SHD COMPOSITE MATERIALS INC 203 McKenzie Road Mooresville NC 28117 www.shdcomposites.com

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# LTB310-1 High bio-content Epoxy Tooling Prepreg

#### **Introduction**

LTB310-1 is an epoxy resin tooling system with 30% bio content derived from a renewable source and is designed to cure at low temperatures whilst giving the potential for high temperature tooling. It can be supplied on a variety of fabrics to meet your cost and manufacturing requirements.

Typical applications: Low CTE tooling

#### Key Features & Benefits

- **30%** certified bio-derived content
- Cure temperature from 115°F to 160°F
- Low resin viscosity ideal for heavyweight reinforcements
- Service temperature up to **390°C** after post cure
- Low CTE and shrinkage
- Work life at 70°F: 4 days
- Storage life at 0°F: **12 months**
- Very low VOC content no added solvents during manufacture
- Excellent handleability in warmer conditions

#### **Available Reinforcements (standard)**

Carbon Surface ply	– 200g/m <sup>2</sup> 2x2 twill
Carbon Bulk ply	- 650g/m <sup>2</sup> 2x2 twill for standard 1:8:1 layup
	- 1000g/m <sup>2</sup> 2x2 twill for 1:5:1 layup
Glass Surface ply	– 300g/m <sup>2</sup> 8 harness satin
Glass Bulk ply	– 870g/m <sup>2</sup> 2x2 twill

Please consult SHD Technical Team for other reinforcement options including those with flax and flax/carbon hybrids Note – other reinforcements available on request. Please enquire for details. www.shdcomposites.com

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#### Storage & Out Life

This material should be kept frozen at 0°F. It must be kept sealed in a polythene bag which must not be opened until fully thawed to room temperature. If the material is not fully used, then the material must be resealed in the polythene bag to prevent moisture absorption.

## Cure Cycles & performances

#### CURE CYCLE OPTIONS:

Temperature	Temperature		Duration	Тg
115°F	(minimum)	40	hours	130°F
130°F		16	hours	150°F
140°F		8	hours	160°F
160°F	(maximum)	4	hours	175°F
390°F	Post cure	8	hours	390°F

• Curing Schedule is meant to be a guide only and is subject to local conditions.

To avoid exotherm particular care must be taken with thick laminates.
Ramp rates must not exceed 2.0°F per minute during initial cure.
Ramp rates must not exceed 1.0°F per minute during post cure (free standing).

Volatile content	< 1.0%	
Fibre volume fraction	50 to 60%	
Voidage (autoclave cure)	< 1.0%	

• Typical Tg:

DMA – Dry Tg	115°F for 16hrs (IC)	Tg E' Onset	394 °F	Modified ASTM D7028
	with 390°F for 2hrs (PC)	Tg Peak Tan δ	446 °F	(Single Cantilever)

Tests performed on LTB310-1-C(t)650 laminates

### **Cured Material Properties**

Contact SHD for additional data.

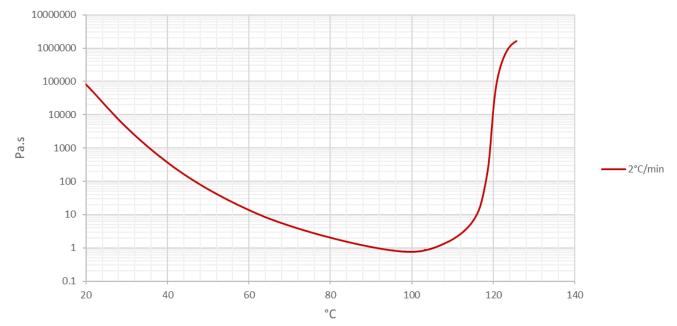
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## Viscosity Profile

#### Health and Safety

This material contains epoxy resin which can cause allergic reactions with skin contact and must avoid repeated and prolonged skin contact.

Please refer to the product Safety Data Sheet before using this material. The following precautions must be taken when using epoxy resin prepregs:

- Overalls must be worn
- Impervious gloves must be worn.
- Curing schedule is meant to be as a guide only and is subject to local conditions.
- To avoid exotherm, particular care must be taken with thick laminates.
- Ramp rates must not exceed 2°F/min during initial cure and 1°F/min during post cure.

**Disclaimer:** Technical advice, instruction, data or recommendation, whether verbal or in writing, is given in good faith. The SHD company providing any such advice gives no warranty or guarantee, whether express or implied, in relation to such advice.

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