Qualification Program Update

The National Center for Advanced Materials Performance at Wichita State University’s National Institute for Aviation Research has chosen five resin systems for qualification. Each resin has three prepreg systems. They are:

• **Cytec 5215: (out-of autoclave system)**
  T300 uni grade 190 with 35% RC, CPT approx. 7.5 mils
  6K 5HS fabric with T650-36% RC, CPT approx. 14.9 mils
  3K70PW fabric with T650-38% RC, CPT approx. 8.0 mils

• **Cytec 5250-4: (autoclave system)**
  T40-800 uni grade 145 with 32% RC, CPT approx. 5.3 mils
  6K 5HS fabric with T650-35% RC, CPT approx. 14.6 mils
  3K70PW fabric with T650-36% RC, CPT approx. 7.8 mils

• **Hexcel 8552: (autoclave system)**
  AS4 tape at 190 gsm 35% RC, CPT approx. 7.4 mils
  IM7 tape at 190 gsm 35% RC, CPT approx. 7.3 mils
  AS4 plain weave fabric at 193 gsm 38% RC, CPT approx. 7.95 mils

• **Advanced Composites Group (ACG) MTM45-1: (out-of autoclave system)***
  G30-500 193 gsm 3K plain weave fabric 36% RC
  G30-500 145 gsm uni 32% RC
  6781 S-2 glass 35% RC

• **Toray 2510 - AGATE Legacy Material** (involves minor additions to the existing database only)

*ACG equivalency and qualification will occur separately, but for Cytec and Hexcel, equivalency and qualification will be held concurrently.*

The materials were weighed for selection into the shared database based on the following criteria:

• Would you like to see this material qualified in the shared database?
• Are you or your sub-contractor willing to make test panels for this material?
• Do you have an immediate need for this material to be qualified?
• What material is your first choice for selection?
NCAMP is in the process of starting its first qualification program of the five resin systems chosen. The first program is with ACG’s MTM45-1 G30-500 193 gsm 3K plain weave fabric. The test panels have been fabricated and machining is 60 percent complete. Forty percent of the specimens that have completed machining are ready for FAA conformity.

The next ACG material system panels to arrive will be MTM45-1 G30-500 145 gsm uni and is expected to be delivered in the next two months.

The following companies participated in the material selection process: Boeing (Seattle), Boeing (St. Louis), Lockheed Martin (Palmdale), Gulfstream, Cirrus Design Corporation, Israel Aircraft Industries, Mitsubishi Heavy Industries, Northrop Grumman, Adam Aircraft, GKN, General Atomics, Embraer, Bell Helicopter, Cessna, Sikorsky, Bombardier, and AAR Composites.

NCAMP is comprised of an Executive Governing Board, a Senior Advisory Composite Committee, an Industry Advisory Board, a Technology Advisory Board and a Performance Review Team. The logos illustrated above represent a majority of the companies involved in these NCAMP boards.

About NCAMP Partnerships

In recent years, NASA, industry and the FAA have worked together to develop a cost-effective method of qualifying composite material by sharing central material qualification databases. NCAMP is reaching this goal by gaining support from industry. Aerospace companies that choose to participate fabricate test panels for use in NCAMP qualification programs.

Today, NCAMP has expanded its supporter list to include 38 companies representing 44 different states in the U.S. Together these companies have committed to cost sharing in the form of labor and material costs for fabricating test panels for the development of the shared databases. The list of supporting companies has also grown internationally to include companies in Canada, France, the United Kingdom, Germany, Brazil, Japan, Malaysia, and Israel is expected to be worth more than $150,000.