Environmental Profile

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

Ecochain v3.5.80

Product:	3001610 - KG Branch 45° DN100xDN100 EXP
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

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Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.16	0	0.01	0.17	0	0.05	0	-0.08	0.15
ADPE	kg Sb-eq	1.36E-3	4.83E-7	2.08E-6	1.36E-3	4.46E-7	3.97E-6	5.12E-9	-1.64E-5	1.35E-3
ADPF	kg Sb-eq	1.69E-2	1.39E-4	3.58E-4	1.74E-2	1.26E-4	1.37E-3	7.09E-6	-8.87E-3	9.99E-3
GWP	kg CO2-eq	1.40E+0	1.89E-2	6.79E-2	1.49E+0	1.71E-2	5.61E-1	4.92E-3	-7.70E-1	1.30E+0
ODP	kg CFC-11-eq	7.51E-7	3.36E-9	5.37E-9	7.60E-7	3.17E-9	5.74E-8	1.69E-10	-3.73E-7	4.47E-7
POCP	kg ethene-eq	8.60E-4	1.14E-5	2.95E-5	9.01E-4	1.03E-5	1.09E-4	1.27E-6	-3.89E-4	6.32E-4
AP	kg SO2-eq	5.70E-3	8.32E-5	2.92E-4	6.07E-3	7.37E-5	8.07E-4	3.82E-6	-2.54E-3	4.41E-3
EP	kg PO4 3−-eq	7.30E-4	1.63E-5	3.75E-5	7.84E-4	1.47E-5	1.24E-4	1.66E-6	-3.47E-4	5.78E-4
HTP	kg 1,4-DB-eq	5.53E-1	7.96E-3	3.15E-2	5.93E-1	7.32E-3	2.08E-1	4.00E-4	-2.42E-1	5.66E-1
FAETP	kg 1,4-DB-eq	1.65E-2	2.33E-4	1.08E-3	1.78E-2	2.14E-4	3.17E-3	1.23E-4	-6.85E-3	1.45E-2
MAETP	kg 1,4-DB-eq	3.95E+1	8.36E-1	4.24E+0	4.46E+1	7.66E-1	1.09E+1	1.50E-1	-1.56E+1	4.08E+1
TETP	kg 1,4-DB-eq	3.92E-3	2.82E-5	2.35E-3	6.29E-3	2.59E-5	7.44E-4	1.35E-6	-2.28E-3	4.78E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.44E+0	1.91E-2	7.77E-2	1.54E+0	1.73E-2	5.95E-1	5.74E-3	-7.22E-1	1.44E+0
GWP-f	kg CO2 eq	1.43E+0	1.91E-2	5.97E-2	1.51E+0	1.73E-2	5.64E-1	5.73E-3	-7.86E-1	1.31E+0
GWP-b	kg CO2 eq	1.15E-2	8.81E-6	1.23E-2	2.39E-2	1.05E-5	3.00E-2	7.14E-6	6.49E-2	1.19E-1
GWP-luluc	kg CO2 eq	1.60E-3	6.99E-6	5.67E-3	7.28E-3	6.11E-6	2.13E-4	1.48E-7	-9.53E-4	6.54E-3
ODP	kg CFC11 eq	7.46E-7	4.21E-9	6.31E-9	7.56E-7	3.98E-9	5.91E-8	2.10E-10	-3.70E-7	4.49E-7
AP	mol H+ eq	6.93E-3	1.11E-4	3.64E-4	7.40E-3	9.83E-5	1.01E-3	5.11E-6	-3.08E-3	5.44E-3
EP-fw	kg P eq	6.79E-5	1.92E-7	1.05E-6	6.91E-5	1.42E-7	7.13E-6	6.69E-9	-3.26E-5	4.38E-5
EP-m	kg N eq	1.23E-3	3.90E-5	8.60E-5	1.36E-3	3.52E-5	2.50E-4	3.52E-6	-5.54E-4	1.09E-3
EP-T	mol N eq	1.33E-2	4.30E-4	9.48E-4	1.47E-2	3.88E-4	2.75E-3	2.04E-5	-5.97E-3	1.19E-2
POCP	kg NMVOC eq	4.39E-3	1.23E-4	2.70E-4	4.78E-3	1.11E-4	8.21E-4	7.03E-6	-1.99E-3	3.73E-3
ADP-mm	kg Sb eq	1.36E-3	4.83E-7	2.08E-6	1.36E-3	4.46E-7	3.97E-6	5.12E-9	-1.64E-5	1.35E-3
ADP-f	MJ	3.58E+1	2.88E-1	6.68E-1	3.68E+1	2.65E-1	2.71E+0	1.53E-2	-1.86E+1	2.11E+1
WDP	m3 depriv.	2.25E+0	1.03E-3	5.17E-1	2.77E+0	8.13E-4	1.08E-1	9.81E-5	-1.14E+0	1.74E+0
PM	disease inc.	5.01E-8	1.71E-9	4.50E-9	5.63E-8	1.56E-9	1.24E-8	1.06E-10	-2.40E-8	4.64E-8
IR	kBq U-235 eq	8.44E-2	1.21E-3	1.06E-3	8.67E-2	1.16E-3	9.60E-3	7.07E-5	-3.81E-2	5.94E-2
ETP-fw	CTUe	4.33E+1	2.57E-1	1.55E+0	4.51E+1	2.15E-1	2.11E+1	2.33E-1	-1.53E+1	5.14E+1
HTP-c	CTUh	1.15E-9	8.32E-12	5.37E-11	1.22E-9	7.65E-12	3.01E-10	4.23E-13	-4.23E-10	1.10E-9
HTP-nc	CTUh	3.77E-8	2.81E-10	1.68E-9	3.96E-8	2.56E-10	7.33E-9	4.51E-11	-1.46E-8	3.27E-8
SQP	Pt	7.69E+0	2.50E-1	4.99E-2	7.99E+0	2.27E-1	1.65E+0	3.93E-2	-1.44E+1	-4.49E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.34E+0	3.60E-3	3.25E+0	5.59E+0	3.80E-3	1.96E-1	5.80E-4	-3.03E+0	2.76E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.34E+0	3.60E-3	3.25E+0	5.59E+0	3.80E-3	1.96E-1	5.80E-4	-3.03E+0	2.76E+0
PENRE	MJ	3.84E+1	3.05E-1	7.22E-1	3.94E+1	2.81E-1	2.89E+0	1.63E-2	-2.01E+1	2.26E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.84E+1	3.05E-1	7.22E-1	3.94E+1	2.81E-1	2.89E+0	1.63E-2	-2.01E+1	2.26E+1
PET	MJ	4.07E+1	3.09E-1	3.97E+0	4.50E+1	2.85E-1	3.08E+0	1.68E-2	-2.31E+1	2.53E+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	2.62E-2	3.50E-5	1.22E-2	3.84E-2	3.00E-5	3.05E-3	1.88E-5	-1.35E-2	2.81E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.92E-4	7.29E-7	7.09E-7	1.93E-4	6.77E-7	4.49E-6	1.87E-8	-1.60E-5	1.82E-4
NHWD	kg	1.49E-1	1.83E-2	1.09E-3	1.68E-1	1.64E-2	9.96E-2	6.74E-2	-6.10E-2	2.90E-1
RWD	kg	7.75E-5	1.89E-6	1.31E-6	8.07E-5	1.80E-6	1.03E-5	9.98E-8	-3.41E-5	5.88E-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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