Environmental Profile

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

Ecochain v3.5.80

Product:	3029283 - KG Adaptor Clay/PVC SN4 BR 186x160 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	0.34	0	0.01	0.35	0	0.12	0	-0.13	0.35
ADPE	kg Sb-eq	2.27E-3	8.56E-7	2.89E-6	2.28E-3	7.47E-7	5.82E-6	9.76E-9	-3.50E-5	2.25E-3
ADPF	kg Sb-eq	3.67E-2	2.46E-4	4.96E-4	3.75E-2	2.10E-4	2.03E-3	1.35E-5	-1.60E-2	2.37E-2
GWP	kg CO2-eq	2.91E+0	3.35E-2	9.41E-2	3.04E+0	2.86E-2	1.70E+0	1.02E-2	-1.46E+0	3.32E+0
ODP	kg CFC-11-eq	1.24E-6	5.94E-9	7.44E-9	1.26E-6	5.31E-9	8.31E-8	3.23E-10	-5.64E-7	7.81E-7
POCP	kg ethene-eq	2.31E-3	2.02E-5	4.09E-5	2.37E-3	1.72E-5	1.60E-4	2.55E-6	-6.29E-4	1.92E-3
AP	kg SO2-eq	1.26E-2	1.47E-4	4.04E-4	1.31E-2	1.23E-4	1.25E-3	7.33E-6	-3.91E-3	1.06E-2
EP	kg PO4 3−-eq	1.56E-3	2.89E-5	5.20E-5	1.64E-3	2.46E-5	2.08E-4	4.58E-6	-5.37E-4	1.35E-3
HTP	kg 1,4-DB-eq	1.20E+0	1.41E-2	4.37E-2	1.26E+0	1.22E-2	3.03E-1	7.63E-4	-3.72E-1	1.20E+0
FAETP	kg 1,4-DB-eq	3.27E-2	4.12E-4	1.49E-3	3.46E-2	3.59E-4	4.75E-3	2.31E-4	-1.02E-2	2.98E-2
MAETP	kg 1,4-DB-eq	8.96E+1	1.48E+0	5.88E+0	9.70E+1	1.28E+0	1.61E+1	2.79E-1	-2.38E+1	9.08E+1
TETP	kg 1,4-DB-eq	6.90E-3	4.99E-5	3.25E-3	1.02E-2	4.34E-5	1.12E-3	2.62E-6	-3.34E-3	8.03E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.98E+0	3.38E-2	1.08E-1	3.12E+0	2.89E-2	1.75E+0	1.19E-2	-1.39E+0	3.52E+0
GWP-f	kg CO2 eq	2.97E+0	3.38E-2	8.28E-2	3.09E+0	2.89E-2	1.71E+0	1.19E-2	-1.48E+0	3.36E+0
GWP-b	kg CO2 eq	-5.21E-4	1.56E-5	1.71E-2	1.66E-2	1.75E-5	4.34E-2	1.39E-5	9.41E-2	1.54E-1
GWP-luluc	kg CO2 eq	3.02E-3	1.24E-5	7.86E-3	1.09E-2	1.02E-5	3.08E-4	2.83E-7	-1.39E-3	9.82E-3
ODP	kg CFC11 eq	1.28E-6	7.46E-9	8.74E-9	1.29E-6	6.65E-9	8.57E-8	4.01E-10	-5.65E-7	8.19E-7
AP	mol H+ eq	1.52E-2	1.96E-4	5.04E-4	1.59E-2	1.64E-4	1.58E-3	9.81E-6	-4.75E-3	1.29E-2
EP-fw	kg P eq	1.28E-4	3.41E-7	1.45E-6	1.30E-4	2.37E-7	1.04E-5	1.29E-8	-4.77E-5	9.25E-5
EP-m	kg N eq	2.59E-3	6.90E-5	1.19E-4	2.77E-3	5.88E-5	4.08E-4	9.89E-6	-8.87E-4	2.36E-3
EP-T	mol N eq	2.85E-2	7.61E-4	1.31E-3	3.06E-2	6.48E-4	4.50E-3	3.91E-5	-9.59E-3	2.62E-2
POCP	kg NMVOC eq	1.05E-2	2.17E-4	3.74E-4	1.11E-2	1.85E-4	1.31E-3	1.37E-5	-3.23E-3	9.42E-3
ADP-mm	kg Sb eq	2.27E-3	8.56E-7	2.89E-6	2.28E-3	7.47E-7	5.82E-6	9.76E-9	-3.50E-5	2.25E-3
ADP-f	MJ	7.72E+1	5.10E-1	9.25E-1	7.86E+1	4.43E-1	4.01E+0	2.93E-2	-3.29E+1	5.02E+1
WDP	m3 depriv.	3.77E+0	1.82E-3	7.16E-1	4.48E+0	1.36E-3	1.64E-1	1.74E-4	-1.64E+0	3.01E+0
PM	disease inc.	1.36E-7	3.03E-9	6.23E-9	1.46E-7	2.61E-9	1.85E-8	2.01E-10	-3.67E-8	1.30E-7
IR	kBq U-235 eq	2.01E-1	2.13E-3	1.47E-3	2.05E-1	1.94E-3	1.41E-2	1.37E-4	-5.84E-2	1.62E-1
ETP-fw	CTUe	8.18E+1	4.54E-1	2.15E+0	8.44E+1	3.60E-1	3.14E+1	3.45E-1	-2.28E+1	9.36E+1
HTP-c	CTUh	2.12E-9	1.47E-11	7.44E-11	2.21E-9	1.28E-11	4.41E-10	8.01E-13	-6.37E-10	2.03E-9
HTP-nc	CTUh	6.51E-8	4.97E-10	2.32E-9	6.80E-8	4.29E-10	1.11E-8	7.01E-11	-2.13E-8	5.83E-8
SQP	Pt	1.64E+1	4.42E-1	6.92E-2	1.70E+1	3.79E-1	2.43E+0	7.50E-2	-2.10E+1	-1.18E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.37E+0	6.38E-3	4.50E+0	8.88E+0	6.36E-3	2.85E-1	1.17E-3	-4.39E+0	4.78E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.37E+0	6.38E-3	4.50E+0	8.88E+0	6.36E-3	2.85E-1	1.17E-3	-4.39E+0	4.78E+0
PENRE	MJ	8.26E+1	5.41E-1	1.00E+0	8.41E+1	4.70E-1	4.27E+0	3.11E-2	-3.56E+1	5.32E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.26E+1	5.41E-1	1.00E+0	8.41E+1	4.70E-1	4.27E+0	3.11E-2	-3.56E+1	5.32E+1
PET	MJ	8.69E+1	5.47E-1	5.50E+0	9.30E+1	4.77E-1	4.56E+0	3.23E-2	-4.00E+1	5.80E+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	5.24E-2	6.21E-5	1.69E-2	6.93E-2	5.01E-5	5.50E-3	3.61E-5	-1.99E-2	5.50E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.86E-4	1.29E-6	9.82E-7	2.88E-4	1.13E-6	7.19E-6	3.55E-8	-3.01E-5	2.66E-4
NHWD	kg	3.01E-1	3.23E-2	1.52E-3	3.35E-1	2.75E-2	1.65E-1	1.29E-1	-9.04E-2	5.65E-1
RWD	kg	2.19E-4	3.35E-6	1.82E-6	2.24E-4	3.01E-6	1.52E-5	1.92E-7	-5.43E-5	1.88E-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