Environmental Profile

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

Ecochain v3.5.71

Product:	3018909 - Hepflex flex. connector 110 L=230/670
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	1.42E+0	2.10E-2	2.41E-1	1.68E+0	1.14E-2	5.67E-1	5.81E-3	-5.88E-1	1.68E+0
GWP-f	kg CO2 eq	1.44E+0	2.10E-2	2.39E-1	1.70E+0	1.14E-2	5.66E-1	5.81E-3	-5.88E-1	1.69E+0
GWP-b	kg CO2 eq	-1.52E-2	1.21E-5	2.30E-3	-1.29E-2	6.90E-6	4.59E-4	5.19E-6	3.68E-4	-1.21E-2
GWP-luluc	kg CO2 eq	8.74E-4	7.63E-6	2.60E-4	1.14E-3	4.02E-6	5.93E-5	1.02E-7	-1.18E-4	1.09E-3
ODP	kg CFC11 eq	1.05E-7	4.81E-9	1.56E-8	1.25E-7	2.62E-9	8.15E-9	1.48E-10	-3.45E-8	1.02E-7
AP	mol H+ eq	6.87E-3	1.41E-4	1.43E-3	8.44E-3	6.47E-5	3.57E-4	3.56E-6	-1.46E-3	7.40E-3
EP-fw	kg P eq	3.99E-5	1.69E-7	3.51E-6	4.35E-5	9.35E-8	1.73E-6	4.67E-9	-5.99E-6	3.94E-5
EP-m	kg N eq	1.08E-3	4.75E-5	2.34E-4	1.36E-3	2.32E-5	1.07E-4	3.16E-6	-2.69E-4	1.22E-3
EP-T	mol N eq	1.21E-2	5.24E-4	2.66E-3	1.53E-2	2.55E-4	1.18E-3	1.44E-5	-2.97E-3	1.38E-2
POCP	kg NMVOC eq	4.88E-3	1.48E-4	9.75E-4	6.01E-3	7.29E-5	3.63E-4	5.37E-6	-1.33E-3	5.12E-3
ADP-mm	kg Sb eq	1.08E-4	5.28E-7	7.56E-6	1.16E-4	2.94E-7	1.30E-6	3.57E-9	-6.40E-6	1.11E-4
ADP-f	MJ	4.08E+1	3.20E-1	2.65E+0	4.37E+1	1.74E-1	1.05E+0	1.08E-2	-1.69E+1	2.81E+1
WDP	m3 depriv.	7.54E-1	9.64E-4	6.89E-2	8.23E-1	5.35E-4	2.26E-2	5.63E-5	-2.77E-1	5.70E-1
PM	disease inc.	5.81E-8	1.85E-9	1.02E-8	7.01E-8	1.03E-9	5.45E-9	7.43E-11	-1.20E-8	6.47E-8
IR	kBq U-235 eq	5.36E-2	1.40E-3	5.13E-3	6.01E-2	7.62E-4	3.15E-3	5.05E-5	-8.58E-3	5.55E-2
ETP-fw	CTUe	1.87E+1	2.58E-1	8.27E+0	2.73E+1	1.42E-1	1.54E+0	1.17E-2	-2.35E+0	2.66E+1
HTP-c	CTUh	5.50E-10	9.37E-12	3.24E-10	8.83E-10	5.04E-12	1.45E-10	2.71E-13	-9.39E-11	9.39E-10
HTP-nc	CTUh	1.28E-8	3.05E-10	1.12E-8	2.43E-8	1.69E-10	1.89E-9	6.48E-12	-2.57E-9	2.38E-8
SQP	Pt	5.08E+0	2.66E-1	1.04E+0	6.39E+0	1.49E-1	8.23E-1	2.77E-2	-8.58E-1	6.53E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.29E+0	4.51E-3	1.90E+1	2.03E+1	2.50E-3	5.15E-2	4.33E-4	-2.68E-1	2.00E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.29E+0	4.51E-3	1.90E+1	2.03E+1	2.50E-3	5.15E-2	4.33E-4	-2.68E-1	2.00E+1
PENRE	MJ	4.37E+1	3.40E-1	2.81E+0	4.68E+1	1.85E-1	1.12E+0	1.15E-2	-1.82E+1	2.99E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.37E+1	3.40E-1	2.81E+0	4.68E+1	1.85E-1	1.12E+0	1.15E-2	-1.82E+1	2.99E+1
PET	MJ	4.50E+1	3.44E-1	2.18E+1	6.71E+1	1.88E-1	1.17E+0	1.19E-2	-1.85E+1	4.99E+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	1.66E-2	3.55E-5	2.20E-3	1.89E-2	1.97E-5	8.95E-4	1.34E-5	-4.23E-3	1.56E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.85E-5	8.01E-7	1.05E-5	2.98E-5	4.46E-7	1.85E-6	1.30E-8	-5.87E-6	2.62E-5
NHWD	kg	1.25E-1	1.92E-2	2.41E-3	1.47E-1	1.08E-2	5.66E-2	4.76E-2	-1.33E-2	2.49E-1
RWD	kg	5.75E-5	2.18E-6	2.77E-6	6.24E-5	1.19E-6	3.99E-6	7.07E-8	-8.29E-6	5.94E-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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