Environmental Profile

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

Ecochain v3.5.71

Product:	3038903 - Wavin UR Bend 45° BN 150 SN8 D/S
Unit:	1 piece
Manufacturer:	Wavin - UK - Chippenham - Verified

Wavin Osma UltraRib Corrugated pipe systems are designed for use in gravity drainage and sewerage installations at depths of up to 10 metres. Osma UltraRib is a fully socketed system of pipe and fittings which combines secure jointing with ease of installation.

LCA standard:	EN15804+A2 (2019)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	09-02-2023
End of validity:	09-02-2028
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 - UK - Chippenham - 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

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	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.55E+0	6.69E-2	1.29E-1	1.74E+0	2.07E-2	5.62E-1	6.48E-3	-8.63E-1	1.47E+0
GWP-f	kg CO2 eq	1.53E+0	6.69E-2	1.25E-1	1.73E+0	2.07E-2	5.62E-1	6.47E-3	-8.57E-1	1.46E+0
GWP-b	kg CO2 eq	1.37E-2	-1.44E-5	4.04E-3	1.77E-2	1.26E-5	-5.66E-4	8.15E-6	-6.06E-3	1.11E-2
GWP-luluc	kg CO2 eq	1.28E-3	4.40E-5	9.32E-5	1.42E-3	7.32E-6	2.55E-4	1.72E-7	-5.62E-4	1.12E-3
ODP	kg CFC11 eq	8.58E-7	1.36E-8	1.26E-8	8.84E-7	4.77E-9	6.98E-8	2.44E-10	-4.36E-7	5.23E-7
AP	mol H+ eq	7.12E-3	2.00E-3	6.45E-4	9.77E-3	1.18E-4	1.17E-3	5.92E-6	-3.28E-3	7.79E-3
EP-fw	kg P eq	7.02E-5	3.01E-7	1.69E-6	7.22E-5	1.70E-7	8.53E-6	7.76E-9	-3.20E-5	4.89E-5
EP-m	kg N eq	1.20E-3	4.96E-4	1.38E-4	1.83E-3	4.22E-5	2.82E-4	3.64E-6	-5.66E-4	1.60E-3
EP-T	mol N eq	1.31E-2	5.51E-3	1.48E-3	2.01E-2	4.65E-4	3.11E-3	2.36E-5	-6.01E-3	1.77E-2
POCP	kg NMVOC eq	4.43E-3	1.43E-3	6.93E-4	6.55E-3	1.33E-4	9.32E-4	8.11E-6	-2.09E-3	5.54E-3
ADP-mm	kg Sb eq	9.07E-4	6.17E-7	2.67E-6	9.11E-4	5.35E-7	4.64E-6	5.95E-9	-1.78E-5	8.98E-4
ADP-f	MJ	3.92E+1	8.71E-1	1.38E+0	4.14E+1	3.18E-1	3.21E+0	1.78E-2	-2.09E+1	2.40E+1
WDP	m3 depriv.	2.59E+0	1.43E-3	4.45E-2	2.64E+0	9.75E-4	1.28E-1	1.21E-4	-1.25E+0	1.52E+0
PM	disease inc.	4.61E-8	2.44E-9	4.31E-9	5.28E-8	1.87E-9	1.45E-8	1.22E-10	-2.08E-8	4.85E-8
IR	kBq U-235 eq	8.51E-2	3.75E-3	3.74E-3	9.26E-2	1.39E-3	1.13E-2	8.15E-5	-4.03E-2	6.50E-2
ETP-fw	CTUe	3.33E+1	5.78E-1	3.30E+0	3.72E+1	2.58E-1	2.51E+1	2.78E-1	-1.20E+1	5.07E+1
HTP-c	CTUh	1.20E-9	3.71E-11	1.30E-10	1.36E-9	9.18E-12	3.58E-10	4.92E-13	-4.58E-10	1.27E-9
HTP-nc	CTUh	3.85E-8	4.93E-10	8.56E-9	4.75E-8	3.07E-10	8.67E-9	5.34E-11	-1.59E-8	4.07E-8
SQP	Pt	5.03E+0	1.89E-1	4.41E-1	5.66E+0	2.72E-1	1.97E+0	4.54E-2	-2.23E+0	5.72E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.93E+0	6.63E-3	6.47E+0	8.40E+0	4.56E-3	2.34E-1	6.56E-4	-9.08E-1	7.74E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.93E+0	6.63E-3	6.47E+0	8.40E+0	4.56E-3	2.34E-1	6.56E-4	-9.08E-1	7.74E+0
PENRE	MJ	4.20E+1	9.25E-1	1.47E+0	4.44E+1	3.37E-1	3.42E+0	1.89E-2	-2.25E+1	2.56E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.20E+1	9.25E-1	1.47E+0	4.44E+1	3.37E-1	3.42E+0	1.89E-2	-2.25E+1	2.56E+1
PET	MJ	4.39E+1	9.32E-1	7.93E+0	5.28E+1	3.42E-1	3.65E+0	1.95E-2	-2.34E+1	3.34E+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	2.82E-2	5.14E-5	1.25E-3	2.95E-2	3.59E-5	3.50E-3	2.17E-5	-1.30E-2	2.00E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.41E-4	9.59E-7	1.56E-5	1.57E-4	8.12E-7	5.17E-6	2.17E-8	-1.73E-5	1.46E-4
NHWD	kg	1.51E-1	7.95E-3	3.14E-3	1.62E-1	1.97E-2	1.16E-1	7.87E-2	-6.66E-2	3.10E-1
RWD	kg	7.40E-5	6.05E-6	4.14E-6	8.41E-5	2.16E-6	1.20E-5	1.16E-7	-3.55E-5	6.29E-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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