Environmental Profile

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

Ecochain v3.5.80

Product:	3001579 - KG Bend 45° DN100 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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.07	0	0	0.07	0	0.02	0	-0.03	0.06
ADPE	kg Sb-eq	5.91E-4	2.10E-7	8.87E-7	5.92E-4	1.94E-7	1.72E-6	2.24E-9	-7.18E-6	5.87E-4
ADPF	kg Sb-eq	7.38E-3	6.03E-5	1.52E-4	7.60E-3	5.47E-5	5.94E-4	3.10E-6	-3.86E-3	4.39E-3
GWP	kg CO2-eq	6.11E-1	8.20E-3	2.89E-2	6.48E-1	7.45E-3	2.49E-1	2.15E-3	-3.35E-1	5.72E-1
ODP	kg CFC-11-eq	3.26E-7	1.45E-9	2.29E-9	3.30E-7	1.38E-9	2.48E-8	7.38E-11	-1.62E-7	1.95E-7
POCP	kg ethene-eq	3.79E-4	4.95E-6	1.26E-5	3.97E-4	4.47E-6	4.69E-5	5.54E-7	-1.68E-4	2.81E-4
AP	kg SO2-eq	2.49E-3	3.61E-5	1.24E-4	2.65E-3	3.21E-5	3.50E-4	1.67E-6	-1.09E-3	1.94E-3
EP	kg PO4 3−-eq	3.18E-4	7.08E-6	1.60E-5	3.41E-4	6.40E-6	5.38E-5	7.37E-7	-1.48E-4	2.54E-4
HTP	kg 1,4-DB-eq	2.42E-1	3.45E-3	1.34E-2	2.59E-1	3.19E-3	9.00E-2	1.75E-4	-1.04E-1	2.48E-1
FAETP	kg 1,4-DB-eq	7.14E-3	1.01E-4	4.59E-4	7.70E-3	9.33E-5	1.37E-3	5.37E-5	-2.90E-3	6.32E-3
MAETP	kg 1,4-DB-eq	1.73E+1	3.63E-1	1.81E+0	1.95E+1	3.33E-1	4.72E+0	6.55E-2	-6.75E+0	1.79E+1
TETP	kg 1,4-DB-eq	1.70E-3	1.22E-5	9.99E-4	2.71E-3	1.13E-5	3.23E-4	5.91E-7	-9.68E-4	2.08E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	6.30E-1	8.28E-3	3.31E-2	6.71E-1	7.51E-3	2.63E-1	2.51E-3	-3.17E-1	6.28E-1
GWP-f	kg CO2 eq	6.25E-1	8.27E-3	2.54E-2	6.58E-1	7.51E-3	2.51E-1	2.51E-3	-3.42E-1	5.77E-1
GWP-b	kg CO2 eq	4.84E-3	3.82E-6	5.25E-3	1.01E-2	4.56E-6	1.20E-2	3.12E-6	2.58E-2	4.79E-2
GWP-luluc	kg CO2 eq	6.86E-4	3.03E-6	2.41E-3	3.10E-3	2.66E-6	9.22E-5	6.46E-8	-3.97E-4	2.80E-3
ODP	kg CFC11 eq	3.24E-7	1.83E-9	2.69E-9	3.29E-7	1.73E-9	2.56E-8	9.16E-11	-1.60E-7	1.96E-7
AP	mol H+ eq	3.03E-3	4.80E-5	1.55E-4	3.23E-3	4.28E-5	4.39E-4	2.23E-6	-1.33E-3	2.39E-3
EP-fw	kg P eq	2.95E-5	8.34E-8	4.45E-7	3.00E-5	6.18E-8	3.09E-6	2.92E-9	-1.39E-5	1.92E-5
EP-m	kg N eq	5.36E-4	1.69E-5	3.66E-5	5.89E-4	1.53E-5	1.08E-4	1.56E-6	-2.38E-4	4.76E-4
EP-T	mol N eq	5.80E-3	1.86E-4	4.04E-4	6.39E-3	1.69E-4	1.19E-3	8.90E-6	-2.56E-3	5.20E-3
POCP	kg NMVOC eq	1.92E-3	5.32E-5	1.15E-4	2.09E-3	4.82E-5	3.55E-4	3.07E-6	-8.56E-4	1.64E-3
ADP-mm	kg Sb eq	5.91E-4	2.10E-7	8.87E-7	5.92E-4	1.94E-7	1.72E-6	2.24E-9	-7.18E-6	5.87E-4
ADP-f	MJ	1.57E+1	1.25E-1	2.84E-1	1.61E+1	1.15E-1	1.17E+0	6.70E-3	-8.10E+0	9.29E+0
WDP	m3 depriv.	9.78E-1	4.46E-4	2.20E-1	1.20E+0	3.54E-4	4.68E-2	4.28E-5	-4.90E-1	7.56E-1
PM	disease inc.	2.20E-8	7.43E-10	1.91E-9	2.46E-8	6.78E-10	5.38E-9	4.61E-11	-1.02E-8	2.05E-8
IR	kBq U-235 eq	3.71E-2	5.23E-4	4.52E-4	3.80E-2	5.04E-4	4.15E-3	3.09E-5	-1.64E-2	2.63E-2
ETP-fw	CTUe	1.86E+1	1.11E-1	6.60E-1	1.94E+1	9.36E-2	9.17E+0	1.01E-1	-6.47E+0	2.23E+1
HTP-c	CTUh	5.03E-10	3.61E-12	2.29E-11	5.29E-10	3.33E-12	1.30E-10	1.85E-13	-1.82E-10	4.81E-10
HTP-nc	CTUh	1.64E-8	1.22E-10	7.14E-10	1.72E-8	1.12E-10	3.18E-9	1.96E-11	-6.27E-9	1.43E-8
SQP	Pt	3.27E+0	1.08E-1	2.13E-2	3.40E+0	9.86E-2	7.15E-1	1.72E-2	-5.82E+0	-1.59E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.00E+0	1.56E-3	1.38E+0	2.38E+0	1.65E-3	8.48E-2	2.54E-4	-1.24E+0	1.24E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.00E+0	1.56E-3	1.38E+0	2.38E+0	1.65E-3	8.48E-2	2.54E-4	-1.24E+0	1.24E+0
PENRE	MJ	1.68E+1	1.32E-1	3.07E-1	1.72E+1	1.22E-1	1.25E+0	7.11E-3	-8.72E+0	9.91E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.68E+1	1.32E-1	3.07E-1	1.72E+1	1.22E-1	1.25E+0	7.11E-3	-8.72E+0	9.91E+0
PET	MJ	1.78E+1	1.34E-1	1.69E+0	1.96E+1	1.24E-1	1.33E+0	7.36E-3	-9.96E+0	1.11E+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	1.14E-2	1.52E-5	5.20E-3	1.66E-2	1.30E-5	1.33E-3	8.21E-6	-5.76E-3	1.22E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	8.30E-5	3.16E-7	3.02E-7	8.37E-5	2.95E-7	1.95E-6	8.15E-9	-6.95E-6	7.90E-5
NHWD	kg	6.46E-2	7.91E-3	4.66E-4	7.30E-2	7.14E-3	4.32E-2	2.94E-2	-2.63E-2	1.27E-1
RWD	kg	3.42E-5	8.19E-7	5.60E-7	3.56E-5	7.84E-7	4.45E-6	4.36E-8	-1.47E-5	2.62E-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

Ecochain

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777