



MULTIPREG 8020-FR

Flexible Cure, Flame Retardant, Toughened Epoxy Resin Component Prepreg

8020-FR is a modified epoxy resin system suitable for curing between 70°C (158°F) and 120°C (248°F). The medium viscosity resin is pre-impregnated into high performance fibers such as carbon, glass and aramid.

8020-FR offers excellent structural properties, flame retardance and toughness.

8020-FR is designed for structural applications in the motor racing, general industrial fabrications and marine industries and is suitable for a wide range of engineering applications.

CHARACTERISTICS:

- The resin system used in 8020-FR is fire resistant under FAR25.853 Appendix F-vertical burn material test criteria (i)
- Flexible low to medium cure schedules 70°C (158°F) to 120°C (248°F)
- 30 days shelf life at ambient temperatures
- Excellent drape – complex shapes easily formed
- Good adhesive properties; ideal for honeycomb sandwich construction without the use of a resin film
- Medium tack level; easily laminated onto mold surface
- Controlled flow - excellent surface finish
- Low volatile content – no solvents used during processing

RESIN PROPERTIES

Tg (DMTA) after 1 hour at 120°C (248°F)	Onset: 121°C (250°F) Peak Tan δ 138°C (280°F)
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PROCESSING

8020-FR can be successfully molded by vacuum bag, autoclave or matched die molding techniques.

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

Cut patterns to size and lay up the laminate in line with design instructions taking care not to distort the prepreg. If necessary, the tack of the prepreg may be increased by gentle warming with hot air. The lay-up should be vacuum debulked at regular intervals using a P3 (pin pricked) release film on the prepreg surface, vacuum of 980 mbar (29 in Hg) is applied for 20 minutes.

For autoclave cures, use of a non-perforated release film on the prepreg surface trimmed to within 25-30mm of prepreg edge is recommended for the cure cycle, a vacuum bag should be installed using standard techniques.

EXOTHERM

In certain circumstances, such as the production of thick section laminates rapid heat up rates or highly insulating masters, 8020-FR can undergo exothermic heating leading to rapid temperature rise and component degradation in extreme cases.

Where this is likely, a cure incorporating an intermediate dwell is recommended in order to minimise the risk.

CURING CYCLES

Increase autoclave pressure to 1.4bar (20psi) with vacuum applied (29 in Hg). Vent to atmosphere and raise pressure to 6.2bar (90psi) (or maximum allowed by core material).

Increase air temperature at 2°C (3.6°F) / min to the required dwell temperature (see table and graph on next page). Dwell for the recommended time period and cool to 60°C (140°F) prior to removal of the pressure.

To obtain the maximum Tg it is essential that a suitable postcure is carried out. e.g. ramp from the cure dwell temperature to 120°C (248°F) at 20°C (36°F) / hour and hold for 1 hour minimum. Cool to 60°C (140°F) at 3°C (5.4°F) per minute. This will produce a laminate with Tg 121°C (250°F) (DMTA Onset)

