



## MULTIPREG HX90N

### Low Temperature Curing Nano-modified Tooling Prepreg

HX90N is a nano-modified epoxy resin system with an exceptionally low coefficient of thermal expansion. The nano-modified epoxy resin system improves the surface flatness and finish of tools made from various pattern materials, including aluminum or epoxy tooling boards. An end use temperature of 180°C (356°F) is achieved when HX90N is suitably post-cured.

#### CHARACTERISTICS:

- > Low initial cure temperature
- > Good surface flatness after post-cure
- > Designed for use with aluminum and epoxy patterns
- > Good drape for complex shapes
- > Low coefficient of thermal expansion
- > High glass transition temperature
- > Unsupported post-cure
- > 2 days work life at ambient

The processing parameters and instructions contained in this technical datasheet are to be used in accordance with The detailed instructions provided in the document "Autoclave-Cured Tools Using MULTIPREG HX SERIES" available from Amber Composites.

RESIN PROPERTIES	
Density	1.32 g/cm <sup>3</sup> (82.4lbs/ft <sup>3</sup> ) at 23°C (73.4°F)
Tg (DMTA) after 190°C (374°F) post-cure	Onset: 193°C (379°F) Peak Tan δ: 214°C (417°F)
Typical C.T.E. for a carbon tool	1.0*(0.56) X10 <sup>-6</sup> /°C (°F)

\*CTE is dependent on construction and processing. Figures quoted are based on standard 1-8-1 quasi-isotropic tooling laminates.



## MULTIPREG HX90N

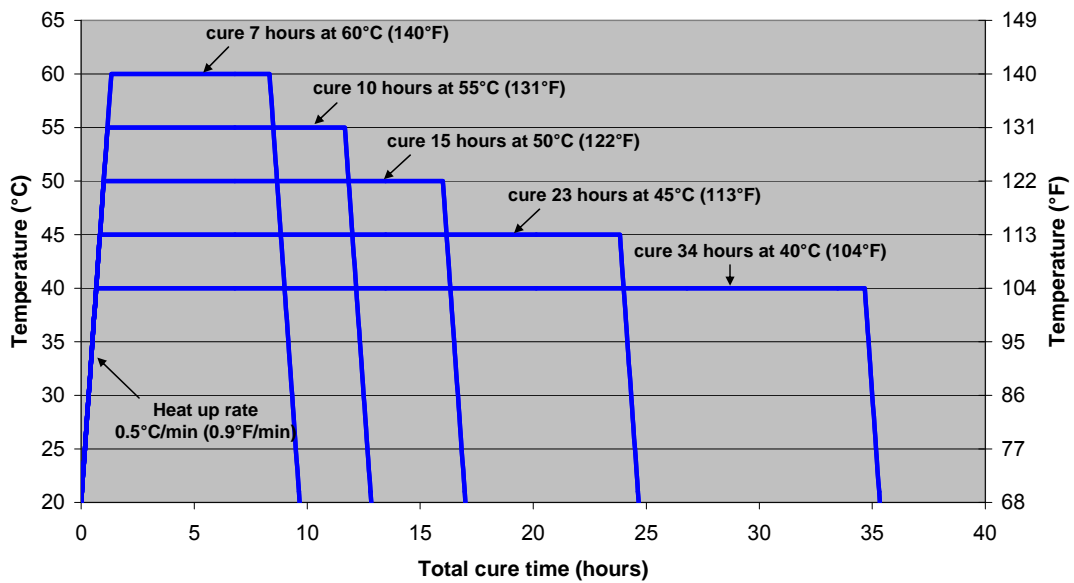
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### INITIAL ALTERNATIVE MINIMUM CURE TIMES

Temperature °C (°F)	Time (hrs)
40 (104)	34
45 (113)	23
50 (122)	15
55 (131)	10
60 (140)	7

### CURING CYCLES

**Initial Minimum Cure Schedules - HX90N**





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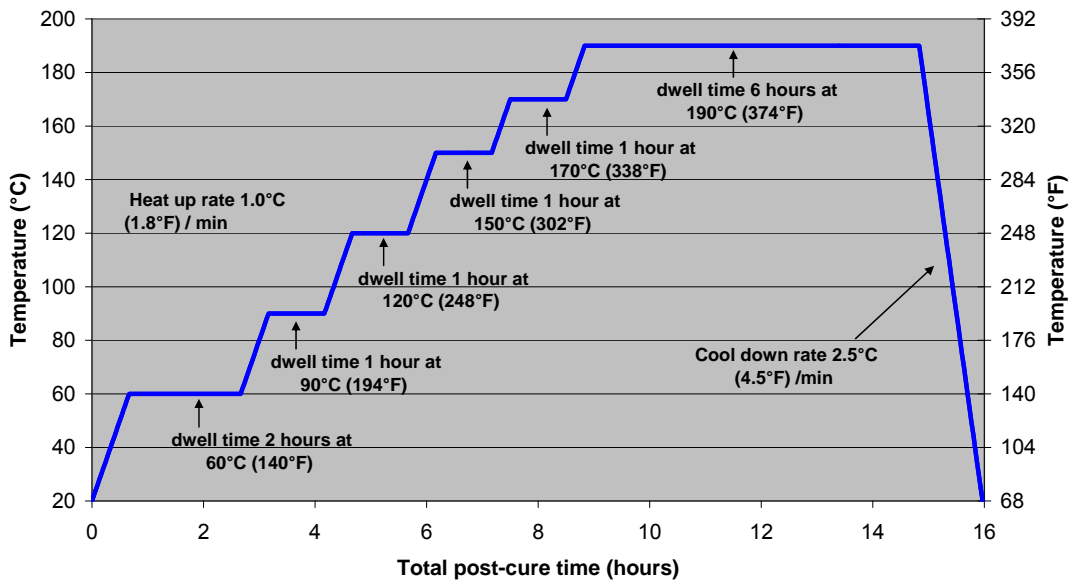
### POST-CURE

