Environmental Profile

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

Ecochain v3.5.80

Product:	3021204 - PVC KGFix Bend 88° GY 250 SN4 S/SP
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	0.91	0.01	0.05	0.97	0.01	0.28	0	-0.43	0.83
ADPE	kg Sb-eq	7.34E-3	2.68E-6	1.11E-5	7.36E-3	2.41E-6	2.18E-5	2.75E-8	-8.88E-5	7.29E-3
ADPF	kg Sb-eq	9.23E-2	7.70E-4	1.91E-3	9.50E-2	6.79E-4	7.50E-3	3.81E-5	-4.83E-2	5.49E-2
GWP	kg CO2-eq	7.90E+0	1.05E-1	3.62E-1	8.36E+0	9.24E-2	2.97E+0	2.64E-2	-4.22E+0	7.23E+0
ODP	kg CFC-11-eq	4.06E-6	1.86E-8	2.86E-8	4.10E-6	1.71E-8	3.13E-7	9.09E-10	-2.03E-6	2.40E-6
POCP	kg ethene-eq	4.73E-3	6.32E-5	1.57E-4	4.95E-3	5.55E-5	5.99E-4	6.80E-6	-2.16E-3	3.46E-3
AP	kg SO2-eq	3.40E-2	4.60E-4	1.56E-3	3.60E-2	3.98E-4	4.42E-3	2.05E-5	-1.43E-2	2.66E-2
EP	kg PO4 3−-eq	4.61E-3	9.05E-5	2.00E-4	4.90E-3	7.94E-5	6.81E-4	8.82E-6	-2.03E-3	3.65E-3
HTP	kg 1,4-DB-eq	3.14E+0	4.41E-2	1.68E-1	3.35E+0	3.95E-2	1.14E+0	2.15E-3	-1.35E+0	3.18E+0
FAETP	kg 1,4-DB-eq	1.58E-1	1.29E-3	5.75E-3	1.65E-1	1.16E-3	1.74E-2	6.62E-4	-4.12E-2	1.44E-1
MAETP	kg 1,4-DB-eq	2.23E+2	4.63E+0	2.26E+1	2.50E+2	4.14E+0	6.06E+1	8.08E-1	-8.73E+1	2.29E+2
TETP	kg 1,4-DB-eq	3.67E-2	1.56E-4	1.25E-2	4.94E-2	1.40E-4	4.05E-3	7.27E-6	-1.37E-2	3.98E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	7.65E+0	1.06E-1	4.14E-1	8.17E+0	9.33E-2	3.47E+0	3.08E-2	-3.82E+0	7.95E+0
GWP-f	kg CO2 eq	8.06E+0	1.06E-1	3.18E-1	8.49E+0	9.32E-2	2.98E+0	3.07E-2	-4.31E+0	7.29E+0
GWP-b	kg CO2 eq	-4.25E-1	4.87E-5	6.57E-2	-3.59E-1	5.66E-5	4.81E-1	3.84E-5	4.94E-1	6.16E-1
GWP-luluc	kg CO2 eq	1.71E-2	3.87E-5	3.02E-2	4.74E-2	3.30E-5	1.16E-3	7.95E-7	-6.16E-3	4.24E-2
ODP	kg CFC11 eq	4.02E-6	2.33E-8	3.37E-8	4.08E-6	2.15E-8	3.22E-7	1.13E-9	-2.01E-6	2.41E-6
AP	mol H+ eq	4.13E-2	6.12E-4	1.94E-3	4.39E-2	5.31E-4	5.55E-3	2.75E-5	-1.73E-2	3.27E-2
EP-fw	kg P eq	4.47E-4	1.07E-6	5.58E-6	4.54E-4	7.67E-7	3.88E-5	3.60E-8	-1.89E-4	3.04E-4
EP-m	kg N eq	7.42E-3	2.16E-4	4.59E-4	8.10E-3	1.90E-4	1.38E-3	1.87E-5	-3.15E-3	6.53E-3
EP-T	mol N eq	7.88E-2	2.38E-3	5.06E-3	8.62E-2	2.09E-3	1.52E-2	1.10E-4	-3.40E-2	6.96E-2
POCP	kg NMVOC eq	2.47E-2	6.79E-4	1.44E-3	2.69E-2	5.98E-4	4.52E-3	3.78E-5	-1.12E-2	2.09E-2
ADP-mm	kg Sb eq	7.34E-3	2.68E-6	1.11E-5	7.36E-3	2.41E-6	2.18E-5	2.75E-8	-8.88E-5	7.29E-3
ADP-f	MJ	1.95E+2	1.59E+0	3.56E+0	2.00E+2	1.43E+0	1.48E+1	8.25E-2	-1.02E+2	1.14E+2
WDP	m3 depriv.	1.26E+1	5.70E-3	2.76E+0	1.54E+1	4.39E-3	5.86E-1	5.27E-4	-6.37E+0	9.59E+0
PM	disease inc.	3.04E-7	9.48E-9	2.40E-8	3.38E-7	8.41E-9	6.84E-8	5.67E-10	-1.43E-7	2.72E-7
IR	kBq U-235 eq	4.58E-1	6.67E-3	5.66E-3	4.71E-1	6.25E-3	5.26E-2	3.80E-4	-2.15E-1	3.15E-1
ETP-fw	CTUe	2.11E+2	1.42E+0	8.27E+0	2.21E+2	1.16E+0	1.15E+2	1.26E+0	-9.38E+1	2.44E+2
HTP-c	CTUh	6.40E-9	4.61E-11	2.86E-10	6.73E-9	4.13E-11	1.65E-9	2.27E-12	-2.37E-9	6.05E-9
HTP-nc	CTUh	2.10E-7	1.55E-9	8.94E-9	2.20E-7	1.38E-9	3.99E-8	2.44E-10	-8.18E-8	1.80E-7
SQP	Pt	5.34E+1	1.38E+0	2.66E-1	5.51E+1	1.22E+0	9.02E+0	2.11E-1	-1.04E+2	-3.80E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.62E+1	1.99E-2	1.73E+1	3.35E+1	2.05E-2	1.07E+0	3.11E-3	-2.10E+1	1.36E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.62E+1	1.99E-2	1.73E+1	3.35E+1	2.05E-2	1.07E+0	3.11E-3	-2.10E+1	1.36E+1
PENRE	MJ	2.08E+2	1.69E+0	3.85E+0	2.14E+2	1.52E+0	1.58E+1	8.75E-2	-1.09E+2	1.22E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.08E+2	1.69E+0	3.85E+0	2.14E+2	1.52E+0	1.58E+1	8.75E-2	-1.09E+2	1.22E+2
PET	MJ	2.25E+2	1.71E+0	2.12E+1	2.48E+2	1.54E+0	1.68E+1	9.06E-2	-1.31E+2	1.35E+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	1.57E-1	1.94E-4	6.51E-2	2.22E-1	1.62E-4	1.65E-2	1.01E-4	-7.84E-2	1.60E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.05E-3	4.04E-6	3.78E-6	1.05E-3	3.66E-6	2.47E-5	1.00E-7	-8.78E-5	9.94E-4
NHWD	kg	8.16E-1	1.01E-1	5.84E-3	9.23E-1	8.87E-2	5.43E-1	3.62E-1	-3.42E-1	1.58E+0
RWD	kg	4.18E-4	1.05E-5	7.01E-6	4.35E-4	9.73E-6	5.66E-5	5.37E-7	-1.93E-4	3.10E-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

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