Environmental Profile

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

Ecochain v3.5.71

Product:	3071171 - Hep20 UFH Wireless Prog Thermostat
Unit:	1 piece
Manufacturer:	Wavin - UK - Doncaster - Verified

Suitable for various professional plumbing jobs. Hep20 is packed with unique features that make push-fit plumbing fitting easier quicker and more secure for installers. No additional equipment or tools required when installing or demounting fittings compared to others where a solder or glue is required. Just push the pipework into the fitting to create a watertight seal. A wide range of plastic fittings, plumbing pipes and tubes are available. It is the only system with joint recognition and se

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 - Doncaster - 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	5.60E+0	2.96E-3	6.55E-5	5.60E+0	3.95E-3	1.07E-1	2.04E-3	-1.46E-1	5.57E+0
GWP-f	kg CO2 eq	5.63E+0	2.96E-3	6.01E-5	5.64E+0	3.95E-3	1.07E-1	2.04E-3	-1.44E-1	5.61E+0
GWP-b	kg CO2 eq	-4.11E-2	1.80E-6	5.45E-6	-4.11E-2	2.40E-6	-1.14E-6	1.87E-6	-1.17E-3	-4.22E-2
GWP-luluc	kg CO2 eq	9.63E-3	1.05E-6	1.34E-8	9.63E-3	1.40E-6	2.64E-6	8.31E-8	-7.32E-5	9.56E-3
ODP	kg CFC11 eq	4.91E-7	6.82E-10	7.56E-12	4.92E-7	9.10E-10	8.41E-10	4.92E-11	-3.36E-9	4.90E-7
AP	mol H+ eq	4.72E-2	1.69E-5	1.04E-7	4.72E-2	2.25E-5	5.07E-5	1.44E-6	-5.51E-4	4.67E-2
EP-fw	kg P eq	1.09E-3	2.44E-8	3.37E-10	1.09E-3	3.25E-8	2.03E-7	4.64E-9	-3.89E-6	1.09E-3
EP-m	kg N eq	7.27E-3	6.04E-6	2.67E-8	7.28E-3	8.05E-6	1.86E-5	4.30E-6	-9.41E-5	7.21E-3
EP-T	mol N eq	8.68E-2	6.65E-5	2.39E-7	8.69E-2	8.87E-5	1.99E-4	5.35E-6	-1.04E-3	8.62E-2
POCP	kg NMVOC eq	2.39E-2	1.90E-5	7.93E-8	2.39E-2	2.54E-5	5.30E-5	1.93E-6	-6.21E-4	2.34E-2
ADP-mm	kg Sb eq	3.07E-3	7.66E-8	3.36E-10	3.07E-3	1.02E-7	8.14E-8	1.73E-9	-1.27E-6	3.07E-3
ADP-f	MJ	7.27E+1	4.55E-2	8.76E-4	7.27E+1	6.06E-2	7.76E-2	3.75E-3	-5.10E+0	6.78E+1
WDP	m3 depriv.	1.46E+0	1.40E-4	7.15E-6	1.46E+0	1.86E-4	1.03E-3	1.61E-4	-1.66E-1	1.29E+0
PM	disease inc.	3.03E-7	2.67E-10	7.63E-13	3.03E-7	3.56E-10	4.43E-10	2.64E-11	-4.12E-9	3.00E-7
IR	kBq U-235 eq	2.72E-1	1.99E-4	6.69E-7	2.72E-1	2.65E-4	2.32E-4	1.47E-5	-5.49E-3	2.67E-1
ETP-fw	CTUe	5.45E+2	3.69E-2	4.74E-4	5.45E+2	4.92E-2	7.12E-1	1.73E-2	-8.79E-1	5.45E+2
HTP-c	CTUh	7.08E-9	1.31E-12	2.06E-14	7.08E-9	1.75E-12	2.40E-11	1.67E-13	-3.43E-11	7.07E-9
HTP-nc	CTUh	3.18E-7	4.40E-11	4.06E-13	3.19E-7	5.87E-11	2.54E-9	6.48E-12	-9.68E-10	3.20E-7
SQP	Pt	3.53E+1	3.89E-2	7.37E-5	3.53E+1	5.19E-2	2.74E-2	8.90E-3	-2.10E-1	3.52E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	8.12E+0	6.52E-4	7.32E-4	8.12E+0	8.70E-4	2.85E-3	6.99E-5	-1.28E-1	7.99E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	8.12E+0	6.52E-4	7.32E-4	8.12E+0	8.70E-4	2.85E-3	6.99E-5	-1.28E-1	7.99E+0
PENRE	MJ	7.74E+1	4.83E-2	9.65E-4	7.75E+1	6.43E-2	8.24E-2	3.99E-3	-5.47E+0	7.21E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	7.74E+1	4.83E-2	9.65E-4	7.75E+1	6.43E-2	8.24E-2	3.99E-3	-5.47E+0	7.21E+1
PET	MJ	8.55E+1	4.89E-2	1.70E-3	8.56E+1	6.52E-2	8.52E-2	4.06E-3	-5.59E+0	8.01E+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	5.47E-2	5.14E-6	2.01E-7	5.48E-2	6.86E-6	4.41E-5	3.93E-6	-2.36E-3	5.25E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.21E-4	1.16E-7	1.05E-9	4.21E-4	1.55E-7	9.57E-7	6.02E-9	-5.43E-7	4.21E-4
NHWD	kg	8.05E-1	2.82E-3	4.87E-6	8.08E-1	3.76E-3	2.91E-3	1.50E-2	-5.40E-3	8.24E-1
RWD	kg	2.09E-4	3.09E-7	7.93E-10	2.09E-4	4.12E-7	3.17E-7	2.24E-8	-4.56E-6	2.05E-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

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777