

LCA

Strawcture Eco Pvt Ltd



Life Cycle Assessment

In accordance with recommendations of ISO 14040

Conducted by Mili Jain (Monk Spaces)

December 2021

MONK SPACES
ARCHITECTURE. CARBON. ENERGY

Company Information

Company Name : Strawcture Eco Pvt Ltd
 Owner : Shriti Pandey
 Description : Strawcture Eco is a green building material company. Inspired by nature, Strawcture believes in responsible construction and aim to reduce the carbon footprint of our built environment.
 Production site : Solapur

Product Information

Name : AgriBioPanels™
 Description : AgriBioPanels are compressed agri-fiber panels made of more than 90% straw and a proprietary binding adhesive and then compressed at a high temperature and pressure. They can be used for false ceilings, furniture, doors, wall cladding and mezzanine flooring. This LCA describes the following average products manufacturing at the production site:

- 1kg of Basic AgriBioPanel (12mm, 25mm, 30mm)
- 1m² of Premium AgriBioPanel (18mm, 25mm, 30mm)
- 1m² of HD AgriBioPanel (18mm, 25mm)

	Basic			Premium			HD	
Thickness (mm)	12	25	30	18	25	30	18	25
Density (kg/m³)	720.0	720.0	650.0	650.0	800.0	725.0	700.0	700.0
Area Density (kg/m²)	6.5	8.6	16.3	19.5	14.4	18.1	21.0	12.6
Composition of 1m² of Panel								
Agri-fiber (kg/m²)	5.8	7.8	14.6	17.6	13.0	16.3	18.9	11.3
Resin (kg/m²)	0.3	0.4	0.8	1.0	0.7	0.9	1.1	0.6
Water (kg/m²)	0.3	0.4	0.8	1.0	0.7	0.9	1.1	0.6

LCA Information

Functional unit : kg
 System boundaries : Cradle to gate (A1-A3) + Avoided Emissions (D)
 Representativeness : The data in this declaration are from detailed surveys and data collection of the manufacturing unit located in Solapur. It is based on production numbers from 2021.

System Boundary

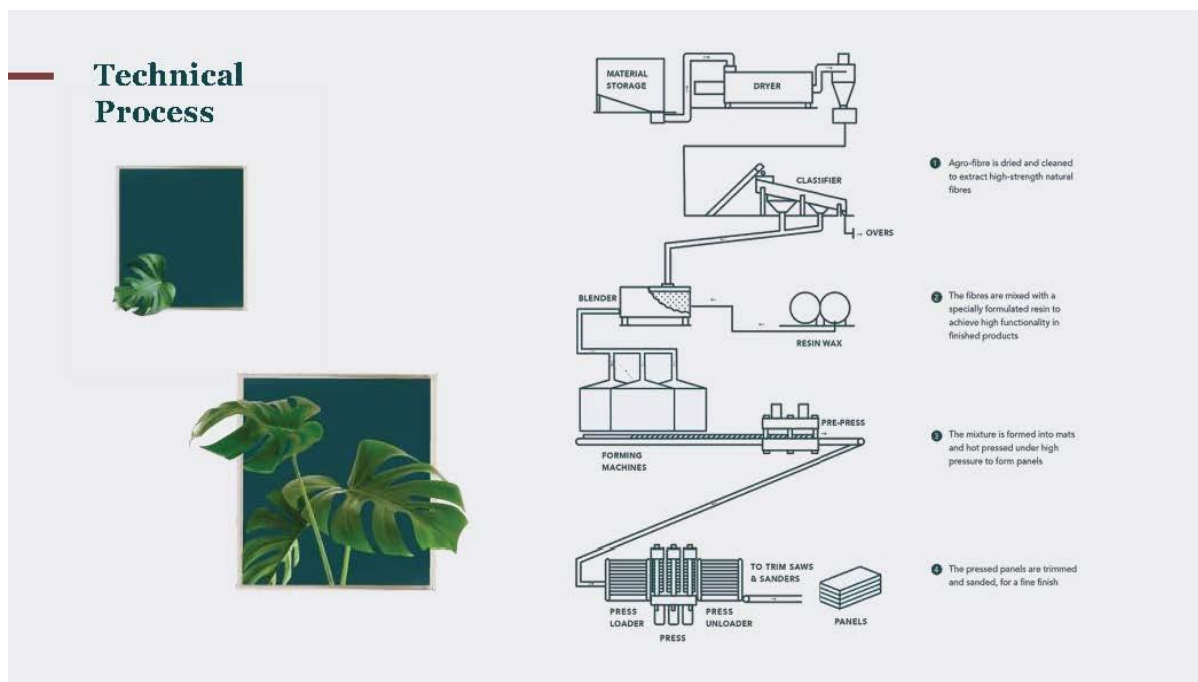
Product stage			Construction process stage		Use								End-of-life stage				Benefits beyond the system boundary
Raw Material extraction	Transportation	Manufacturing	Transport to customer / site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to waste processing	Waste processing	Disposal	Reuse / Recovery / Recycling	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	MND													X	

Key: X = included in EPD

MND = module not declared (such a declaration shall not be regarded as an indicator result of zero)

Production

The production process includes cleaning and drying of agri-fiber and mixing them with resin formulated on the site. This mix is then pressurised into panels. These panels are then trimmed and sanded for the finished product.



