

What Is Fiber510?


Wood residuals from the forest products and construction industries are currently land filled, and crop residuals are often burned on fields. Fiber510™ makes use of these unutilized organic fibre to produce over 100 distinct non-woven engineered biofibre mat products with area weight of 200g/m² to 3500g/m², including weed control fabrics and other geotextiles, air, liquid and gas filters, noise absorbents, thermal insulation, a wide variety of mats for thermal compression molding, and resin transfer molding (RTM) applications.

Why Fiber510?

510 nanometers is the wavelength of green light – the colour of forests and fields of flax and hemp, symbolizing sustainability. Rapidly renewable natural fibre is an environmentally friendly material with unique properties: low density, high tensile strength, reduced noise transmission, and recyclability at end of life.

- ★ Entirely made of sustainable biofibres which significantly reduce GHG emissions and energy consumption.
- ★ Biodegradable and recyclable, and can be composted, or recycled into new products.
- ★ Used over 80% rapidly renewable resources
- ★ Fiber510™ offers a range of biofibre mats that can achieve weights of 30% - 50% less than fibreglass resin infusion or injection moulded parts at higher stiffness-to-weight ratios, at a competitive price.
- ★ Fiber510™ thermoset and thermoplastic mats can be used in 2D or 3D molding applications for composites.





Benefits of Fiber510 Mat

Superior performance

- Thermal and sound insulation
- Higher specific tensile strength
- Flexible and moldable to composites

Lower energy costs

- Reduce manufacturing and shipping costs

Environmental benefits

- Reduce energy consumption
- Reduce greenhouse gases (GHGs)
- Reduce air pollution
- Reduce the accumulation of landfill waste

Fiber510 insulation* mat thermal properties ASTM C177

Product	Density lb/ft ³	Thermal Conductivity w/mk	R-value Per inch
Hemp	3.5	0.047	3.1
Hemp/Flax	3.9	0.043	3.3
Hemp/Wood	3.2	0.047	3.1
Wood	3.4	0.045	3.2
Flax	3.9	0.041	3.5
Flax/wood	2.8	0.044	3.2

* This is conceptual product awaiting pilot production

**Fibre mat thermoset composites typical property *
(ASTM D638 and ASTM 790)**

Product	Weight g/m ²	Press density mm	Tensile strength		Flexural property	
			Mpa	psi	MOR (Mpa/psi)	MOE (Mpa/psi)
TTS2500	2,500	2.3	29.4	4,263	43/6,235	5,500/797,500
TTS2250	2,250	2.05	29.9	4,336	46.5/6,742	6,700/971,500
TTS2000	2,000	2.04	22.6	3,277	33.4/4,843	4,000/580,000
TTS1750	1,750	1.97	14.7	2,132	24/3,480	3,000/435,000
TTS1500	1,500	1.96	10.9	1,581	18/2,610	2,300/333,500

* Composites prepared by thermal compression at 200 °C.

**Hemp fibre mat infusion composites properties*
(ASTM 790)**

Property	original	24 hr cold water	2 hr boiling	4 hr boiling	6month cold water
Thickness Swelling (%)	-	0.66	2.56	3.33	1.4
Water Absorption (%)	-	0.98	1.93	2.94	3.2
MOE (Mpa)	4764	3860	2593	2344	3650
MOR (Mpa)	48.12	48.86	48.15	47.94	48.36

* Composites prepared by vacuum bag resin infusion.

