-5	7.09E-5	2.62E-3	2.52E-5	2.68E-4	3.11E-6	-1.27E-3	1.65E-3
AP	kg SO2-eq	1.49E-2	3.17E-4	7.02E-4	1.59E-2	1.81E-4	2.01E-3	9.38E-6	-6.90E-3	1.12E-2
EP	kg PO4 3−-eq	1.87E-3	6.23E-5	9.02E-5	2.02E-3	3.61E-5	3.12E-4	4.11E-6	-9.20E-4	1.45E-3
HTP	kg 1,4-DB-eq	1.80E+0	3.03E-2	7.59E-2	1.91E+0	1.79E-2	5.07E-1	9.84E-4	-9.55E-1	1.48E+0
FAETP	kg 1,4-DB-eq	4.46E-2	8.86E-4	2.59E-3	4.80E-2	5.26E-4	7.73E-3	3.02E-4	-2.04E-2	3.62E-2
MAETP	kg 1,4-DB-eq	1.03E+2	3.19E+0	1.02E+1	1.17E+2	1.88E+0	2.59E+1	3.68E-1	-4.34E+1	1.01E+2
TETP	kg 1,4-DB-eq	1.13E-2	1.07E-4	5.64E-3	1.71E-2	6.36E-5	1.83E-3	3.32E-6	-5.95E-3	1.30E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.54E+0	7.27E-2	1.87E-1	2.80E+0	4.23E-2	2.58E+0	1.41E-2	-2.11E+0	3.32E+0
GWP-f	kg CO2 eq	3.68E+0	7.27E-2	1.44E-1	3.90E+0	4.23E-2	1.41E+0	1.41E-2	-2.10E+0	3.26E+0
GWP-b	kg CO2 eq	-1.15E+0	3.36E-5	2.96E-2	-1.12E+0	2.57E-5	1.17E+0	1.75E-5	-1.21E-2	4.17E-2
GWP-luluc	kg CO2 eq	3.73E-3	2.66E-5	1.36E-2	1.74E-2	1.50E-5	5.24E-4	3.63E-7	-1.89E-3	1.60E-2
ODP	kg CFC11 eq	1.84E-6	1.60E-8	1.52E-8	1.87E-6	9.75E-9	1.46E-7	5.15E-10	-9.22E-7	1.11E-6
AP	mol H+ eq	1.80E-2	4.22E-4	8.75E-4	1.93E-2	2.41E-4	2.53E-3	1.26E-5	-8.43E-3	1.37E-2
EP-fw	kg P eq	1.73E-4	7.33E-7	2.51E-6	1.76E-4	3.48E-7	1.76E-5	1.64E-8	-7.93E-5	1.14E-4
EP-m	kg N eq	3.18E-3	1.49E-4	2.07E-4	3.53E-3	8.62E-5	6.33E-4	8.72E-6	-1.60E-3	2.67E-3
EP-T	mol N eq	3.49E-2	1.64E-3	2.28E-3	3.89E-2	9.50E-4	6.99E-3	5.01E-5	-1.76E-2	2.93E-2
POCP	kg NMVOC eq	1.21E-2	4.68E-4	6.49E-4	1.33E-2	2.72E-4	2.07E-3	1.73E-5	-6.09E-3	9.52E-3
ADP-mm	kg Sb eq	3.33E-3	1.84E-6	5.01E-6	3.34E-3	1.09E-6	9.75E-6	1.26E-8	-4.32E-5	3.31E-3
ADP-f	MJ	9.10E+1	1.10E+0	1.60E+0	9.37E+1	6.49E-1	6.74E+0	3.77E-2	-4.83E+1	5.29E+1
WDP	m3 depriv.	5.55E+0	3.92E-3	1.24E+0	6.79E+0	1.99E-3	2.64E-1	2.41E-4	-2.61E+0	4.45E+0
PM	disease inc.	1.44E-7	6.53E-9	1.08E-8	1.62E-7	3.82E-9	3.09E-8	2.59E-10	-7.27E-8	1.24E-7
IR	kBq U-235 eq	2.17E-1	4.59E-3	2.55E-3	2.24E-1	2.84E-3	2.40E-2	1.74E-4	-9.66E-2	1.55E-1
ETP-fw	CTUe	9.40E+1	9.78E-1	3.73E+0	9.87E+1	5.27E-1	5.17E+1	5.71E-1	-3.40E+1	1.17E+2
HTP-c	CTUh	4.00E-9	3.17E-11	1.29E-10	4.17E-9	1.88E-11	7.63E-10	1.04E-12	-1.97E-9	2.98E-9
HTP-nc	CTUh	1.03E-7	1.07E-9	4.03E-9	1.08E-7	6.28E-10	1.80E-8	1.10E-10	-4.36E-8	8.32E-8
SQP	Pt	1.11E+2	9.51E-1	1.20E-1	1.12E+2	5.55E-1	4.15E+0	9.64E-2	-9.40E+1	2.25E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.87E+1	1.37E-2	7.80E+0	2.65E+1	9.31E-3	4.82E-1	1.43E-3	-1.60E+1	1.10E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.87E+1	1.37E-2	7.80E+0	2.65E+1	9.31E-3	4.82E-1	1.43E-3	-1.60E+1	1.10E+1
PENRE	MJ	9.75E+1	1.16E+0	1.74E+0	1.00E+2	6.89E-1	7.17E+0	4.00E-2	-5.20E+1	5.64E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	9.75E+1	1.16E+0	1.74E+0	1.00E+2	6.89E-1	7.17E+0	4.00E-2	-5.20E+1	5.64E+1
PET	MJ	1.16E+2	1.18E+0	9.54E+0	1.27E+2	6.99E-1	7.65E+0	4.14E-2	-6.80E+1	6.74E+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	6.53E-2	1.34E-4	2.94E-2	9.48E-2	7.35E-5	7.54E-3	4.62E-5	-2.90E-2	7.34E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.79E-4	2.78E-6	1.70E-6	4.83E-4	1.66E-6	1.12E-5	4.58E-8	-4.82E-5	4.48E-4
NHWD	kg	4.28E-1	6.95E-2	2.63E-3	5.00E-1	4.02E-2	2.52E-1	1.65E-1	-2.13E-1	7.45E-1
RWD	kg	2.02E-4	7.20E-6	3.16E-6	2.12E-4	4.41E-6	2.59E-5	2.45E-7	-8.83E-5	1.54E-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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