Environmental Profile

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

Ecochain v3.5.80

Product:	3001591 - KG Bend 45° 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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.17	0	0.01	0.18	0	0.06	0	-0.08	0.16
ADPE	kg Sb-eq	1.43E-3	5.09E-7	2.14E-6	1.43E-3	4.69E-7	4.15E-6	5.41E-9	-1.74E-5	1.42E-3
ADPF	kg Sb-eq	1.79E-2	1.46E-4	3.67E-4	1.84E-2	1.32E-4	1.43E-3	7.49E-6	-9.35E-3	1.07E-2
GWP	kg CO2-eq	1.48E+0	1.99E-2	6.97E-2	1.57E+0	1.80E-2	6.08E-1	5.22E-3	-8.12E-1	1.39E+0
ODP	kg CFC-11-eq	7.89E-7	3.53E-9	5.51E-9	7.98E-7	3.33E-9	5.99E-8	1.79E-10	-3.91E-7	4.71E-7
POCP	kg ethene-eq	9.25E-4	1.20E-5	3.03E-5	9.67E-4	1.08E-5	1.13E-4	1.34E-6	-4.08E-4	6.85E-4
AP	kg SO2-eq	6.06E-3	8.75E-5	3.00E-4	6.44E-3	7.74E-5	8.45E-4	4.04E-6	-2.66E-3	4.71E-3
EP	kg PO4 3−-eq	7.75E-4	1.72E-5	3.85E-5	8.31E-4	1.55E-5	1.30E-4	1.79E-6	-3.62E-4	6.16E-4
HTP	kg 1,4-DB-eq	5.88E-1	8.38E-3	3.24E-2	6.28E-1	7.69E-3	2.17E-1	4.23E-4	-2.53E-1	6.00E-1
FAETP	kg 1,4-DB-eq	1.75E-2	2.45E-4	1.11E-3	1.88E-2	2.25E-4	3.32E-3	1.30E-4	-7.15E-3	1.53E-2
MAETP	kg 1,4-DB-eq	4.21E+1	8.80E-1	4.36E+0	4.73E+1	8.05E-1	1.14E+1	1.58E-1	-1.64E+1	4.34E+1
TETP	kg 1,4-DB-eq	4.12E-3	2.96E-5	2.41E-3	6.56E-3	2.72E-5	7.79E-4	1.43E-6	-2.38E-3	4.99E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.53E+0	2.01E-2	7.97E-2	1.63E+0	1.81E-2	6.43E-1	6.08E-3	-7.63E-1	1.53E+0
GWP-f	kg CO2 eq	1.52E+0	2.01E-2	6.13E-2	1.60E+0	1.81E-2	6.12E-1	6.08E-3	-8.30E-1	1.40E+0
GWP-b	kg CO2 eq	1.16E-2	9.27E-6	1.26E-2	2.43E-2	1.10E-5	3.12E-2	7.55E-6	6.73E-2	1.23E-1
GWP-luluc	kg CO2 eq	1.69E-3	7.36E-6	5.82E-3	7.51E-3	6.41E-6	2.22E-4	1.56E-7	-9.93E-4	6.75E-3
ODP	kg CFC11 eq	7.84E-7	4.43E-9	6.48E-9	7.95E-7	4.18E-9	6.17E-8	2.22E-10	-3.87E-7	4.74E-7
AP	mol H+ eq	7.36E-3	1.16E-4	3.74E-4	7.85E-3	1.03E-4	1.06E-3	5.40E-6	-3.22E-3	5.80E-3
EP-fw	kg P eq	7.16E-5	2.03E-7	1.07E-6	7.29E-5	1.49E-7	7.46E-6	7.07E-9	-3.41E-5	4.65E-5
EP-m	kg N eq	1.31E-3	4.10E-5	8.83E-5	1.44E-3	3.69E-5	2.62E-4	3.80E-6	-5.80E-4	1.16E-3
EP-T	mol N eq	1.41E-2	4.52E-4	9.73E-4	1.56E-2	4.07E-4	2.89E-3	2.15E-5	-6.25E-3	1.26E-2
POCP	kg NMVOC eq	4.68E-3	1.29E-4	2.77E-4	5.09E-3	1.16E-4	8.60E-4	7.44E-6	-2.08E-3	3.99E-3
ADP-mm	kg Sb eq	1.43E-3	5.09E-7	2.14E-6	1.43E-3	4.69E-7	4.15E-6	5.41E-9	-1.74E-5	1.42E-3
ADP-f	MJ	3.81E+1	3.03E-1	6.85E-1	3.90E+1	2.78E-1	2.84E+0	1.62E-2	-1.96E+1	2.26E+1
WDP	m3 depriv.	2.36E+0	1.08E-3	5.30E-1	2.89E+0	8.54E-4	1.13E-1	1.03E-4	-1.19E+0	1.82E+0
PM	disease inc.	5.39E-8	1.80E-9	4.61E-9	6.03E-8	1.64E-9	1.30E-8	1.11E-10	-2.51E-8	4.99E-8
IR	kBq U-235 eq	9.01E-2	1.27E-3	1.09E-3	9.25E-2	1.22E-3	1.00E-2	7.47E-5	-3.99E-2	6.39E-2
ETP-fw	CTUe	4.57E+1	2.70E-1	1.59E+0	4.76E+1	2.26E-1	2.21E+1	2.44E-1	-1.60E+1	5.41E+1
HTP-c	CTUh	1.22E-9	8.76E-12	5.51E-11	1.28E-9	8.04E-12	3.15E-10	4.47E-13	-4.43E-10	1.16E-9
HTP-nc	CTUh	3.96E-8	2.95E-10	1.72E-9	4.16E-8	2.69E-10	7.67E-9	4.72E-11	-1.52E-8	3.44E-8
SQP	Pt	8.14E+0	2.63E-1	5.12E-2	8.46E+0	2.38E-1	1.73E+0	4.15E-2	-1.50E+1	-4.50E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.46E+0	3.79E-3	3.33E+0	5.80E+0	3.99E-3	2.05E-1	6.14E-4	-3.15E+0	2.86E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.46E+0	3.79E-3	3.33E+0	5.80E+0	3.99E-3	2.05E-1	6.14E-4	-3.15E+0	2.86E+0
PENRE	MJ	4.08E+1	3.22E-1	7.41E-1	4.19E+1	2.95E-1	3.02E+0	1.72E-2	-2.11E+1	2.41E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.08E+1	3.22E-1	7.41E-1	4.19E+1	2.95E-1	3.02E+0	1.72E-2	-2.11E+1	2.41E+1
PET	MJ	4.33E+1	3.25E-1	4.07E+0	4.77E+1	2.99E-1	3.22E+0	1.78E-2	-2.43E+1	2.69E+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	2.77E-2	3.69E-5	1.25E-2	4.03E-2	3.15E-5	3.21E-3	1.99E-5	-1.41E-2	2.95E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.00E-4	7.67E-7	7.27E-7	2.02E-4	7.12E-7	4.71E-6	1.97E-8	-1.69E-5	1.90E-4
NHWD	kg	1.57E-1	1.92E-2	1.12E-3	1.78E-1	1.72E-2	1.05E-1	7.12E-2	-6.37E-2	3.07E-1
RWD	kg	8.36E-5	1.99E-6	1.35E-6	8.69E-5	1.89E-6	1.08E-5	1.05E-7	-3.57E-5	6.40E-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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