ENGINEERED TEXTILE SOLUTIONS & ASSOCIATES, LLC

7901
TECHNICAL DATA SHEET

DESCRIPTION AND OVERVIEW

- 7901 series prepregs are based on a variable temperature cure, highly toughened epoxy resin system.
- 7901 series prepregs can be cured at a range of temperatures, from 110°C (230°F) to 150°C (302°F).
- 7901 series prepregs are based on an epoxy resin system that provides excellent impact resistance, designed to prevent the propagation of microcracks within composite laminate structures.
- 7901 series prepregs show excellent peel strength, and good general mechanical properties after curing.
- 7901 series prepregs are available mainly with Uni-directional carbon fiber reinforcements.
- 7901 series prepregs can be used in many different composite manufacturing processes, such as oven / autoclave cure, press / compression molding, and table rolling / shrink tape.
- 7901 series prepregs have excellent properties for a number of Sport & Leisure applications.
- 7901 series prepregs have a guaranteed shelf life of 30 days at 22°C (72°F), and 12 months at -18°C (0°F).

FEATURES AND BENEFITS

- High toughness and impact strength.
- Excellent peel strength.
- Wide curing range; 110°C (230°F) to 150°C (302°F).
- Easy to handle prepreg.
- Good shelf life; 30 days at 22°C (72°F).

AVAILABILITY

7901 series prepregs are available mainly on unidirectional carbon fiber reinforcements of various tensile strength and modulus.

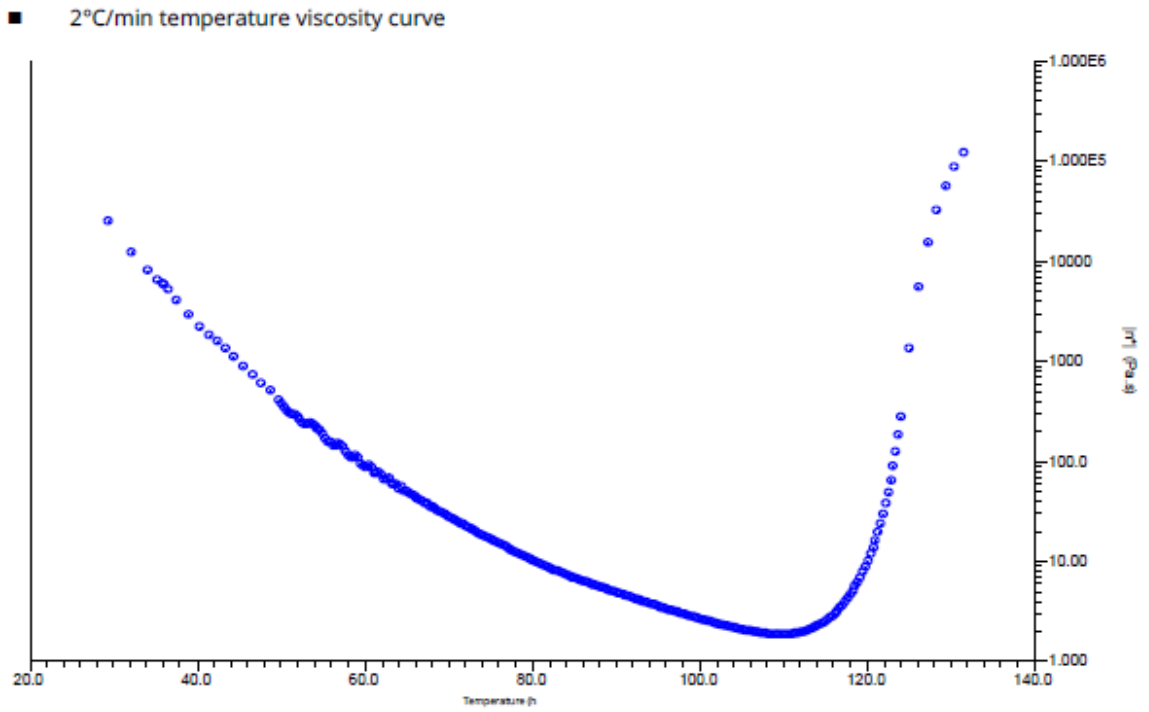
CURING PROPERTIES

TEMPERATURE (°C)	MINIMUM CURE TIME		TG (°C)
	MINUTES	HOURS	
110	150	2.50	115
120	90	1.50	115
130	60	1.00	115
140	40	0.67	115
150	30	0.50	115

TG measured using DMA, E’ onset.

RESIN RHEOLOGY

The graph below shows the change in resin viscosity over time, when heated at 2°C (3.6°F) per minute.



