Environmental Profile

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

Ecochain v3.5.71

Product:	3030681 - Hep20 Pb Elbow 45° Spigot WT 22 PF/SP
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	2.70E-1	4.44E-3	2.14E-2	2.96E-1	9.75E-4	4.71E-2	4.34E-4	-1.37E-1	2.07E-1
GWP-f	kg CO2 eq	2.76E-1	4.44E-3	1.98E-2	3.00E-1	9.75E-4	3.14E-2	4.34E-4	-1.40E-1	1.93E-1
GWP-b	kg CO2 eq	-5.91E-3	2.56E-6	1.52E-3	-4.39E-3	5.92E-7	1.56E-2	4.37E-7	2.76E-3	1.40E-2
GWP-luluc	kg CO2 eq	6.36E-5	1.61E-6	7.60E-6	7.28E-5	3.45E-7	3.01E-6	8.46E-9	-5.95E-5	1.67E-5
ODP	kg CFC11 eq	3.88E-9	1.02E-9	2.26E-9	7.15E-9	2.25E-10	8.29E-10	1.19E-11	-1.96E-9	6.26E-9
AP	mol H+ eq	1.34E-3	2.97E-5	4.84E-5	1.42E-3	5.55E-6	3.09E-5	2.94E-7	-5.64E-4	8.92E-4
EP-fw	kg P eq	3.45E-6	3.58E-8	1.41E-7	3.63E-6	8.02E-9	1.35E-7	3.89E-10	-1.79E-6	1.98E-6
EP-m	kg N eq	2.40E-4	1.00E-5	1.02E-5	2.60E-4	1.99E-6	9.68E-6	5.57E-7	-1.13E-4	1.60E-4
EP-T	mol N eq	2.45E-3	1.11E-4	9.93E-5	2.66E-3	2.19E-5	1.05E-4	1.17E-6	-1.16E-3	1.63E-3
POCP	kg NMVOC eq	9.36E-4	3.12E-5	3.21E-5	1.00E-3	6.26E-6	3.10E-5	4.26E-7	-4.41E-4	5.97E-4
ADP-mm	kg Sb eq	4.70E-6	1.12E-7	2.07E-7	5.02E-6	2.52E-8	1.24E-7	2.87E-10	-7.43E-7	4.42E-6
ADP-f	MJ	3.97E+0	6.77E-2	2.79E-1	4.32E+0	1.50E-2	8.92E-2	8.73E-4	-2.02E+0	2.40E+0
WDP	m3 depriv.	8.14E-2	2.04E-4	2.76E-3	8.43E-2	4.59E-5	1.88E-3	4.04E-6	-4.32E-2	4.30E-2
PM	disease inc.	1.17E-8	3.91E-10	3.55E-10	1.24E-8	8.80E-11	4.47E-10	5.95E-12	-5.53E-9	7.42E-9
IR	kBq U-235 eq	1.47E-3	2.96E-4	2.38E-4	2.00E-3	6.54E-5	2.86E-4	4.22E-6	-6.02E-4	1.76E-3
ETP-fw	CTUe	1.69E+0	5.46E-2	2.51E-1	2.00E+0	1.21E-2	1.49E-1	1.84E-3	-7.33E-1	1.43E+0
HTP-c	CTUh	6.62E-11	1.98E-12	1.04E-11	7.86E-11	4.32E-13	1.22E-11	2.31E-14	-1.55E-11	7.58E-11
HTP-nc	CTUh	1.04E-9	6.45E-11	2.19E-10	1.33E-9	1.45E-11	1.69E-10	7.42E-13	-3.96E-10	1.11E-9
SQP	Pt	1.07E+0	5.64E-2	3.52E-2	1.16E+0	1.28E-2	-3.66E-1	2.22E-3	-1.54E+0	-7.27E-1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.90E-1	9.54E-4	4.90E-1	6.81E-1	2.15E-4	-5.94E-2	4.03E-5	-2.88E-1	3.34E-1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.90E-1	9.54E-4	4.90E-1	6.81E-1	2.15E-4	-5.94E-2	4.03E-5	-2.88E-1	3.34E-1
PENRE	MJ	4.28E+0	7.19E-2	3.06E-1	4.66E+0	1.59E-2	9.50E-2	9.26E-4	-2.19E+0	2.58E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.28E+0	7.19E-2	3.06E-1	4.66E+0	1.59E-2	9.50E-2	9.26E-4	-2.19E+0	2.58E+0
PET	MJ	4.47E+0	7.28E-2	7.96E-1	5.34E+0	1.61E-2	3.56E-2	9.66E-4	-2.47E+0	2.92E+0
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	1.97E-3	7.52E-6	8.27E-5	2.06E-3	1.69E-6	6.07E-5	1.09E-6	-1.04E-3	1.08E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	6.63E-7	1.70E-7	2.94E-7	1.13E-6	3.83E-8	1.48E-7	1.04E-9	-3.56E-7	9.58E-7
NHWD	kg	1.43E-2	4.07E-3	1.37E-3	1.98E-2	9.27E-4	4.82E-3	3.80E-3	-1.86E-3	2.75E-2
RWD	kg	1.70E-6	4.61E-7	2.22E-7	2.39E-6	1.02E-7	3.68E-7	5.76E-9	-6.06E-7	2.25E-6
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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