

Environmental Profile

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

Ecochain v3.5.80



Product: 4021689 - PP Optima Branch 45° 400x160 3xS
Unit: 1 piece
Manufacturer: Wavin Denmark Hammel
Address: Wavinvej 1
8450 Hammel
Denmark
Contact: <https://www.wavin.com/en-en>

LCA standard: EN15804+A2 (2019)
Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified: Yes
Issue date: 20-06-2022
End of validity: 20-06-2027
Verifier: Harry van Ewijk - 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 Denmark Hammel (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					Use stage							End-of-Life stage				
A1 Raw material supply A2 Transport A3 Manufacturing					B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment B6 Operational energy use B7 Operational water use							C1 De-construction demolition C2 Transport C3 Waste processing C4 Disposal				
Construction process stage												Benefits and loads beyond the system boundaries				
A4 Transport gate to site A5 Assembly / Construction installation process												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]

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Results

Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.07E-1	9.39E-1	7.57E-1	1.80E+0	2.92E-1	8.59E+0	1.38E-1	-1.37E+1	-2.84E+0
GWP-f	kg CO2 eq	3.48E+1	9.39E-1	6.97E-1	3.64E+1	2.92E-1	8.60E+0	1.38E-1	-1.36E+1	3.19E+1
GWP-b	kg CO2 eq	-3.47E+1	4.33E-4	6.03E-2	-3.47E+1	1.77E-4	-1.17E-2	1.20E-4	-4.75E-2	-3.47E+1
GWP-luluc	kg CO2 eq	5.23E-2	3.44E-4	6.14E-4	5.33E-2	1.03E-4	1.64E-3	2.31E-6	-2.63E-3	5.24E-2
ODP	kg CFC11 eq	1.78E-6	2.07E-7	5.15E-8	2.04E-6	6.73E-8	2.13E-7	3.45E-9	-5.09E-7	1.82E-6
AP	mol H+ eq	1.49E-1	5.44E-3	6.58E-3	1.61E-1	1.66E-3	8.98E-3	8.22E-5	-3.81E-2	1.34E-1
EP-fw	kg P eq	7.28E-4	9.47E-6	3.63E-5	7.74E-4	2.40E-6	4.73E-5	1.06E-7	-1.49E-4	6.74E-4
EP-m	kg N eq	3.10E-2	1.92E-3	1.03E-3	3.39E-2	5.95E-4	2.61E-3	5.39E-5	-6.74E-3	3.05E-2
EP-T	mol N eq	3.50E-1	2.11E-2	1.11E-2	3.83E-1	6.56E-3	2.88E-2	3.34E-4	-7.46E-2	3.44E-1
POCP	kg NMVOC eq	1.41E-1	6.04E-3	3.51E-3	1.51E-1	1.88E-3	9.09E-3	1.25E-4	-3.45E-2	1.28E-1
ADP-mm	kg Sb eq	7.02E-4	2.38E-5	7.68E-5	8.02E-4	7.56E-6	3.55E-5	8.26E-8	-8.98E-5	7.56E-4
ADP-f	MJ	1.05E+3	1.42E+1	6.79E+0	1.07E+3	4.48E+0	2.85E+1	2.52E-1	-4.29E+2	6.74E+2
WDP	m3 depriv.	2.11E+1	5.06E-2	2.31E-1	2.14E+1	1.38E-2	5.59E-1	1.15E-3	-7.41E+0	1.46E+1
PM	disease inc.	1.86E-6	8.43E-8	5.74E-8	2.00E-6	2.64E-8	1.48E-7	1.73E-9	-3.19E-7	1.86E-6
IR	kBq U-235 eq	9.22E-1	5.93E-2	9.31E-3	9.91E-1	1.96E-2	8.58E-2	1.17E-3	-1.99E-1	8.99E-1
ETP-fw	CTUe	3.75E+2	1.26E+1	4.96E+1	4.37E+2	3.64E+0	3.21E+1	2.11E-1	-5.29E+1	4.20E+2
HTP-c	CTUh	3.02E-8	4.09E-10	2.50E-9	3.31E-8	1.30E-10	3.82E-9	6.07E-12	-2.26E-9	3.48E-8
HTP-nc	CTUh	4.36E-7	1.38E-8	6.25E-8	5.12E-7	4.34E-9	4.78E-8	1.35E-10	-6.40E-8	5.00E-7
SQP	Pt	2.99E+3	1.23E+1	9.17E+0	3.02E+3	3.84E+0	2.27E+1	6.47E-1	-1.15E+1	3.03E+3
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.16E+2	1.77E-1	9.30E+1	6.09E+2	6.43E-2	1.40E+0	9.82E-3	-5.31E+0	6.05E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.16E+2	1.77E-1	9.30E+1	6.09E+2	6.43E-2	1.40E+0	9.82E-3	-5.31E+0	6.05E+2
PENRE	MJ	1.12E+3	1.50E+1	7.23E+0	1.15E+3	4.76E+0	3.03E+1	2.67E-1	-4.62E+2	7.20E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.12E+3	1.50E+1	7.23E+0	1.15E+3	4.76E+0	3.03E+1	2.67E-1	-4.62E+2	7.20E+2
PET	MJ	1.64E+3	1.52E+1	1.00E+2	1.76E+3	4.83E+0	3.17E+1	2.77E-1	-4.68E+2	1.32E+3
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	3.64E-1	1.72E-3	6.41E-3	3.72E-1	5.08E-4	1.65E-2	3.11E-4	-1.11E-1	2.78E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	4.88E-4	3.59E-5	3.91E-6	5.28E-4	1.15E-5	4.62E-5	3.03E-7	-1.00E-4	4.86E-4
NHWD	kg	5.17E+0	8.98E-1	3.21E-2	6.10E+0	2.78E-1	1.40E+0	1.11E+0	-3.29E-1	8.56E+0
RWD	kg	9.99E-4	9.29E-5	8.23E-6	1.10E-3	3.05E-5	1.09E-4	1.65E-6	-1.79E-4	1.06E-3
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