Environmental Profile

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

Ecochain v3.5.80

Product:	3021206 - PVC KGFix Bend 30° 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	0.63	0.01	0.03	0.67	0.01	0.2	0	-0.29	0.58
ADPE	kg Sb-eq	5.01E-3	1.83E-6	7.49E-6	5.02E-3	1.64E-6	1.47E-5	1.90E-8	-6.17E-5	4.97E-3
ADPF	kg Sb-eq	6.42E-2	5.26E-4	1.29E-3	6.60E-2	4.63E-4	5.07E-3	2.63E-5	-3.31E-2	3.85E-2
GWP	kg CO2-eq	5.46E+0	7.15E-2	2.44E-1	5.78E+0	6.30E-2	2.14E+0	1.83E-2	-2.90E+0	5.11E+0
ODP	kg CFC-11-eq	2.76E-6	1.27E-8	1.93E-8	2.80E-6	1.17E-8	2.11E-7	6.26E-10	-1.38E-6	1.64E-6
POCP	kg ethene-eq	3.36E-3	4.32E-5	1.06E-4	3.51E-3	3.78E-5	4.04E-4	4.71E-6	-1.47E-3	2.49E-3
AP	kg SO2-eq	2.36E-2	3.14E-4	1.05E-3	2.50E-2	2.71E-4	2.99E-3	1.42E-5	-9.65E-3	1.86E-2
EP	kg PO4 3−-eq	3.18E-3	6.18E-5	1.35E-4	3.37E-3	5.42E-5	4.64E-4	6.30E-6	-1.37E-3	2.53E-3
HTP	kg 1,4-DB-eq	2.18E+0	3.01E-2	1.13E-1	2.32E+0	2.70E-2	7.68E-1	1.48E-3	-9.13E-1	2.20E+0
FAETP	kg 1,4-DB-eq	1.07E-1	8.79E-4	3.87E-3	1.12E-1	7.90E-4	1.18E-2	4.55E-4	-2.76E-2	9.72E-2
MAETP	kg 1,4-DB-eq	1.55E+2	3.16E+0	1.53E+1	1.74E+2	2.82E+0	4.09E+1	5.55E-1	-5.90E+1	1.59E+2
TETP	kg 1,4-DB-eq	2.47E-2	1.06E-4	8.43E-3	3.33E-2	9.55E-5	2.74E-3	5.02E-6	-9.21E-3	2.69E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.30E+0	7.22E-2	2.79E-1	5.66E+0	6.36E-2	2.47E+0	2.13E-2	-2.64E+0	5.58E+0
GWP-f	kg CO2 eq	5.58E+0	7.21E-2	2.15E-1	5.86E+0	6.35E-2	2.16E+0	2.13E-2	-2.96E+0	5.15E+0
GWP-b	kg CO2 eq	-2.82E-1	3.33E-5	4.43E-2	-2.38E-1	3.86E-5	3.17E-1	2.65E-5	3.26E-1	4.06E-1
GWP-luluc	kg CO2 eq	1.15E-2	2.64E-5	2.04E-2	3.19E-2	2.25E-5	7.81E-4	5.48E-7	-4.11E-3	2.86E-2
ODP	kg CFC11 eq	2.75E-6	1.59E-8	2.27E-8	2.79E-6	1.46E-8	2.18E-7	7.77E-10	-1.36E-6	1.66E-6
AP	mol H+ eq	2.86E-2	4.18E-4	1.31E-3	3.04E-2	3.62E-4	3.76E-3	1.89E-5	-1.17E-2	2.28E-2
EP-fw	kg P eq	3.05E-4	7.28E-7	3.76E-6	3.10E-4	5.23E-7	2.62E-5	2.48E-8	-1.27E-4	2.09E-4
EP-m	kg N eq	5.12E-3	1.47E-4	3.09E-4	5.57E-3	1.30E-4	9.35E-4	1.34E-5	-2.13E-3	4.52E-3
EP-T	mol N eq	5.45E-2	1.63E-3	3.41E-3	5.95E-2	1.43E-3	1.03E-2	7.55E-5	-2.30E-2	4.83E-2
POCP	kg NMVOC eq	1.73E-2	4.64E-4	9.70E-4	1.88E-2	4.08E-4	3.07E-3	2.61E-5	-7.57E-3	1.47E-2
ADP-mm	kg Sb eq	5.01E-3	1.83E-6	7.49E-6	5.02E-3	1.64E-6	1.47E-5	1.90E-8	-6.17E-5	4.97E-3
ADP-f	MJ	1.35E+2	1.09E+0	2.40E+0	1.39E+2	9.75E-1	1.00E+1	5.68E-2	-6.95E+1	8.03E+1
WDP	m3 depriv.	8.59E+0	3.89E-3	1.86E+0	1.04E+1	2.99E-3	3.97E-1	3.61E-4	-4.29E+0	6.56E+0
PM	disease inc.	2.15E-7	6.48E-9	1.62E-8	2.37E-7	5.74E-9	4.62E-8	3.91E-10	-9.63E-8	1.93E-7
IR	kBq U-235 eq	3.22E-1	4.56E-3	3.82E-3	3.30E-1	4.26E-3	3.55E-2	2.62E-4	-1.45E-1	2.25E-1
ETP-fw	CTUe	1.45E+2	9.70E-1	5.57E+0	1.52E+2	7.92E-1	7.77E+1	8.55E-1	-6.28E+1	1.68E+2
HTP-c	CTUh	4.39E-9	3.15E-11	1.93E-10	4.61E-9	2.82E-11	1.11E-9	1.57E-12	-1.60E-9	4.15E-9
HTP-nc	CTUh	1.43E-7	1.06E-9	6.03E-9	1.50E-7	9.44E-10	2.70E-8	1.66E-10	-5.51E-8	1.23E-7
SQP	Pt	3.65E+1	9.44E-1	1.79E-1	3.76E+1	8.35E-1	6.09E+0	1.45E-1	-6.86E+1	-2.38E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.10E+1	1.36E-2	1.17E+1	2.27E+1	1.40E-2	7.19E-1	2.15E-3	-1.40E+1	9.45E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.10E+1	1.36E-2	1.17E+1	2.27E+1	1.40E-2	7.19E-1	2.15E-3	-1.40E+1	9.45E+0
PENRE	MJ	1.45E+2	1.16E+0	2.59E+0	1.49E+2	1.04E+0	1.07E+1	6.03E-2	-7.49E+1	8.55E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.45E+2	1.16E+0	2.59E+0	1.49E+2	1.04E+0	1.07E+1	6.03E-2	-7.49E+1	8.55E+1
PET	MJ	1.56E+2	1.17E+0	1.43E+1	1.71E+2	1.05E+0	1.14E+1	6.25E-2	-8.89E+1	9.50E+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	1.08E-1	1.32E-4	4.39E-2	1.52E-1	1.10E-4	1.13E-2	6.97E-5	-5.27E-2	1.10E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.07E-4	2.76E-6	2.55E-6	7.12E-4	2.49E-6	1.67E-5	6.91E-8	-6.03E-5	6.71E-4
NHWD	kg	5.63E-1	6.90E-2	3.94E-3	6.36E-1	6.05E-2	3.70E-1	2.50E-1	-2.30E-1	1.09E+0
RWD	kg	2.99E-4	7.14E-6	4.72E-6	3.11E-4	6.63E-6	3.82E-5	3.70E-7	-1.30E-4	2.25E-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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