Environmental Profile

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

Ecochain v3.5.80

Product:	3021335 - PVC KGFix Bend 15° 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	0.28	0	0.01	0.3	0	0.09	0	-0.13	0.26
ADPE	kg Sb-eq	2.29E-3	8.33E-7	3.44E-6	2.29E-3	7.51E-7	6.77E-6	8.61E-9	-2.79E-5	2.27E-3
ADPF	kg Sb-eq	2.90E-2	2.40E-4	5.92E-4	2.98E-2	2.12E-4	2.33E-3	1.19E-5	-1.51E-2	1.73E-2
GWP	kg CO2-eq	2.47E+0	3.26E-2	1.12E-1	2.61E+0	2.88E-2	9.47E-1	8.28E-3	-1.32E+0	2.28E+0
ODP	kg CFC-11-eq	1.26E-6	5.78E-9	8.88E-9	1.28E-6	5.34E-9	9.70E-8	2.85E-10	-6.31E-7	7.50E-7
POCP	kg ethene-eq	1.50E-3	1.97E-5	4.88E-5	1.57E-3	1.73E-5	1.86E-4	2.13E-6	-6.70E-4	1.10E-3
AP	kg SO2-eq	1.06E-2	1.43E-4	4.83E-4	1.13E-2	1.24E-4	1.37E-3	6.43E-6	-4.42E-3	8.35E-3
EP	kg PO4 3−-eq	1.44E-3	2.81E-5	6.21E-5	1.53E-3	2.48E-5	2.12E-4	2.80E-6	-6.24E-4	1.14E-3
HTP	kg 1,4-DB-eq	9.82E-1	1.37E-2	5.22E-2	1.05E+0	1.23E-2	3.53E-1	6.74E-4	-4.18E-1	9.96E-1
FAETP	kg 1,4-DB-eq	4.86E-2	4.00E-4	1.78E-3	5.08E-2	3.61E-4	5.40E-3	2.07E-4	-1.26E-2	4.41E-2
MAETP	kg 1,4-DB-eq	7.00E+1	1.44E+0	7.02E+0	7.85E+1	1.29E+0	1.88E+1	2.53E-1	-2.70E+1	7.18E+1
TETP	kg 1,4-DB-eq	1.13E-2	4.85E-5	3.88E-3	1.52E-2	4.37E-5	1.26E-3	2.28E-6	-4.22E-3	1.23E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.40E+0	3.29E-2	1.29E-1	2.56E+0	2.91E-2	1.10E+0	9.66E-3	-1.20E+0	2.50E+0
GWP-f	kg CO2 eq	2.52E+0	3.29E-2	9.88E-2	2.65E+0	2.90E-2	9.53E-1	9.65E-3	-1.34E+0	2.30E+0
GWP-b	kg CO2 eq	-1.27E-1	1.52E-5	2.04E-2	-1.07E-1	1.76E-5	1.44E-1	1.20E-5	1.48E-1	1.85E-1
GWP-luluc	kg CO2 eq	5.23E-3	1.20E-5	9.38E-3	1.46E-2	1.03E-5	3.59E-4	2.49E-7	-1.88E-3	1.31E-2
ODP	kg CFC11 eq	1.25E-6	7.25E-9	1.04E-8	1.27E-6	6.69E-9	1.00E-7	3.53E-10	-6.25E-7	7.54E-7
AP	mol H+ eq	1.29E-2	1.91E-4	6.02E-4	1.37E-2	1.65E-4	1.72E-3	8.60E-6	-5.36E-3	1.03E-2
EP-fw	kg P eq	1.39E-4	3.31E-7	1.73E-6	1.41E-4	2.39E-7	1.21E-5	1.13E-8	-5.83E-5	9.47E-5
EP-m	kg N eq	2.31E-3	6.71E-5	1.42E-4	2.52E-3	5.92E-5	4.27E-4	5.93E-6	-9.74E-4	2.04E-3
EP-T	mol N eq	2.46E-2	7.40E-4	1.57E-3	2.69E-2	6.52E-4	4.71E-3	3.43E-5	-1.05E-2	2.18E-2
POCP	kg NMVOC eq	7.78E-3	2.11E-4	4.46E-4	8.44E-3	1.86E-4	1.40E-3	1.18E-5	-3.46E-3	6.58E-3
ADP-mm	kg Sb eq	2.29E-3	8.33E-7	3.44E-6	2.29E-3	7.51E-7	6.77E-6	8.61E-9	-2.79E-5	2.27E-3
ADP-f	MJ	6.11E+1	4.96E-1	1.10E+0	6.27E+1	4.46E-1	4.60E+0	2.58E-2	-3.17E+1	3.61E+1
WDP	m3 depriv.	3.92E+0	1.77E-3	8.55E-1	4.78E+0	1.37E-3	1.82E-1	1.65E-4	-1.97E+0	2.99E+0
PM	disease inc.	9.57E-8	2.95E-9	7.44E-9	1.06E-7	2.62E-9	2.12E-8	1.78E-10	-4.40E-8	8.61E-8
IR	kBq U-235 eq	1.44E-1	2.08E-3	1.76E-3	1.48E-1	1.95E-3	1.63E-2	1.19E-4	-6.65E-2	1.00E-1
ETP-fw	CTUe	6.58E+1	4.42E-1	2.56E+0	6.88E+1	3.62E-1	3.57E+1	3.93E-1	-2.87E+1	7.65E+1
HTP-c	CTUh	2.00E-9	1.43E-11	8.88E-11	2.10E-9	1.29E-11	5.12E-10	7.12E-13	-7.35E-10	1.89E-9
HTP-nc	CTUh	6.53E-8	4.83E-10	2.77E-9	6.86E-8	4.32E-10	1.24E-8	7.59E-11	-2.53E-8	5.62E-8
SQP	Pt	1.65E+1	4.30E-1	8.26E-2	1.70E+1	3.81E-1	2.80E+0	6.61E-2	-3.12E+1	-1.10E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.98E+0	6.20E-3	5.37E+0	1.04E+1	6.40E-3	3.31E-1	9.76E-4	-6.36E+0	4.34E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.98E+0	6.20E-3	5.37E+0	1.04E+1	6.40E-3	3.31E-1	9.76E-4	-6.36E+0	4.34E+0
PENRE	MJ	6.54E+1	5.26E-1	1.19E+0	6.72E+1	4.73E-1	4.89E+0	2.74E-2	-3.41E+1	3.84E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	6.54E+1	5.26E-1	1.19E+0	6.72E+1	4.73E-1	4.89E+0	2.74E-2	-3.41E+1	3.84E+1
PET	MJ	7.04E+1	5.32E-1	6.56E+0	7.75E+1	4.80E-1	5.22E+0	2.84E-2	-4.05E+1	4.28E+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	4.88E-2	6.04E-5	2.02E-2	6.91E-2	5.04E-5	5.15E-3	3.17E-5	-2.41E-2	5.02E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.25E-4	1.26E-6	1.17E-6	3.27E-4	1.14E-6	7.66E-6	3.14E-8	-2.74E-5	3.08E-4
NHWD	kg	2.55E-1	3.14E-2	1.81E-3	2.88E-1	2.76E-2	1.69E-1	1.13E-1	-1.06E-1	4.93E-1
RWD	kg	1.33E-4	3.25E-6	2.17E-6	1.38E-4	3.03E-6	1.75E-5	1.68E-7	-5.97E-5	9.92E-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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