Environmental Profile

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

Ecochain v3.5.80

Product:	3021338 - PVC KGFix Bend 88° GY 200 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	0.36	0	0.02	0.38	0	0.11	0	-0.17	0.33
ADPE	kg Sb-eq	2.79E-3	1.05E-6	5.53E-6	2.79E-3	9.14E-7	8.41E-6	1.04E-8	-3.41E-5	2.77E-3
ADPF	kg Sb-eq	3.55E-2	3.01E-4	9.50E-4	3.68E-2	2.57E-4	2.87E-3	1.45E-5	-1.85E-2	2.14E-2
GWP	kg CO2-eq	3.08E+0	4.09E-2	1.80E-1	3.31E+0	3.51E-2	1.13E+0	9.99E-3	-1.63E+0	2.85E+0
ODP	kg CFC-11-eq	1.54E-6	7.26E-9	1.42E-8	1.57E-6	6.50E-9	1.19E-7	3.45E-10	-7.75E-7	9.16E-7
POCP	kg ethene-eq	1.83E-3	2.47E-5	7.83E-5	1.94E-3	2.10E-5	2.32E-4	2.58E-6	-8.45E-4	1.35E-3
AP	kg SO2-eq	1.35E-2	1.80E-4	7.75E-4	1.45E-2	1.51E-4	1.70E-3	7.78E-6	-5.64E-3	1.07E-2
EP	kg PO4 3−-eq	1.88E-3	3.53E-5	9.96E-5	2.02E-3	3.01E-5	2.63E-4	3.34E-6	-8.34E-4	1.48E-3
HTP	kg 1,4-DB-eq	1.23E+0	1.72E-2	8.37E-2	1.33E+0	1.50E-2	4.36E-1	8.16E-4	-5.30E-1	1.25E+0
FAETP	kg 1,4-DB-eq	7.02E-2	5.03E-4	2.86E-3	7.36E-2	4.39E-4	6.70E-3	2.51E-4	-1.74E-2	6.35E-2
MAETP	kg 1,4-DB-eq	8.72E+1	1.81E+0	1.13E+1	1.00E+2	1.57E+0	2.36E+1	3.06E-1	-3.43E+1	9.15E+1
TETP	kg 1,4-DB-eq	1.60E-2	6.09E-5	6.23E-3	2.23E-2	5.31E-5	1.54E-3	2.76E-6	-5.82E-3	1.81E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.93E+0	4.13E-2	2.06E-1	3.18E+0	3.54E-2	1.37E+0	1.17E-2	-1.42E+0	3.19E+0
GWP-f	kg CO2 eq	3.15E+0	4.12E-2	1.59E-1	3.35E+0	3.53E-2	1.13E+0	1.16E-2	-1.67E+0	2.86E+0
GWP-b	kg CO2 eq	-2.19E-1	1.90E-5	3.27E-2	-1.87E-1	2.15E-5	2.41E-1	1.45E-5	2.50E-1	3.05E-1
GWP-luluc	kg CO2 eq	7.78E-3	1.51E-5	1.50E-2	2.28E-2	1.25E-5	4.41E-4	3.01E-7	-2.77E-3	2.05E-2
ODP	kg CFC11 eq	1.53E-6	9.10E-9	1.67E-8	1.56E-6	8.14E-9	1.23E-7	4.28E-10	-7.68E-7	9.21E-7
AP	mol H+ eq	1.64E-2	2.39E-4	9.66E-4	1.76E-2	2.01E-4	2.14E-3	1.04E-5	-6.86E-3	1.31E-2
EP-fw	kg P eq	1.82E-4	4.16E-7	2.78E-6	1.86E-4	2.91E-7	1.48E-5	1.36E-8	-7.72E-5	1.23E-4
EP-m	kg N eq	2.99E-3	8.43E-5	2.28E-4	3.31E-3	7.20E-5	5.33E-4	7.06E-6	-1.26E-3	2.66E-3
EP-T	mol N eq	3.16E-2	9.29E-4	2.52E-3	3.50E-2	7.94E-4	5.87E-3	4.15E-5	-1.37E-2	2.80E-2
POCP	kg NMVOC eq	9.71E-3	2.65E-4	7.16E-4	1.07E-2	2.27E-4	1.75E-3	1.43E-5	-4.43E-3	8.26E-3
ADP-mm	kg Sb eq	2.79E-3	1.05E-6	5.53E-6	2.79E-3	9.14E-7	8.41E-6	1.04E-8	-3.41E-5	2.77E-3
ADP-f	MJ	7.47E+1	6.22E-1	1.77E+0	7.71E+1	5.42E-1	5.68E+0	3.13E-2	-3.91E+1	4.42E+1
WDP	m3 depriv.	4.85E+0	2.23E-3	1.37E+0	6.23E+0	1.66E-3	2.23E-1	2.00E-4	-2.51E+0	3.95E+0
PM	disease inc.	1.24E-7	3.70E-9	1.19E-8	1.39E-7	3.19E-9	2.64E-8	2.15E-10	-6.03E-8	1.09E-7
IR	kBq U-235 eq	1.77E-1	2.61E-3	2.82E-3	1.82E-1	2.37E-3	2.02E-2	1.44E-4	-8.54E-2	1.19E-1
ETP-fw	CTUe	8.30E+1	5.55E-1	4.12E+0	8.77E+1	4.40E-1	4.37E+1	4.80E-1	-4.03E+1	9.20E+1
HTP-c	CTUh	2.48E-9	1.80E-11	1.42E-10	2.64E-9	1.57E-11	6.35E-10	8.62E-13	-9.37E-10	2.36E-9
HTP-nc	CTUh	8.11E-8	6.07E-10	4.45E-9	8.62E-8	5.25E-10	1.52E-8	9.25E-11	-3.23E-8	6.98E-8
SQP	Pt	2.37E+1	5.40E-1	1.32E-1	2.44E+1	4.64E-1	3.45E+0	8.00E-2	-5.06E+1	-2.22E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	6.95E+0	7.79E-3	8.61E+0	1.56E+1	7.78E-3	4.06E-1	1.18E-3	-1.00E+1	5.96E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	6.95E+0	7.79E-3	8.61E+0	1.56E+1	7.78E-3	4.06E-1	1.18E-3	-1.00E+1	5.96E+0
PENRE	MJ	8.00E+1	6.60E-1	1.92E+0	8.26E+1	5.76E-1	6.04E+0	3.32E-2	-4.21E+1	4.71E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.00E+1	6.60E-1	1.92E+0	8.26E+1	5.76E-1	6.04E+0	3.32E-2	-4.21E+1	4.71E+1
PET	MJ	8.70E+1	6.68E-1	1.05E+1	9.82E+1	5.84E-1	6.45E+0	3.43E-2	-5.21E+1	5.31E+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	6.18E-2	7.58E-5	3.24E-2	9.43E-2	6.14E-5	6.27E-3	3.83E-5	-3.21E-2	6.86E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.99E-4	1.58E-6	1.88E-6	4.02E-4	1.39E-6	9.50E-6	3.80E-8	-3.41E-5	3.79E-4
NHWD	kg	3.23E-1	3.95E-2	2.90E-3	3.65E-1	3.36E-2	2.08E-1	1.37E-1	-1.34E-1	6.10E-1
RWD	kg	1.61E-4	4.08E-6	3.49E-6	1.69E-4	3.69E-6	2.18E-5	2.03E-7	-7.68E-5	1.18E-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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