Environmental Profile

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

Ecochain v3.5.80

Product:	3001600 - KG Bend 30° DN250
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	0.69	0.01	0.03	0.73	0.01	0.2	0	-0.37	0.57
ADPE	kg Sb-eq	5.02E-3	2.93E-6	7.49E-6	5.03E-3	1.65E-6	1.47E-5	1.90E-8	-6.66E-5	4.98E-3
ADPF	kg Sb-eq	6.61E-2	8.43E-4	1.29E-3	6.82E-2	4.64E-4	5.12E-3	2.64E-5	-3.55E-2	3.83E-2
GWP	kg CO2-eq	5.53E+0	1.15E-1	2.44E-1	5.89E+0	6.32E-2	2.18E+0	1.84E-2	-3.16E+0	5.00E+0
ODP	kg CFC-11-eq	2.79E-6	2.03E-8	1.93E-8	2.83E-6	1.17E-8	2.12E-7	6.29E-10	-1.40E-6	1.66E-6
POCP	kg ethene-eq	3.94E-3	6.91E-5	1.06E-4	4.11E-3	3.79E-5	4.04E-4	4.73E-6	-1.98E-3	2.58E-3
AP	kg SO2-eq	2.30E-2	5.04E-4	1.05E-3	2.45E-2	2.72E-4	3.04E-3	1.42E-5	-1.06E-2	1.72E-2
EP	kg PO4 3−-eq	2.89E-3	9.90E-5	1.35E-4	3.13E-3	5.43E-5	4.75E-4	6.37E-6	-1.43E-3	2.23E-3
HTP	kg 1,4-DB-eq	2.84E+0	4.82E-2	1.13E-1	3.01E+0	2.70E-2	7.62E-1	1.49E-3	-1.52E+0	2.28E+0
FAETP	kg 1,4-DB-eq	6.97E-2	1.41E-3	3.87E-3	7.50E-2	7.92E-4	1.16E-2	4.57E-4	-3.23E-2	5.55E-2
MAETP	kg 1,4-DB-eq	1.60E+2	5.07E+0	1.53E+1	1.80E+2	2.83E+0	3.89E+1	5.57E-1	-6.69E+1	1.55E+2
TETP	kg 1,4-DB-eq	1.76E-2	1.71E-4	8.43E-3	2.62E-2	9.58E-5	2.75E-3	5.04E-6	-9.34E-3	1.97E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	3.70E+0	1.16E-1	2.79E-1	4.10E+0	6.37E-2	4.20E+0	2.15E-2	-3.25E+0	5.13E+0
GWP-f	kg CO2 eq	5.67E+0	1.16E-1	2.15E-1	6.00E+0	6.37E-2	2.19E+0	2.15E-2	-3.23E+0	5.05E+0
GWP-b	kg CO2 eq	-1.97E+0	5.33E-5	4.43E-2	-1.92E+0	3.87E-5	2.00E+0	2.66E-5	-1.81E-2	6.08E-2
GWP-luluc	kg CO2 eq	5.81E-3	4.23E-5	2.04E-2	2.62E-2	2.25E-5	7.87E-4	5.50E-7	-2.99E-3	2.41E-2
ODP	kg CFC11 eq	2.78E-6	2.55E-8	2.27E-8	2.83E-6	1.47E-8	2.19E-7	7.81E-10	-1.39E-6	1.67E-6
AP	mol H+ eq	2.79E-2	6.70E-4	1.31E-3	2.98E-2	3.63E-4	3.83E-3	1.90E-5	-1.30E-2	2.10E-2
EP-fw	kg P eq	2.65E-4	1.17E-6	3.76E-6	2.70E-4	5.24E-7	2.63E-5	2.49E-8	-1.22E-4	1.75E-4
EP-m	kg N eq	4.93E-3	2.36E-4	3.09E-4	5.47E-3	1.30E-4	9.62E-4	1.35E-5	-2.49E-3	4.09E-3
EP-T	mol N eq	5.42E-2	2.60E-3	3.41E-3	6.02E-2	1.43E-3	1.06E-2	7.59E-5	-2.75E-2	4.48E-2
POCP	kg NMVOC eq	1.90E-2	7.43E-4	9.70E-4	2.07E-2	4.09E-4	3.14E-3	2.62E-5	-9.51E-3	1.47E-2
ADP-mm	kg Sb eq	5.02E-3	2.93E-6	7.49E-6	5.03E-3	1.65E-6	1.47E-5	1.90E-8	-6.66E-5	4.98E-3
ADP-f	MJ	1.40E+2	1.74E+0	2.40E+0	1.44E+2	9.78E-1	1.02E+1	5.71E-2	-7.37E+1	8.14E+1
WDP	m3 depriv.	8.37E+0	6.23E-3	1.86E+0	1.02E+1	3.00E-3	3.97E-1	3.63E-4	-3.92E+0	6.72E+0
PM	disease inc.	2.29E-7	1.04E-8	1.62E-8	2.56E-7	5.75E-9	4.66E-8	3.93E-10	-1.15E-7	1.93E-7
IR	kBq U-235 eq	3.36E-1	7.30E-3	3.82E-3	3.47E-1	4.27E-3	3.62E-2	2.63E-4	-1.48E-1	2.40E-1
ETP-fw	CTUe	1.44E+2	1.55E+0	5.57E+0	1.51E+2	7.94E-1	7.74E+1	8.55E-1	-5.29E+1	1.78E+2
HTP-c	CTUh	6.30E-9	5.04E-11	1.93E-10	6.55E-9	2.83E-11	1.15E-9	1.57E-12	-3.17E-9	4.56E-9
HTP-nc	CTUh	1.58E-7	1.70E-9	6.03E-9	1.66E-7	9.46E-10	2.71E-8	1.66E-10	-6.77E-8	1.26E-7
SQP	Pt	1.87E+2	1.51E+0	1.79E-1	1.89E+2	8.36E-1	6.26E+0	1.46E-1	-1.60E+2	3.62E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.11E+1	2.18E-2	1.17E+1	4.28E+1	1.40E-2	7.24E-1	2.17E-3	-2.69E+1	1.66E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.11E+1	2.18E-2	1.17E+1	4.28E+1	1.40E-2	7.24E-1	2.17E-3	-2.69E+1	1.66E+1
PENRE	MJ	1.50E+2	1.85E+0	2.59E+0	1.54E+2	1.04E+0	1.08E+1	6.06E-2	-7.93E+1	8.67E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.50E+2	1.85E+0	2.59E+0	1.54E+2	1.04E+0	1.08E+1	6.06E-2	-7.93E+1	8.67E+1
PET	MJ	1.81E+2	1.87E+0	1.43E+1	1.97E+2	1.05E+0	1.15E+1	6.27E-2	-1.06E+2	1.03E+2
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	9.97E-2	2.12E-4	4.39E-2	1.44E-1	1.11E-4	1.14E-2	7.00E-5	-4.40E-2	1.11E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.20E-4	4.42E-6	2.55E-6	7.27E-4	2.50E-6	1.70E-5	6.94E-8	-7.51E-5	6.72E-4
NHWD	kg	6.68E-1	1.11E-1	3.94E-3	7.83E-1	6.06E-2	3.83E-1	2.51E-1	-3.35E-1	1.14E+0
RWD	kg	3.16E-4	1.14E-5	4.72E-6	3.32E-4	6.65E-6	3.92E-5	3.72E-7	-1.36E-4	2.43E-4
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