Environmental Profile

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

Ecochain v3.5.80

Product:	3001578 - KG Bend 30° BR 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	5.79E-4	2.05E-7	8.68E-7	5.80E-4	1.90E-7	1.68E-6	2.19E-9	-7.04E-6	5.75E-4
ADPF	kg Sb-eq	7.24E-3	5.91E-5	1.49E-4	7.45E-3	5.35E-5	5.81E-4	3.03E-6	-3.78E-3	4.30E-3
GWP	kg CO2-eq	5.99E-1	8.04E-3	2.83E-2	6.35E-1	7.29E-3	2.45E-1	2.11E-3	-3.28E-1	5.62E-1
ODP	kg CFC-11-eq	3.20E-7	1.43E-9	2.24E-9	3.23E-7	1.35E-9	2.43E-8	7.23E-11	-1.58E-7	1.91E-7
POCP	kg ethene-eq	3.73E-4	4.85E-6	1.23E-5	3.90E-4	4.38E-6	4.59E-5	5.43E-7	-1.65E-4	2.76E-4
AP	kg SO2-eq	2.44E-3	3.54E-5	1.22E-4	2.60E-3	3.14E-5	3.42E-4	1.63E-6	-1.07E-3	1.90E-3
EP	kg PO4 3−-eq	3.12E-4	6.95E-6	1.56E-5	3.35E-4	6.27E-6	5.28E-5	7.23E-7	-1.45E-4	2.49E-4
HTP	kg 1,4-DB-eq	2.37E-1	3.39E-3	1.31E-2	2.54E-1	3.12E-3	8.81E-2	1.71E-4	-1.02E-1	2.43E-1
FAETP	kg 1,4-DB-eq	7.02E-3	9.88E-5	4.49E-4	7.57E-3	9.14E-5	1.34E-3	5.26E-5	-2.86E-3	6.20E-3
MAETP	kg 1,4-DB-eq	1.70E+1	3.56E-1	1.77E+0	1.91E+1	3.26E-1	4.63E+0	6.41E-2	-6.61E+0	1.75E+1
TETP	kg 1,4-DB-eq	1.67E-3	1.20E-5	9.77E-4	2.66E-3	1.10E-5	3.16E-4	5.79E-7	-9.53E-4	2.03E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	6.18E-1	8.12E-3	3.24E-2	6.59E-1	7.36E-3	2.59E-1	2.46E-3	-3.10E-1	6.17E-1
GWP-f	kg CO2 eq	6.13E-1	8.11E-3	2.49E-2	6.46E-1	7.35E-3	2.47E-1	2.46E-3	-3.35E-1	5.67E-1
GWP-b	kg CO2 eq	4.73E-3	3.74E-6	5.13E-3	9.87E-3	4.46E-6	1.20E-2	3.06E-6	2.58E-2	4.77E-2
GWP-luluc	kg CO2 eq	6.76E-4	2.97E-6	2.36E-3	3.04E-3	2.60E-6	9.02E-5	6.33E-8	-3.93E-4	2.74E-3
ODP	kg CFC11 eq	3.18E-7	1.79E-9	2.63E-9	3.22E-7	1.69E-9	2.50E-8	8.98E-11	-1.57E-7	1.92E-7
AP	mol H+ eq	2.97E-3	4.70E-5	1.52E-4	3.17E-3	4.19E-5	4.30E-4	2.19E-6	-1.30E-3	2.34E-3
EP-fw	kg P eq	2.89E-5	8.18E-8	4.36E-7	2.95E-5	6.05E-8	3.02E-6	2.87E-9	-1.37E-5	1.88E-5
EP-m	kg N eq	5.26E-4	1.66E-5	3.58E-5	5.79E-4	1.50E-5	1.06E-4	1.53E-6	-2.34E-4	4.67E-4
EP-T	mol N eq	5.70E-3	1.83E-4	3.95E-4	6.28E-3	1.65E-4	1.17E-3	8.72E-6	-2.52E-3	5.10E-3
POCP	kg NMVOC eq	1.89E-3	5.22E-5	1.12E-4	2.05E-3	4.72E-5	3.48E-4	3.01E-6	-8.40E-4	1.61E-3
ADP-mm	kg Sb eq	5.79E-4	2.05E-7	8.67E-7	5.80E-4	1.90E-7	1.68E-6	2.19E-9	-7.04E-6	5.75E-4
ADP-f	MJ	1.54E+1	1.22E-1	2.78E-1	1.58E+1	1.13E-1	1.15E+0	6.56E-3	-7.93E+0	9.11E+0
WDP	m3 depriv.	9.58E-1	4.38E-4	2.15E-1	1.17E+0	3.46E-4	4.58E-2	4.19E-5	-4.80E-1	7.40E-1
PM	disease inc.	2.16E-8	7.28E-10	1.87E-9	2.42E-8	6.63E-10	5.27E-9	4.52E-11	-1.00E-8	2.02E-8
IR	kBq U-235 eq	3.64E-2	5.12E-4	4.42E-4	3.73E-2	4.93E-4	4.07E-3	3.03E-5	-1.61E-2	2.58E-2
ETP-fw	CTUe	1.83E+1	1.09E-1	6.46E-1	1.91E+1	9.16E-2	8.97E+0	9.90E-2	-6.38E+0	2.19E+1
HTP-c	CTUh	4.92E-10	3.54E-12	2.24E-11	5.18E-10	3.26E-12	1.28E-10	1.81E-13	-1.79E-10	4.71E-10
HTP-nc	CTUh	1.60E-8	1.19E-10	6.98E-10	1.69E-8	1.09E-10	3.11E-9	1.92E-11	-6.15E-9	1.40E-8
SQP	Pt	3.23E+0	1.06E-1	2.08E-2	3.36E+0	9.65E-2	7.00E-1	1.68E-2	-5.80E+0	-1.63E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.86E-1	1.53E-3	1.35E+0	2.34E+0	1.62E-3	8.30E-2	2.49E-4	-1.23E+0	1.20E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.86E-1	1.53E-3	1.35E+0	2.34E+0	1.62E-3	8.30E-2	2.49E-4	-1.23E+0	1.20E+0
PENRE	MJ	1.65E+1	1.30E-1	3.01E-1	1.69E+1	1.20E-1	1.22E+0	6.96E-3	-8.55E+0	9.72E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.65E+1	1.30E-1	3.01E-1	1.69E+1	1.20E-1	1.22E+0	6.96E-3	-8.55E+0	9.72E+0
PET	MJ	1.75E+1	1.31E-1	1.65E+0	1.93E+1	1.21E-1	1.31E+0	7.21E-3	-9.78E+0	1.09E+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	1.12E-2	1.49E-5	5.09E-3	1.63E-2	1.28E-5	1.30E-3	8.05E-6	-5.66E-3	1.20E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	8.13E-5	3.10E-7	2.95E-7	8.19E-5	2.89E-7	1.91E-6	7.98E-9	-6.82E-6	7.73E-5
NHWD	kg	6.34E-2	7.76E-3	4.56E-4	7.17E-2	6.99E-3	4.23E-2	2.88E-2	-2.57E-2	1.24E-1
RWD	kg	3.37E-5	8.03E-7	5.47E-7	3.50E-5	7.67E-7	4.36E-6	4.27E-8	-1.44E-5	2.58E-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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