Environmental Profile

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

Ecochain v3.5.80

Product:	3001590 - KG Bend 30° 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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.16	0	0.01	0.17	0	0.05	0	-0.08	0.15
ADPE	kg Sb-eq	1.33E-3	4.74E-7	2.04E-6	1.33E-3	4.36E-7	3.85E-6	5.03E-9	-1.63E-5	1.32E-3
ADPF	kg Sb-eq	1.67E-2	1.37E-4	3.51E-4	1.72E-2	1.23E-4	1.33E-3	6.97E-6	-8.71E-3	9.99E-3
GWP	kg CO2-eq	1.39E+0	1.86E-2	6.65E-2	1.47E+0	1.67E-2	5.73E-1	4.86E-3	-7.58E-1	1.31E+0
ODP	kg CFC-11-eq	7.33E-7	3.29E-9	5.26E-9	7.41E-7	3.10E-9	5.56E-8	1.66E-10	-3.62E-7	4.38E-7
POCP	kg ethene-eq	8.69E-4	1.12E-5	2.89E-5	9.09E-4	1.00E-5	1.05E-4	1.25E-6	-3.80E-4	6.46E-4
AP	kg SO2-eq	5.67E-3	8.16E-5	2.86E-4	6.03E-3	7.19E-5	7.85E-4	3.76E-6	-2.48E-3	4.42E-3
EP	kg PO4 3−-eq	7.26E-4	1.60E-5	3.68E-5	7.79E-4	1.44E-5	1.21E-4	1.68E-6	-3.39E-4	5.77E-4
HTP	kg 1,4-DB-eq	5.50E-1	7.82E-3	3.09E-2	5.88E-1	7.14E-3	2.02E-1	3.94E-4	-2.36E-1	5.62E-1
FAETP	kg 1,4-DB-eq	1.64E-2	2.28E-4	1.06E-3	1.77E-2	2.09E-4	3.08E-3	1.21E-4	-6.70E-3	1.44E-2
MAETP	kg 1,4-DB-eq	3.94E+1	8.21E-1	4.16E+0	4.44E+1	7.47E-1	1.06E+1	1.47E-1	-1.52E+1	4.07E+1
TETP	kg 1,4-DB-eq	3.85E-3	2.76E-5	2.30E-3	6.17E-3	2.53E-5	7.22E-4	1.33E-6	-2.23E-3	4.69E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.43E+0	1.87E-2	7.61E-2	1.52E+0	1.68E-2	6.07E-1	5.67E-3	-7.10E-1	1.44E+0
GWP-f	kg CO2 eq	1.42E+0	1.87E-2	5.85E-2	1.49E+0	1.68E-2	5.76E-1	5.67E-3	-7.74E-1	1.32E+0
GWP-b	kg CO2 eq	1.06E-2	8.64E-6	1.21E-2	2.27E-2	1.02E-5	3.01E-2	7.03E-6	6.50E-2	1.18E-1
GWP-luluc	kg CO2 eq	1.59E-3	6.86E-6	5.55E-3	7.15E-3	5.96E-6	2.06E-4	1.45E-7	-9.39E-4	6.42E-3
ODP	kg CFC11 eq	7.29E-7	4.13E-9	6.18E-9	7.39E-7	3.88E-9	5.73E-8	2.06E-10	-3.59E-7	4.41E-7
AP	mol H+ eq	6.89E-3	1.09E-4	3.57E-4	7.36E-3	9.59E-5	9.86E-4	5.03E-6	-3.00E-3	5.44E-3
EP-fw	kg P eq	6.69E-5	1.89E-7	1.02E-6	6.81E-5	1.39E-7	6.91E-6	6.59E-9	-3.18E-5	4.33E-5
EP-m	kg N eq	1.22E-3	3.83E-5	8.43E-5	1.35E-3	3.43E-5	2.44E-4	3.57E-6	-5.42E-4	1.09E-3
EP-T	mol N eq	1.32E-2	4.22E-4	9.29E-4	1.46E-2	3.78E-4	2.69E-3	2.00E-5	-5.84E-3	1.18E-2
POCP	kg NMVOC eq	4.39E-3	1.20E-4	2.64E-4	4.78E-3	1.08E-4	8.00E-4	6.93E-6	-1.94E-3	3.75E-3
ADP-mm	kg Sb eq	1.33E-3	4.74E-7	2.04E-6	1.33E-3	4.36E-7	3.85E-6	5.03E-9	-1.63E-5	1.32E-3
ADP-f	MJ	3.56E+1	2.82E-1	6.54E-1	3.65E+1	2.58E-1	2.63E+0	1.51E-2	-1.83E+1	2.11E+1
WDP	m3 depriv.	2.20E+0	1.01E-3	5.06E-1	2.70E+0	7.93E-4	1.05E-1	9.61E-5	-1.10E+0	1.70E+0
PM	disease inc.	5.08E-8	1.68E-9	4.41E-9	5.69E-8	1.52E-9	1.21E-8	1.04E-10	-2.35E-8	4.71E-8
IR	kBq U-235 eq	8.44E-2	1.18E-3	1.04E-3	8.67E-2	1.13E-3	9.31E-3	6.96E-5	-3.71E-2	6.00E-2
ETP-fw	CTUe	4.29E+1	2.52E-1	1.52E+0	4.46E+1	2.10E-1	2.05E+1	2.26E-1	-1.50E+1	5.06E+1
HTP-c	CTUh	1.13E-9	8.17E-12	5.26E-11	1.20E-9	7.47E-12	2.92E-10	4.16E-13	-4.12E-10	1.08E-9
HTP-nc	CTUh	3.69E-8	2.75E-10	1.64E-9	3.88E-8	2.50E-10	7.11E-9	4.38E-11	-1.42E-8	3.20E-8
SQP	Pt	7.71E+0	2.45E-1	4.89E-2	8.00E+0	2.21E-1	1.60E+0	3.86E-2	-1.43E+1	-4.47E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.31E+0	3.53E-3	3.18E+0	5.50E+0	3.71E-3	1.90E-1	5.72E-4	-3.00E+0	2.69E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.31E+0	3.53E-3	3.18E+0	5.50E+0	3.71E-3	1.90E-1	5.72E-4	-3.00E+0	2.69E+0
PENRE	MJ	3.81E+1	3.00E-1	7.07E-1	3.91E+1	2.74E-1	2.80E+0	1.60E-2	-1.97E+1	2.25E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.81E+1	3.00E-1	7.07E-1	3.91E+1	2.74E-1	2.80E+0	1.60E-2	-1.97E+1	2.25E+1
PET	MJ	4.04E+1	3.03E-1	3.89E+0	4.46E+1	2.78E-1	2.99E+0	1.66E-2	-2.27E+1	2.52E+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	2.59E-2	3.44E-5	1.20E-2	3.79E-2	2.92E-5	2.99E-3	1.85E-5	-1.31E-2	2.78E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.86E-4	7.15E-7	6.95E-7	1.87E-4	6.61E-7	4.38E-6	1.83E-8	-1.57E-5	1.77E-4
NHWD	kg	1.47E-1	1.79E-2	1.07E-3	1.66E-1	1.60E-2	9.72E-2	6.63E-2	-5.93E-2	2.86E-1
RWD	kg	7.87E-5	1.85E-6	1.29E-6	8.18E-5	1.76E-6	9.99E-6	9.82E-8	-3.33E-5	6.04E-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