

GCM's R. D. & Q. C. Laboratory – March 29, 2012

Burning Behavior of GCM and a Competitor Phenolic Prepregs



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Experiments

- ∞ GCM prepreg, Phepreg FP-721, has been vacuum bagging cured at 120°C for 20 min.
- ∞ Competitor prepreg, presumed to be phenolic as per data sheet, has been vacuum bagging cured at 135°C for 120 min.
- ∞ Both laminates were around 3 mm thick.
- ∞ Both laminates were subjected to fire under the same conditions, same flame intensity, same distance/angle, and for the same time (1 min.).

Results

- Competitor prepreg, presumed to be phenolic one, has shown tremendous smoke and weak resistance to fire if subjected up to 1 min, and a long time for self-extinguishing (up to 1 min).

<http://www.youtube.com/watch?v=giTIRyhh3qQ>

- GCM prepreg, Phepreg FP-721, has shown tremendous fire resistance superiority, with very less smoke and immediate self-extinguishing up on fire removal.

<http://www.youtube.com/watch?v=oxjn1EL1Q68&feature=relmfu>

Results

- ∞ Competitor prepreg laminate surface, presumed to be phenolic one, has shown remarkable surface burning, not only from flame side, but also the reverse side.
- ∞ GCM prepreg, FP-721, laminate surface, has shown remarkable surface burning resistance, not only from the reverse side, but also from the flame side.

Conclusions

- ☞ GCM prepreg, Phepreg **FP-721**, is a true phenolic prepreg and has **exceptional** fire resistance behavior.
- ☞ Competitor prepreg, is **NOT a 100% phenolic prepreg**.
 - Showing very good mechanical performance, and very less phenolic smell, it is obvious for us to conclude that it is a hybrid formulation, made mostly from fire retardant epoxy and phenolic resin.
- ☞ Competitor is **dishonest with the customers**, when describing his prepreg as a phenolic one.
- ☞ Fire resistance of **Competitor prepreg** is **not enough safe** to be considered in **Mass Transit interior** application even though product's data sheet is claiming so.