8020-FR RECOMMENDED CURE TIMES

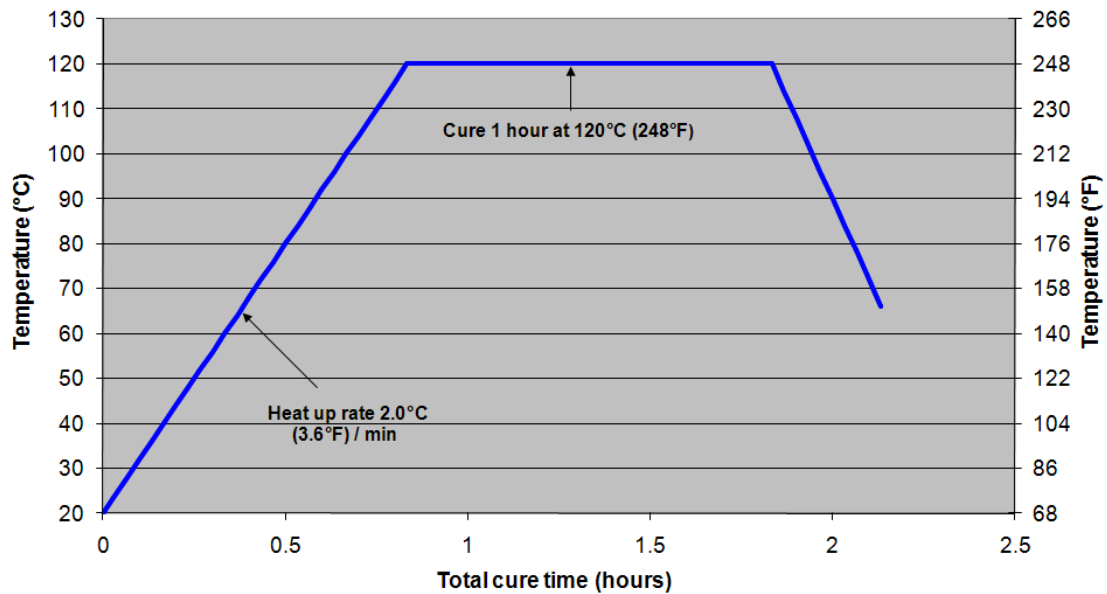
Cure temperature °C (°F)	Recommended dwell time (hours)
70 (158)	12
80 (176)	5.5
100 (212)	2
120 (248)	1



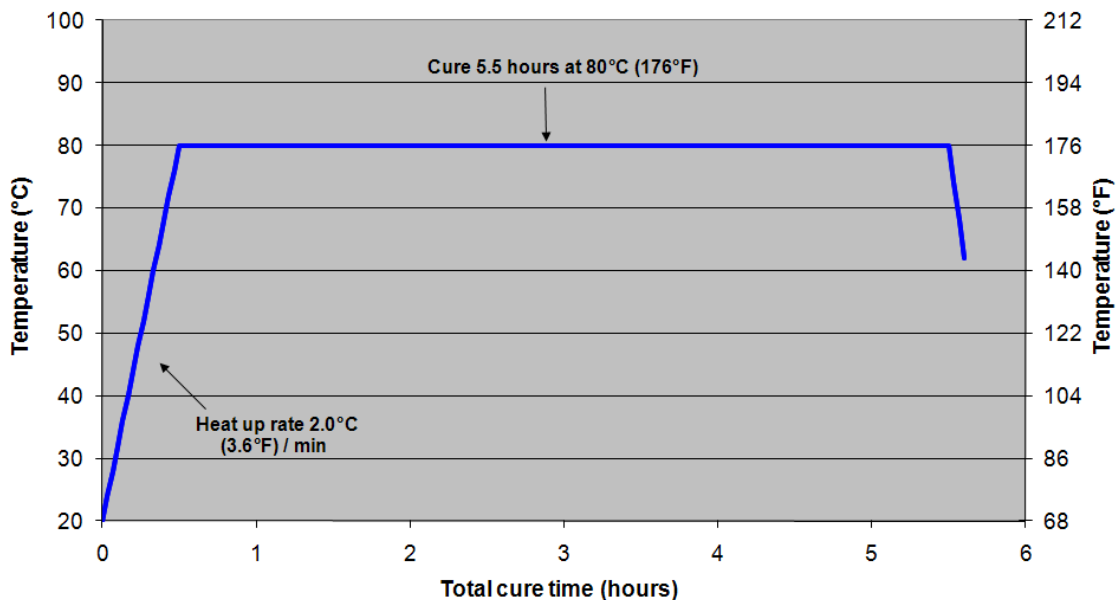
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120°C Cure Schedule



80°C Cure schedule





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STORAGE

Shelf life is 30 days at ambient temperature 20°C (68°F)

Refrigerated storage life is 12 months at -18°C (0°F)

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

HANDLING SAFETY

Observe established precautions for handling epoxy resins and fibrous materials.

For further information refer to Material Safety Data Sheet.

FURTHER INFORMATION

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.