Environmental Profile

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

Ecochain v3.5.80

Product:	3001577 - KG Bend 15° 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

Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.06	0	0	0.07	0	0.02	0	-0.03	0.06
ADPE	kg Sb-eq	5.21E-4	1.87E-7	8.16E-7	5.22E-4	1.71E-7	1.51E-6	1.98E-9	-6.40E-6	5.17E-4
ADPF	kg Sb-eq	6.58E-3	5.37E-5	1.40E-4	6.78E-3	4.82E-5	5.23E-4	2.74E-6	-3.42E-3	3.93E-3
GWP	kg CO2-eq	5.45E-1	7.30E-3	2.66E-2	5.79E-1	6.56E-3	2.25E-1	1.91E-3	-2.98E-1	5.15E-1
ODP	kg CFC-11-eq	2.88E-7	1.30E-9	2.10E-9	2.91E-7	1.22E-9	2.18E-8	6.53E-11	-1.42E-7	1.72E-7
POCP	kg ethene-eq	3.42E-4	4.41E-6	1.16E-5	3.58E-4	3.94E-6	4.15E-5	4.91E-7	-1.49E-4	2.54E-4
AP	kg SO2-eq	2.23E-3	3.21E-5	1.14E-4	2.37E-3	2.82E-5	3.09E-4	1.48E-6	-9.75E-4	1.74E-3
EP	kg PO4 3−-eq	2.86E-4	6.31E-6	1.47E-5	3.07E-4	5.64E-6	4.77E-5	6.61E-7	-1.34E-4	2.27E-4
HTP	kg 1,4-DB-eq	2.16E-1	3.08E-3	1.24E-2	2.31E-1	2.81E-3	7.92E-2	1.55E-4	-9.28E-2	2.21E-1
FAETP	kg 1,4-DB-eq	6.46E-3	8.98E-5	4.22E-4	6.97E-3	8.22E-5	1.21E-3	4.75E-5	-2.65E-3	5.66E-3
MAETP	kg 1,4-DB-eq	1.55E+1	3.23E-1	1.66E+0	1.75E+1	2.94E-1	4.18E+0	5.79E-2	-5.99E+0	1.60E+1
TETP	kg 1,4-DB-eq	1.51E-3	1.09E-5	9.19E-4	2.44E-3	9.94E-6	2.84E-4	5.23E-7	-8.84E-4	1.85E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.62E-1	7.37E-3	3.05E-2	6.00E-1	6.62E-3	2.39E-1	2.23E-3	-2.78E-1	5.69E-1
GWP-f	kg CO2 eq	5.57E-1	7.37E-3	2.34E-2	5.88E-1	6.61E-3	2.26E-1	2.23E-3	-3.04E-1	5.19E-1
GWP-b	kg CO2 eq	4.19E-3	3.40E-6	4.83E-3	9.02E-3	4.02E-6	1.21E-2	2.76E-6	2.62E-2	4.73E-2
GWP-luluc	kg CO2 eq	6.27E-4	2.70E-6	2.22E-3	2.85E-3	2.34E-6	8.10E-5	5.71E-8	-3.73E-4	2.56E-3
ODP	kg CFC11 eq	2.86E-7	1.63E-9	2.47E-9	2.90E-7	1.52E-9	2.25E-8	8.10E-11	-1.41E-7	1.73E-7
AP	mol H+ eq	2.71E-3	4.27E-5	1.43E-4	2.90E-3	3.77E-5	3.88E-4	1.98E-6	-1.18E-3	2.14E-3
EP-fw	kg P eq	2.63E-5	7.43E-8	4.10E-7	2.68E-5	5.44E-8	2.72E-6	2.59E-9	-1.26E-5	1.70E-5
EP-m	kg N eq	4.82E-4	1.51E-5	3.37E-5	5.30E-4	1.35E-5	9.59E-5	1.40E-6	-2.13E-4	4.28E-4
EP-T	mol N eq	5.21E-3	1.66E-4	3.72E-4	5.75E-3	1.49E-4	1.06E-3	7.87E-6	-2.30E-3	4.66E-3
POCP	kg NMVOC eq	1.73E-3	4.74E-5	1.06E-4	1.88E-3	4.25E-5	3.15E-4	2.72E-6	-7.64E-4	1.48E-3
ADP-mm	kg Sb eq	5.21E-4	1.87E-7	8.16E-7	5.22E-4	1.71E-7	1.51E-6	1.98E-9	-6.39E-6	5.17E-4
ADP-f	MJ	1.40E+1	1.11E-1	2.62E-1	1.43E+1	1.02E-1	1.03E+0	5.92E-3	-7.18E+0	8.31E+0
WDP	m3 depriv.	8.63E-1	3.97E-4	2.02E-1	1.07E+0	3.12E-4	4.12E-2	3.77E-5	-4.35E-1	6.73E-1
PM	disease inc.	2.00E-8	6.62E-10	1.76E-9	2.24E-8	5.97E-10	4.75E-9	4.08E-11	-9.29E-9	1.85E-8
IR	kBq U-235 eq	3.32E-2	4.65E-4	4.16E-4	3.41E-2	4.44E-4	3.66E-3	2.73E-5	-1.46E-2	2.36E-2
ETP-fw	CTUe	1.69E+1	9.91E-2	6.08E-1	1.76E+1	8.24E-2	8.05E+0	8.88E-2	-5.95E+0	1.99E+1
HTP-c	CTUh	4.46E-10	3.21E-12	2.10E-11	4.70E-10	2.93E-12	1.15E-10	1.63E-13	-1.62E-10	4.26E-10
HTP-nc	CTUh	1.45E-8	1.08E-10	6.57E-10	1.53E-8	9.83E-11	2.80E-9	1.72E-11	-5.57E-9	1.26E-8
SQP	Pt	3.06E+0	9.64E-2	1.96E-2	3.17E+0	8.68E-2	6.29E-1	1.52E-2	-5.75E+0	-1.85E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.15E-1	1.39E-3	1.27E+0	2.19E+0	1.46E-3	7.45E-2	2.25E-4	-1.20E+0	1.06E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.15E-1	1.39E-3	1.27E+0	2.19E+0	1.46E-3	7.45E-2	2.25E-4	-1.20E+0	1.06E+0
PENRE	MJ	1.50E+1	1.18E-1	2.83E-1	1.54E+1	1.08E-1	1.10E+0	6.29E-3	-7.73E+0	8.86E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.50E+1	1.18E-1	2.83E-1	1.54E+1	1.08E-1	1.10E+0	6.29E-3	-7.73E+0	8.86E+0
PET	MJ	1.59E+1	1.19E-1	1.55E+0	1.76E+1	1.09E-1	1.17E+0	6.51E-3	-8.93E+0	9.93E+0
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	1.02E-2	1.35E-5	4.79E-3	1.50E-2	1.15E-5	1.17E-3	7.27E-6	-5.19E-3	1.10E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.30E-5	2.82E-7	2.78E-7	7.36E-5	2.60E-7	1.72E-6	7.20E-9	-6.19E-6	6.93E-5
NHWD	kg	5.80E-2	7.05E-3	4.29E-4	6.55E-2	6.29E-3	3.82E-2	2.60E-2	-2.33E-2	1.13E-1
RWD	kg	3.09E-5	7.30E-7	5.15E-7	3.22E-5	6.90E-7	3.93E-6	3.86E-8	-1.31E-5	2.37E-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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