Post-cure schedule A:

Ramp	1°C (1.8°F) / min to 60°C (140°F)	Dwell for 2 hours
Ramp	1°C (1.8°F) / min to 90°C (194°F)	Dwell for 1 hour
Ramp	1°C (1.8°F) / min to 120°C (248°F)	Dwell for 1 hour
Ramp	1°C (1.8°F) / min to 150°C (302°F)	Dwell for 1 hour
Ramp	1°C (1.8°F) / min to 170°C (338°F)	Dwell for 1 hour
Ramp	1°C (1.8°F) / min to 190°C (374°F)	Dwell for 6 hours

Cool to 50°C (122°F) at 2.5°C/min (4.5°F/min)

**Post-cure Schedule A - HX90N**

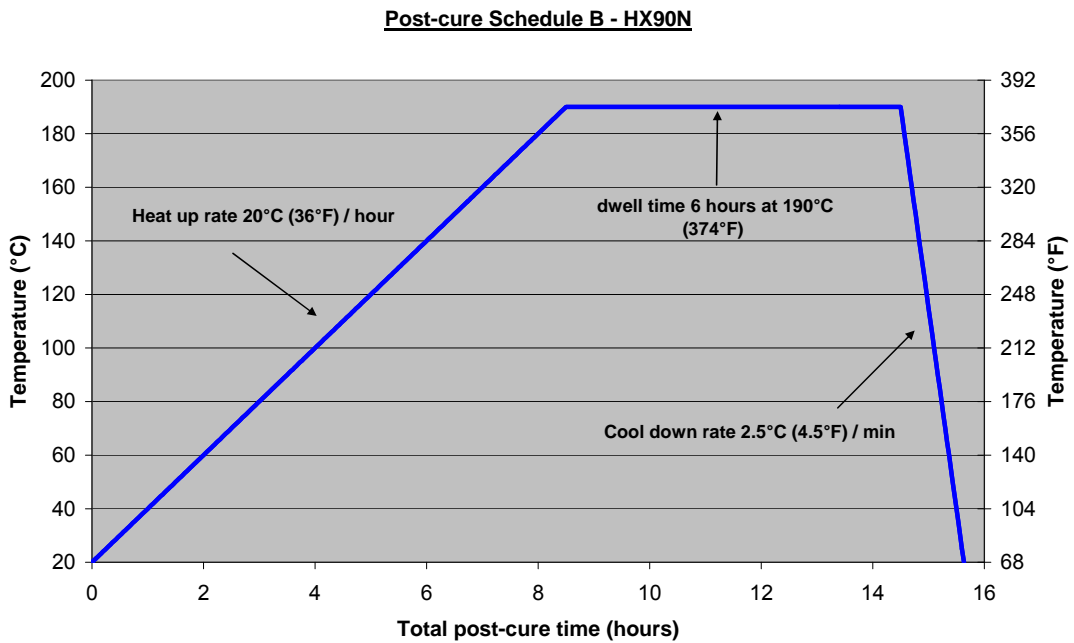




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An alternative post-cure schedule B may be used as follows:



### REINFORCEMENTS AVAILABLE

Fiber type	Weight (gsm)	Weave style	Molded thickness (mm)	Std. resin content w/o
High Strength Carbon 3k	205	2/2 Twill	0.23	46 (surface ply)
High Strength Carbon 12k	650	2/2 Twill	0.62	35

Other fabrics and resin weights available on request.



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### CAUTION

MULTIPREG HX90N prepreg contains a reactive resin system and care must be taken to avoid exothermic heating during the initial cure. Avoid exceeding 60°C (140°F) initial cure.

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### STORAGE

Shelf life is 2 days at ambient temperature 20°C (68°F)

Refrigerated storage life is 6 months at –18°C (0°F)

To avoid moisture condensation: Following removal from cold storage, allow prepreg to reach room temperature before opening the polythene bag.

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### HANDLING SAFETY

Observe established precautions for handling epoxy resins and fibrous materials. Ensure adequate ventilation, wear gloves, goggles, and protective clothing.

Avoid exceeding 60°C (140°F) in the initial cure.

For further information refer to the Material Safety Datasheet

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### FURTHER INFORMATION

For further processing information refer to, “Autoclave-Cured Tools Using MULTIPREG HX SERIES” available from Amber Composites.

Please contact Amber Composites for additional information.

This is not a specification. The information given in this data sheet in relation to the performance, storage and other characteristics of the product is based on results gained from experience and tests and is believed to be accurate. Given, however, that conditions of use and storage will vary, Amber Composites will not be liable for any loss or damage resulting from reliance upon such information. The purchaser is recommended to carry out his own tests to establish the suitability of the product for its particular purpose. The use of the product in certain processes may require third party consent.