Environmental Profile

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

Ecochain v3.5.80

Product:	3001645 - KG Reducer BR DN150xDN100 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	0.11	0	0.01	0.12	0	0.04	0	-0.06	0.1
ADPE	kg Sb-eq	9.87E-4	3.45E-7	1.52E-6	9.89E-4	3.24E-7	2.88E-6	3.69E-9	-1.17E-5	9.80E-4
ADPF	kg Sb-eq	1.20E-2	9.92E-5	2.61E-4	1.23E-2	9.13E-5	9.98E-4	5.11E-6	-6.38E-3	7.05E-3
GWP	kg CO2-eq	9.93E-1	1.35E-2	4.95E-2	1.06E+0	1.24E-2	3.88E-1	3.52E-3	-5.49E-1	9.10E-1
ODP	kg CFC-11-eq	5.45E-7	2.39E-9	3.91E-9	5.51E-7	2.31E-9	4.19E-8	1.22E-10	-2.72E-7	3.24E-7
POCP	kg ethene-eq	5.99E-4	8.14E-6	2.15E-5	6.28E-4	7.46E-6	7.86E-5	9.09E-7	-2.79E-4	4.37E-4
AP	kg SO2-eq	4.02E-3	5.93E-5	2.13E-4	4.30E-3	5.35E-5	5.85E-4	2.75E-6	-1.81E-3	3.12E-3
EP	kg PO4 3−-eq	5.11E-4	1.17E-5	2.73E-5	5.50E-4	1.07E-5	8.94E-5	1.16E-6	-2.41E-4	4.09E-4
HTP	kg 1,4-DB-eq	3.92E-1	5.68E-3	2.30E-2	4.20E-1	5.32E-3	1.51E-1	2.89E-4	-1.74E-1	4.04E-1
FAETP	kg 1,4-DB-eq	1.15E-2	1.66E-4	7.85E-4	1.24E-2	1.56E-4	2.30E-3	8.87E-5	-4.70E-3	1.03E-2
MAETP	kg 1,4-DB-eq	2.79E+1	5.96E-1	3.09E+0	3.16E+1	5.57E-1	7.90E+0	1.08E-1	-1.12E+1	2.89E+1
TETP	kg 1,4-DB-eq	2.80E-3	2.01E-5	1.71E-3	4.53E-3	1.88E-5	5.43E-4	9.74E-7	-1.57E-3	3.52E-3
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.03E+0	1.36E-2	5.66E-2	1.10E+0	1.25E-2	4.08E-1	4.11E-3	-5.25E-1	9.95E-1
GWP-f	kg CO2 eq	1.02E+0	1.36E-2	4.35E-2	1.07E+0	1.25E-2	3.90E-1	4.11E-3	-5.61E-1	9.18E-1
GWP-b	kg CO2 eq	8.71E-3	6.28E-6	8.98E-3	1.77E-2	7.61E-6	1.73E-2	5.14E-6	3.66E-2	7.16E-2
GWP-luluc	kg CO2 eq	1.09E-3	4.99E-6	4.13E-3	5.23E-3	4.44E-6	1.56E-4	1.06E-7	-6.22E-4	4.77E-3
ODP	kg CFC11 eq	5.40E-7	3.00E-9	4.60E-9	5.47E-7	2.89E-9	4.31E-8	1.51E-10	-2.69E-7	3.24E-7
AP	mol H+ eq	4.89E-3	7.89E-5	2.65E-4	5.23E-3	7.14E-5	7.34E-4	3.68E-6	-2.19E-3	3.85E-3
EP-fw	kg P eq	4.83E-5	1.37E-7	7.62E-7	4.92E-5	1.03E-7	5.21E-6	4.82E-9	-2.29E-5	3.16E-5
EP-m	kg N eq	8.64E-4	2.78E-5	6.26E-5	9.54E-4	2.55E-5	1.80E-4	2.46E-6	-3.92E-4	7.70E-4
EP-T	mol N eq	9.35E-3	3.07E-4	6.91E-4	1.03E-2	2.82E-4	1.98E-3	1.47E-5	-4.21E-3	8.42E-3
POCP	kg NMVOC eq	3.07E-3	8.75E-5	1.97E-4	3.35E-3	8.05E-5	5.91E-4	5.06E-6	-1.41E-3	2.62E-3
ADP-mm	kg Sb eq	9.87E-4	3.45E-7	1.52E-6	9.89E-4	3.24E-7	2.88E-6	3.69E-9	-1.17E-5	9.80E-4
ADP-f	MJ	2.55E+1	2.05E-1	4.86E-1	2.61E+1	1.92E-1	1.97E+0	1.10E-2	-1.34E+1	1.49E+1
WDP	m3 depriv.	1.63E+0	7.34E-4	3.76E-1	2.01E+0	5.91E-4	7.88E-2	7.10E-5	-8.17E-1	1.27E+0
PM	disease inc.	3.42E-8	1.22E-9	3.27E-9	3.87E-8	1.13E-9	9.02E-9	7.60E-11	-1.65E-8	3.25E-8
IR	kBq U-235 eq	5.94E-2	8.60E-4	7.73E-4	6.10E-2	8.41E-4	6.98E-3	5.09E-5	-2.71E-2	4.17E-2
ETP-fw	CTUe	2.99E+1	1.83E-1	1.13E+0	3.12E+1	1.56E-1	1.54E+1	1.71E-1	-1.04E+1	3.66E+1
HTP-c	CTUh	8.29E-10	5.93E-12	3.91E-11	8.74E-10	5.56E-12	2.19E-10	3.05E-13	-3.03E-10	7.96E-10
HTP-nc	CTUh	2.72E-8	2.00E-10	1.22E-9	2.86E-8	1.86E-10	5.34E-9	3.29E-11	-1.04E-8	2.37E-8
SQP	Pt	5.06E+0	1.78E-1	3.64E-2	5.27E+0	1.65E-1	1.20E+0	2.83E-2	-8.58E+0	-1.91E+0

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.60E+0	2.57E-3	2.36E+0	3.96E+0	2.76E-3	1.43E-1	4.16E-4	-1.86E+0	2.25E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.60E+0	2.57E-3	2.36E+0	3.96E+0	2.76E-3	1.43E-1	4.16E-4	-1.86E+0	2.25E+0
PENRE	MJ	2.73E+1	2.18E-1	5.26E-1	2.80E+1	2.04E-1	2.10E+0	1.17E-2	-1.44E+1	1.59E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.73E+1	2.18E-1	5.26E-1	2.80E+1	2.04E-1	2.10E+0	1.17E-2	-1.44E+1	1.59E+1
PET	MJ	2.89E+1	2.20E-1	2.89E+0	3.20E+1	2.07E-1	2.24E+0	1.21E-2	-1.63E+1	1.82E+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	1.87E-2	2.50E-5	8.90E-3	2.76E-2	2.18E-5	2.20E-3	1.35E-5	-9.45E-3	2.04E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.40E-4	5.20E-7	5.16E-7	1.41E-4	4.92E-7	3.25E-6	1.34E-8	-1.14E-5	1.33E-4
NHWD	kg	1.05E-1	1.30E-2	7.97E-4	1.19E-1	1.19E-2	7.20E-2	4.86E-2	-4.37E-2	2.07E-1
RWD	kg	5.36E-5	1.35E-6	9.57E-7	5.59E-5	1.31E-6	7.47E-6	7.19E-8	-2.42E-5	4.05E-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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