



MULTIPREG C740

135°C (275°F) Curing High Temperature Resistant Cyanate Ester Component Prepreg

C740 is a Cyanate Ester resin system of medium viscosity for cures at 135°C, pre-impregnated into high performance fibers such as carbon, glass and aramid. The system is capable of withstanding very high temperatures and is inherently flame-retardant. After a suitable postcure the glass transition temperature can be increased to as high as 344°C.

CHARACTERISTICS:

- Excellent drapeability – complex shapes easily formed
- 30 days shelf life at ambient temperatures
- Inherently flame retardant with low toxic gas and smoke generation
- Good electric properties
- Maximum Tg (DMTA – peak tan δ) 344°C (651°F)
- Good dimensional stability and thermal durability up to 250°C (482°F) after post-cure
- Excellent surface finish
- Low volatile content – no solvents used during processing

RESIN PROPERTIES

Density	1.27 g/cm ³ (79.3lbs/ft ³) at 23°C (73°F)
Tg 2 hrs at 250°C (482°F)(DMTA Peak Tan δ)	336°C (637°F)
Tg 2 hrs at 300°C (572°F)(DMTA Peak Tan δ)	344°C (651°F)

Note: Components will be able to withstand short duration thermal spikes up to 330°C (626°F)



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PROCESSING

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.

MOISTURE EFFECTS

Under certain conditions moisture will react with Cyanate Ester functional groups to produce carbon dioxide gas, and at elevated temperatures trapped gas will expand and may cause the laminate to blister.

Care must be taken when defrosting the prepreg to minimize any condensation. All tooling and any molded inserts should be dried prior to use to ensure any absorbed moisture is removed.

It is recommended that the postcure takes place immediately after the cure is completed.

EXOTHERM

In certain circumstances, such as the production of thick section laminates rapid heat up rates or highly insulating masters, C740 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 minimize the risk.



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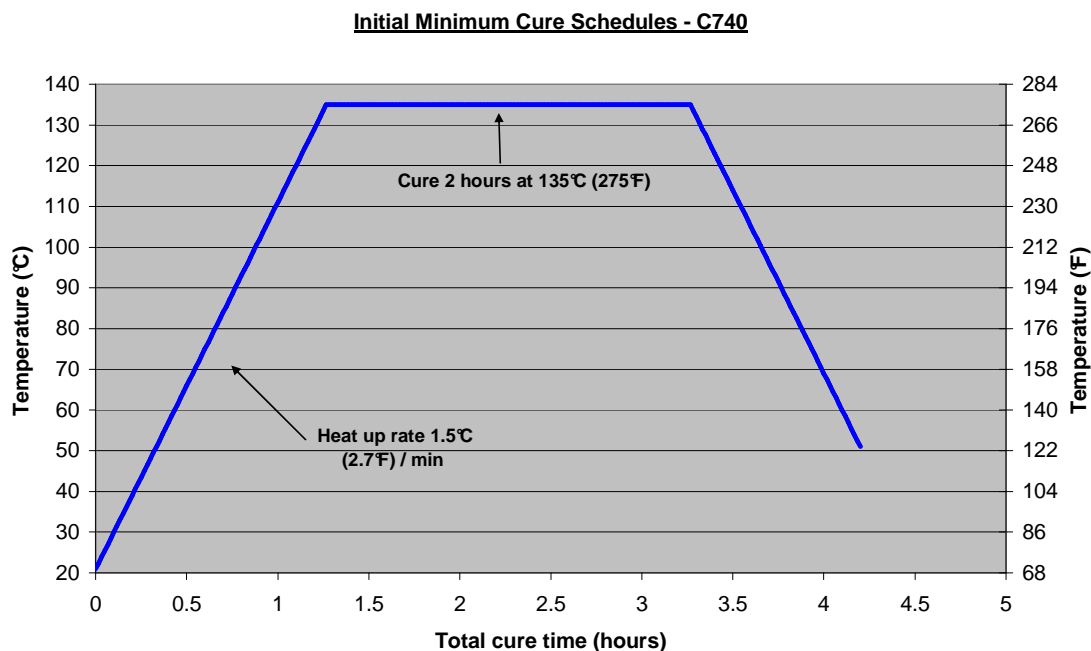
CURING CYCLES

Increase autoclave pressure to 1.4 bar (20 psi) with vacuum applied (29 in Hg).

Vent to atmosphere and raise pressure to 6.2 bar (90 psi) (or max allowed by the core material).

Increase air temperature at 1.5°C (2.7°F) / min and hold for 2 hours at 135°C (275°F). Allow to cool to 60°C (140°F) before removal of pressure.

To obtain the maximum T_g, it is essential that a suitable postcure is carried out. e.g. For T_g 344°C (651°F), ramp from temperature to 300°C (572°F) at 0.5°C (0.8°F) /min and hold for 2 hours minimum. Cool to 60°C at 3.0°C (4.8°F) /min



STORAGE

Shelf life is at least 1 month 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 prepreg to reach room temperature before opening the polythene bag.



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HANDLING SAFETY

Observe established precautions for handling Cyanate Ester 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.