Environmental Impact Indicators

Global Warming Potential (GWP) > Climate Change A measure of greenhouse gas emissions, such as carbon dioxide and methane. These emissions increase absorption of radiation emitted by the earth, intensifying the natural greenhouse effect. Contributions to GWP can come from either fossil or biogenic sources, e.g. burning fossil fuels or burning wood. GWP is reported as a total as well as being separated into biogenic carbon (GWPB) and fossil carbon (GWPF).

Environmental Impacts of 1kg of Basic AgriBioPanel (12mm)

Indicator	A1	A2	A3	A1+A2+A3	D	A-D
GWP [kgCO ₂ e]	0.384	0.035	0.180	0.599	-10.886	-10.288
GWPF [kgCO ₂ e]	0.384	0.035	0.180	0.599	0.000	0.599
GWPB [kg CO ₂ e]	0.000	0.000	0.000	0.000	-10.886	-10.886

Environmental Impacts of 1kg of Basic AgriBioPanel (25mm)

Indicator	A1	A2	A3	A1+A2+A3	D	A-D
GWP [kgCO ₂ e]	0.723	0.065	0.095	0.884	-20.475	-19.591
GWPF [kgCO ₂ e]	0.723	0.065	0.095	0.884	0.000	0.884
GWPB [kg CO ₂ e]	0.000	0.000	0.000	0.000	-20.475	-20.475

Environmental Impacts of 1kg of Basic AgriBioPanel (30mm)

Indicator	A1	A2	A3	A1+A2+A3	D	A-D
GWP [kgCO ₂ e]	0.868	0.078	0.080	1.025	-24.570	-23.545
GWPF [kgCO ₂ e]	0.868	0.078	0.080	1.025	0.000	1.025
GWPB [kg CO ₂ e]	0.000	0.000	0.000	0.000	-24.570	-24.570

Environmental Impacts of 1kg of Premium AgriBioPanel (18mm)

Indicator	A1	A2	A3	A1+A2+A3	D	A-D
GWP [kgCO ₂ e]	0.641	0.058	0.108	0.806	-18.144	-17.338
GWPF [kgCO ₂ e]	0.641	0.058	0.108	0.806	0.000	0.806
GWPB [kg CO ₂ e]	0.000	0.000	0.000	0.000	-18.144	-18.144

Environmental Impacts of 1kg of Premium AgriBioPanel (25mm)

Indicator	A1	A2	A3	A1+A2+A3	D	A-D
GWP [kgCO ₂ e]	0.807	0.073	0.086	0.965	-22.838	-21.873
GWPF [kgCO ₂ e]	0.807	0.073	0.086	0.965	0.000	0.965
GWPB [kg CO ₂ e]	0.000	0.000	0.000	0.000	-22.838	-22.838

Environmental Impacts of 1kg of Premium AgriBioPanel (30mm)

Indicator	A1	A2	A3	A1+A2+A3	D	A-D
GWP [kgCO ₂ e]	0.935	0.084	0.074	1.092	-26.460	-25.368
GWPF [kgCO ₂ e]	0.935	0.084	0.074	1.092	0.000	1.092
GWPB [kg CO ₂ e]	0.000	0.000	0.000	0.000	-26.460	-26.460

Environmental Impacts of 1kg of HD AgriBioPanel (18mm)

Indicator	A1	A2	A3	A1+A2+A3	D	A-D
GWP [kgCO ₂ e]	0.561	0.050	0.123	0.734	-15.876	-15.142
GWPF [kgCO ₂ e]	0.561	0.050	0.123	0.734	0.000	0.734
GWPB [kg CO ₂ e]	0.000	0.000	0.000	0.000	-15.876	-15.876

Environmental Impacts of 1kg of HD AgriBioPanel (25mm)

Indicator	A1	A2	A3	A1+A2+A3	D	A-D
GWP [kgCO ₂ e]	0.723	0.065	0.095	0.884	-20.475	-19.591
GWPF [kgCO ₂ e]	0.723	0.065	0.095	0.884	0.000	0.884
GWPB [kg CO ₂ e]	0.000	0.000	0.000	0.000	-20.475	-20.475

References

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