RECOMMENDED PROCESSING CONDITIONS AND HANDLING PROCEDURES

7901 series prepregs are versatile, with a number of possible cure cycles. It is not possible to list them all, so some recommendations are listed on the following page:

- When curing in an autoclave, use a temperature ramp rate of between 1°C and 3°C per minute, if possible.
- Note the minimum cure times at given temperatures, shown within this Technical Data Sheet. Bear in mind the thermal lag between the air temperature in an oven / autoclave, and the part itself. Always ensure that the part is exposed to any given temperature for at least the minimum recommended time.
- Always demould below 60°C.
- This material should be kept frozen at -18°C. 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.

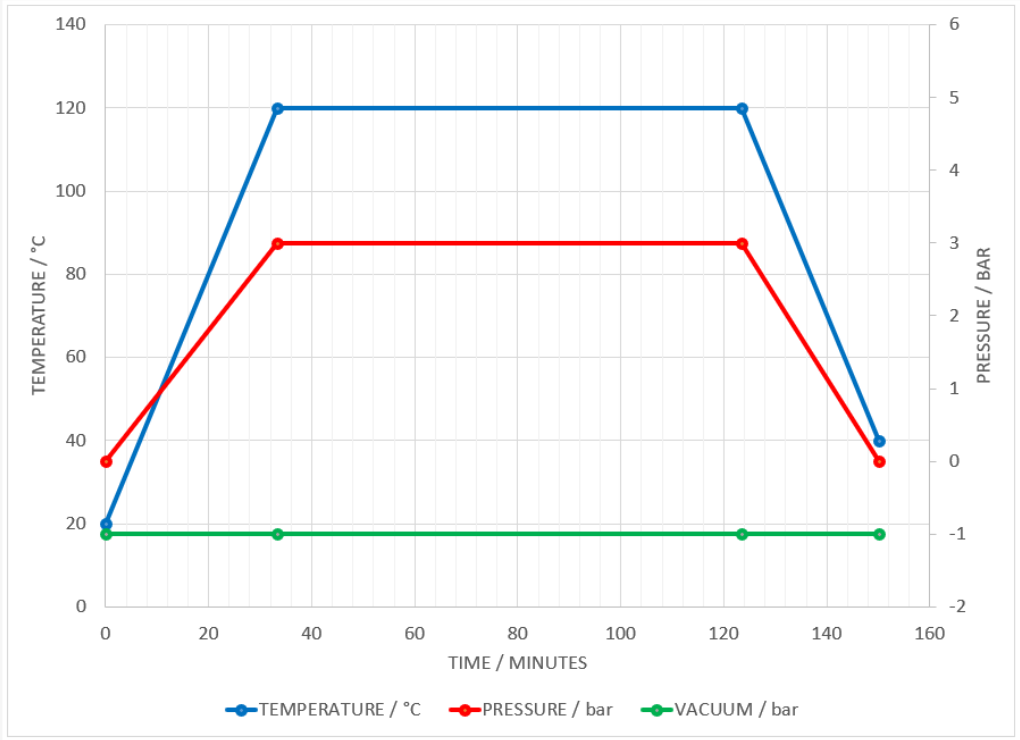
CURED MATERIAL PROPERTIES

Tests performed on 100gsm Uni-directional intermediate modulus carbon fiber prepreg, 30% RC.

PROPERTY	TEST STANDARD	VALUE	UNITS
0° Tensile Strength	ISO527-4	2,879	MPa
0° Tensile Modulus	ISO527-4	168.0	GPa
0° Compressive Strength	ISO14126	1,170	MPa
Flexural Strength	ISO14125	1,324	MPa
Short Beam Shear Strength	ISO14130	48.0	MPa

Mechanical testing carried out at 21±2°C.
Cure cycle: 90 minutes at 120°C, (vacuum bag only) 1 bar pressure.
All figures in this report are actual test results and have not been normalised.

EXAMPLE CURE CYCLE: AUTOCLAVE CURE



HEALTH AND SAFETY

7901 prepregs contain epoxy resin which can cause allergic reactions with skin contact. We recommend avoiding repeated and prolonged skin contact. Please refer to the product Safety Data Sheet before using 7901 prepregs. The following precautions are recommended when using 7901 prepregs:

- Wear overalls.
- Wear impervious gloves.
- Take care with thick laminates, to avoid excessive exotherm.
- Avoid ramp rates exceeding 3.0°C/min if possible.

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Customers must carry out their own tests and assessments as necessary in order to determine the quality and suitability of the product for their particular application.

Such testing should be performed under conditions identical to those to which the final component/product may be subjected.

Values listed in any ETS document are typical properties of the product in question and are not intended to be used in establishing either statistically valid engineering basis values. They do not constitute minimum or maximum values for the product in question.