Environmental Profile

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

Ecochain v3.5.71

Product:	3066582 - PVC-U Sewer Branch 90° 9"x6" S/S
Unit:	1 piece
Manufacturer:	Wavin - UK - Chippenham - Verified

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	7.45E+0	3.24E-1	6.77E-1	8.45E+0	1.00E-1	2.72E+0	3.15E-2	-4.18E+0	7.12E+0
GWP-f	kg CO2 eq	7.38E+0	3.23E-1	6.58E-1	8.36E+0	9.99E-2	2.72E+0	3.15E-2	-4.15E+0	7.07E+0
GWP-b	kg CO2 eq	6.55E-2	-6.64E-5	1.84E-2	8.38E-2	6.07E-5	-2.75E-3	3.94E-5	-2.91E-2	5.20E-2
GWP-luluc	kg CO2 eq	6.13E-3	2.12E-4	5.34E-4	6.88E-3	3.54E-5	1.23E-3	8.32E-7	-2.69E-3	5.45E-3
ODP	kg CFC11 eq	4.10E-6	6.60E-8	6.17E-8	4.23E-6	2.30E-8	3.35E-7	1.18E-9	-2.09E-6	2.50E-6
AP	mol H+ eq	3.42E-2	9.59E-3	3.50E-3	4.73E-2	5.69E-4	5.64E-3	2.86E-5	-1.58E-2	3.77E-2
EP-fw	kg P eq	3.36E-4	1.47E-6	9.06E-6	3.47E-4	8.22E-7	4.09E-5	3.75E-8	-1.53E-4	2.35E-4
EP-m	kg N eq	5.77E-3	2.38E-3	7.10E-4	8.86E-3	2.04E-4	1.36E-3	1.76E-5	-2.73E-3	7.71E-3
EP-T	mol N eq	6.28E-2	2.64E-2	7.68E-3	9.69E-2	2.24E-3	1.50E-2	1.14E-4	-2.90E-2	8.53E-2
POCP	kg NMVOC eq	2.13E-2	6.87E-3	3.46E-3	3.16E-2	6.42E-4	4.49E-3	3.93E-5	-1.01E-2	2.67E-2
ADP-mm	kg Sb eq	4.29E-3	3.05E-6	1.54E-5	4.31E-3	2.59E-6	2.23E-5	2.87E-8	-8.52E-5	4.25E-3
ADP-f	MJ	1.89E+2	4.22E+0	7.27E+0	2.00E+2	1.53E+0	1.54E+1	8.59E-2	-1.02E+2	1.16E+2
WDP	m3 depriv.	1.24E+1	7.02E-3	2.26E-1	1.27E+1	4.71E-3	6.16E-1	5.82E-4	-6.01E+0	7.27E+0
PM	disease inc.	2.22E-7	1.20E-8	2.37E-8	2.58E-7	9.02E-9	6.97E-8	5.91E-10	-1.00E-7	2.37E-7
IR	kBq U-235 eq	4.08E-1	1.82E-2	1.86E-2	4.45E-1	6.71E-3	5.42E-2	3.94E-4	-1.93E-1	3.13E-1
ETP-fw	CTUe	1.59E+2	2.81E+0	1.84E+1	1.80E+2	1.25E+0	1.20E+2	1.33E+0	-5.77E+1	2.45E+2
HTP-c	CTUh	5.72E-9	1.79E-10	7.23E-10	6.63E-9	4.43E-11	1.72E-9	2.38E-12	-2.20E-9	6.20E-9
HTP-nc	CTUh	1.84E-7	2.41E-9	4.23E-8	2.29E-7	1.49E-9	4.16E-8	2.56E-10	-7.61E-8	1.96E-7
SQP	Pt	2.41E+1	9.55E-1	2.43E+0	2.75E+1	1.31E+0	9.50E+0	2.20E-1	-1.07E+1	2.78E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.42E+0	3.25E-2	3.76E+1	4.70E+1	2.20E-2	1.12E+0	3.17E-3	-4.36E+0	4.38E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.42E+0	3.25E-2	3.76E+1	4.70E+1	2.20E-2	1.12E+0	3.17E-3	-4.36E+0	4.38E+1
PENRE	MJ	2.02E+2	4.48E+0	7.72E+0	2.15E+2	1.63E+0	1.64E+1	9.12E-2	-1.09E+2	1.23E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.02E+2	4.48E+0	7.72E+0	2.15E+2	1.63E+0	1.64E+1	9.12E-2	-1.09E+2	1.23E+2
PET	MJ	2.12E+2	4.52E+0	4.53E+1	2.62E+2	1.65E+0	1.76E+1	9.44E-2	-1.14E+2	1.67E+2
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	1.35E-1	2.52E-4	6.48E-3	1.42E-1	1.74E-4	1.68E-2	1.05E-4	-6.28E-2	9.63E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	6.66E-4	4.73E-6	7.18E-5	7.42E-4	3.92E-6	2.49E-5	1.05E-7	-8.31E-5	6.88E-4
NHWD	kg	7.24E-1	4.16E-2	1.46E-2	7.80E-1	9.51E-2	5.59E-1	3.80E-1	-3.19E-1	1.50E+0
RWD	kg	3.55E-4	2.93E-5	1.90E-5	4.03E-4	1.04E-5	5.77E-5	5.59E-7	-1.70E-4	3.01E-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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