



**MADERA**

Fiber Technologies

**Lignohemp AC**



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## 2- Ligno hemp AC



# Lignohemp AC: Simple and reliable process.

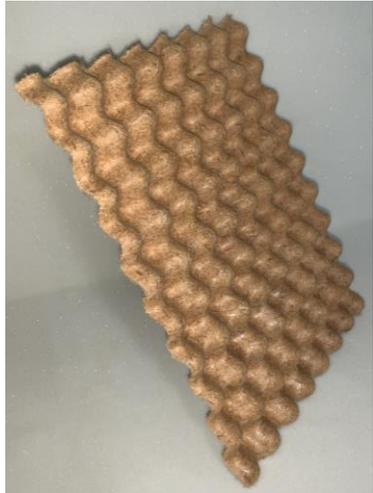


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## Advantages:

- More ecological and eco-sustainable material.
- 92% bio-based material (renewable and “green” materials).
- Ecofriendly product: Reduces the carbon footprint.
- Cost reduction versus plywood :
  - Pine fiber material versus other tree species.
  - Elimination of 90% of resins/glues.
  - Reduction of manufacturing costs (stability time and adhesive process is avoided and pressing time is reduced).
- Price stability: Stability, guarantee of supply and sustainability of the pine market in Galician (Spain).
- The material that allows complex shapes and large draws (3D).
- The material can be produced in hot mold ( $T^a > 120^{\circ}\text{C} < 180^{\circ}\text{C}$ ) , HF and vacuum machines.
- Lacqued (varnishable) and covering with different materials.
- The material can be joined together as a multilaminar product without the need to use glues to achieve greater thicknesses/densities.



# Lignoemp AC : Simple and reliable process.



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# Lignoemp AC: Versatility



HF Machine



Hot Press



Vacuum Machine

# Ligno hemp AC : Postprocessing



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Screwdriver and drill



Milling machine



Wood cutter machine



## Ligno hemp AC: Automotive.



### Specifications:

Thermoformed material with certified pine wood and agricultural fibers that give it the necessary rigidity and flexibility.

92% bio-based material (renewable and “green” materials).

Natural, light and sustainable.

Material designed to replace PP in the thermoplastic products as NFPP.

The material can be produced in hot mold ( $T^a > 120^{\circ}\text{C} < 180^{\circ}\text{C}$ ).

The material can be manufactured to the measurements and thickness/density desired by the customer.

Lacqued (varnishable) and covering with different materials.

Optionally, it can be produced with a broad-spectrum fungicide, which gives it very high protection characteristics against fungal attack.



## Lignohemp AC: Furniture: Chairs

### Specifications:

Thermoformed material with certified pine wood and agricultural fibers that give it the necessary rigidity and flexibility.

92% bio-based material (renewable and “green” materials). Natural, light and sustainable.

Material designed to replace multilaminar materials as plywood.

The material allowing any type of shape/drawing (3D).

The material can be manufactured to the measurements and thickness desired by the customer.

The material can be produced in hot mould ( $T^a > 120^{\circ}\text{C} < 180^{\circ}\text{C}$ ), HF machines or vacuum machines.

The material can be joined together as a multilaminar materials without the need to use glues to achieve greater thicknesses/densities.

Optionally, it can be produced with a broad-spectrum fungicide, which gives it very high protection characteristics against fungal attack.



# Lignohemp AC: Furniture: Tables, doors.



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## Specifications:

Thermoformed material with certified pine wood and agricultural fibers that give it the necessary rigidity and flexibility.

92% bio-based material (renewable and “green” materials). Natural, light and sustainable.

Material designed to replace multilaminar materials as plywood or DM on the top and bottom panel.

The material allowing any type of shape/drawing (3D).

The material can be manufactured to the measurements and thickness desired by the customer.

The material can be produced in hot mold ( $T^a > 120^{\circ}\text{C} < 180^{\circ}\text{C}$ ), HF machines or vacuum machines.

Optionally, it can be produced with a broad-spectrum fungicide, which gives it very high protection characteristics against fungal attack.



# Lignohemp AC: Furniture: Others.



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# Lignohemp AC: Mechanical Properties

Properties	Unit	Norm	Lignohemp AC	
Density	g/m <sup>2</sup>	TL 52499	<b>2.000</b>	<b>16.000</b>
Volumetric density	g/cm <sup>3</sup>	TL 52499	<b>0,98</b>	<b>0,98</b>
Thickness	mm	EN 52350	<b>2,0</b>	<b>16,0</b>
Water Absorption	%	EN 322	<b>&lt; 38%</b>	<b>&lt; 38%</b>
Flammability	mm/min	ISO 3795	<b>&lt; 100</b>	<b>&lt; 100</b>
Modulus of bending	Mpa		<b>2000 - 3000</b>	<b>TBD</b>
Modulus of elasticity	N/mm <sup>2</sup>	EN 178		
Stiffness	Mpa		<b>50 - 70</b>	<b>TBD</b>
flexural strength	N/mm <sup>2</sup>	EN 310		
Thickness swell	%	EN 322	<b>&lt; 15%</b>	<b>&lt; 15%</b>
Impact resistance	Kj/m <sup>2</sup> mj/mm <sup>2</sup>	EN 179	<b>NTP</b>	<b>NTP</b>
Odor	Note	PV 3900	<b>3</b>	<b>3</b>
Fogging		PV 3015	<b>NTP</b>	<b>NTP</b>
Formaldehido	gCH2O/kg Atro	PV 3925	<b>&lt; 10</b>	<b>NTP</b>

TBD  
NTP

To be defined  
No tested performance



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