

# INTERNATIONAL AIRCRAFT MATERIALS FIRE TEST WORKING GROUP MEETING

Held at Trump Taj Mahal Casino-Hotel, Atlantic City, New Jersey, USA

March 2-3, 2004

## TUESDAY, MARCH 2, 2004

### Burnthrough Presentation and Discussion – T. Marker

Tim reviewed the Burnthrough related tasks from the June 2003 and November 2003 WG meetings and reminded WG members of a few items they were going to provide.

He compared the FAA Burnthrough Rule Part VII – Test Method to Determine Burnthrough Resistance of Thermal Acoustic to Boeing's Thermal Acoustic Insulation Material Burnthrough Test Procedure (as presented by Noel Spurlock at the June 2003 WG meeting) and discussed the differences in the two procedures.

He provided an explanation of the installation of the insulation blanket to the test rig frame.

There will be a Round Robin VI. This is still being coordinated. The tasks of this Round Robin were outlined and explained. Is there a completion time for Round Robin VI? Approximately six (6) months to completion, because Tim and a technician will be going to each lab prior to the start of that lab's testing for the Round Robin.

The Advisory Circular *may* be out for comment in the Federal Register within the next few months. There will be approximately a 45-day comment period.

There was talk earlier of an ARAC group being formed on burnthrough to look at alternate means of compliance for composite aircraft, for example, to the burnthrough rule. What is the status? The FAA has acknowledged a willingness to go in this direction, but it will not be initiated unless there are significant requests from industry.

### Results of Aircraft Seat Oil Burner Test Method Survey – E. Dawson (Accufleet)

Eight labs were sent this survey. Ethel presented the survey responses and results. Perhaps the variables in the answers could explain why there were so many variables in the test results. Dick Hill asked Ethel if she compared the answers she received to the Handbook method or the FAR to see if the labs consistently kept within one method or the other. She noted that the answers indicated that some sections were completely out of bounds of either the Handbook method or the FAR. Dick's observation over the years is that some labs tend to combine the Handbook method and the FAR method in the set-up/maintenance of their test apparatus. This explains the variances in the test results. Climates, weather, and altitudes may also affect the test results. Dick suggested they form a small group to discuss the results and determine which labs are in compliance either via the Handbook method or the FAR prior to conducting a Round Robin. He asked that this group produce a write-up and send it to all these labs prior to the Round Robin indicating that the Round Robin materials will be sent to the labs through the certification offices and the results will be reported back to their respective certification offices.

### Ultra Fire Resistant Thermoset Polymers – R. Lyon (FAATC)

This is one of the long-range programs of the FAATC Fire Safety Advanced Materials group. Rich outlined the program objective and the program deliverables. A background of Bisphenol-

C polymers was provided. He presented FAA Heat Release Rate Test results for the BPC cyanate ester as compared to the current aircraft phenolic panel. There was significant interest in this program.

#### Radiant Heat Panel Discussions – P. Cahill

Round Robin 6 results were presented and explained.

Flame Propagation Test: Pat discussed some noteworthy details of the angle to the horizontal, internal chimney width, construction materials, glass viewing window, and the thermocouple. These were overlooked in the Rule but will be incorporated into the Aircraft Materials Fire Test Handbook in the Chapter on the Radiant Heat Panel Test.

#### Heat Flux Measurement with a Foil Type Gardon Gauge Sensor in the Radiant Panel Test System – K. Tran (Mexmil)

A copy of Khan's presentation is available on the Fire Safety website ([www.fire.tc.faa.gov](http://www.fire.tc.faa.gov)).

#### FAA Radiant Panel Test Chamber Propane Pilot Burner Nozzle Replacement Kit – M. Spencer (Marlin Engineering)

Martin presented and described the nozzle replacement kit they have developed and the specific nozzle adjustments that can be made.

#### Aging/Contamination Task Group Status - D. Slaton (Boeing)

Airline Contamination Survey Results: 65 survey forms were returned to the Boeing customer service group. These represented 35 airlines. These covered aircraft locations, contamination types, and contamination levels.

Next Steps: detailed data review, airbus data, continue survey, cleaning approaches & methods, CIC usage & testing, and formulate Task Group deliverables.

Aging Status and Next Steps: Boeing Thermal Cycling, need chemistry experts, determine other materials to evaluate, and formulate Task Group goals.

Insulation Blanket Activities: in-service blanket collection status, insulation blanket film production summary, insulation blanket film usage summary, and formulate Task Group goals.

Aging Wiring Advisory Material and how it will advise on flammability caused by contamination (ie: lint, dust, dirt). Dick said that the Task Group has been asked to provide some input on this topic for the Aging Wiring Group.

#### Aircraft Materials Fire Test Handbook

The comments/requests received on the Handbook Chapters and the FAATC responses will be available on the Fire Safety website ([www.fire.tc.faa.gov](http://www.fire.tc.faa.gov)).

## WEDNESDAY, MARCH 3, 2004

### Task Group Reports

#### Burnthrough Task Group Report – T. Marker

Discussed the tucking of the blankets tightly into the corners and its effect on the burnthrough time. FAATC and Boeing will research this independently in each of their labs. Cooldown time between tests was also discussed. Testing for horizontal lap joints was discussed. Intake airflow measurements will be researched by Jim Davis and Mike O'Bryant (individually)– the potential development of a new device to be used. Orcon will provide Sample C for the next Round Robin.

#### Contamination Task Group Report – D. Slaton

Dan presented the various topics this Task Group discussed.

#### Radiant Heat Panel Task Group Report – P. Cahill

Eric Ritter will assist with the selection of a material. The three areas that were discussed were the viewing glass area, the interior dimension of the chimney, and the angle to the horizontal. Pat asked the Task Group members to send her the specs of these items from their labs.

#### OSU/NBS Annual Performance Evaluation – M. O'Bryant (Boeing)

Mike presented the results of the past year's study. He provided a sample of the test panels used in this study. He presented charts showing the deviation for each lab for three years for each test. During Mike's presentation there was some discussion about making this study a bit more formal in the future and the possibility of starting up the Quality Assurance Task Group again in the future.

Per Mike O'Bryant's research: Vatell will calibrate their manufactured calorimeters for \$275 each, and a competitor's (ie; a calorimeter manufactured by Medtherm) calorimeter for \$325 (add \$50).

### Next Meeting

The next meeting will be hosted by Lantal Textiles in Zurich, Switzerland, on Monday and Tuesday, July 12-13, 2004.

### Meeting Presentations

Copies of the presentations from this meeting are available at [www.fire.tc.faa.gov](http://www.fire.tc.faa.gov), click on Materials Group from the homepage.