

## **International Aircraft Materials Fire Test Working Group Minutes**

**October 9-10, 2002**

**Hosted by Transport Canada Civil Aviation, Ottawa, Canada**

### **Wednesday, October 9, 2002**

Burnthrough – T. Marker

Heat Flux Mapping

Tim presented results of Heat Flux Mapping Round Robin. A copy of this presentation will be available on the Fire Safety Branch website. He reviewed the points the Burnthrough Task Group had agreed upon during the June 2002 meeting. Tim expressed the importance of each lab following the instructions exactly so that the results will be more meaningful.

Results of Turbulator Rotation Adjustments – S. Morgan (Boeing)

Steve Morgan reviewed data collected after turbulators were rotated to several different positions. He also showed some adjustment tools he developed and used during these tests.

Fire in Hidden Areas Presentations and Updates

A Preliminary Comparison of Sixty-Degree Bunsen Burner and Intermediate Scale Commercial and Electrical Wiring – P. Cahill

Pat explained the initial question investigated in this test program and the two test methods that were compared. A copy of this presentation will be available on the Fire Safety Branch website. She showed a photo of the new test article that will be used for the next phase of wire tests.

The FAATC has a commitment to have a recommended test method written for wire cable by the end of this fiscal year (September 30, 2003).

Other Materials in Hidden Areas – R. Hill

Urethane foams are one of the other materials in hidden areas the FAATC has investigated recently. These materials were removed from the Fire Safety Section test aircraft (747 and 727) on site and subjected to the Bunsen Burner tests. All of these materials except for the urethane foam that was on the ducting (from the cheek area in the forward cargo compartment of the FAATC test aircraft) performed well on the Bunsen Burner tests. Pat then ran some electric wire arc tests near this urethane foam. This same ducting wrap foam failed both the Bunsen Burner tests and the electric wire arc tests. We are open for input or comments on this topic. Are there other types of urethane foams that should be identified and tested?

### CEAT Research on Materials in Hidden Areas – A. Mansuet

Anne presented the results of radiant heat panel tests conducted on a several types of materials used in hidden areas. CEAT also conducted tests on wires and attachment clamps with insulation blankets. She showed photographs of the materials prior to the test and some photographs taken during the test. The results of these tests were presented as well. A copy of Anne's presentation is available on the Fire Safety Branch website.

### Radiant Heat Panel Round Robin IV Results – P. Cahill

Pat presented the results from the labs involved in this Round Robin. A copy of this presentation will be available on the Fire Safety Branch website. Pat stressed the importance of venting the polyimide film covers.

### AN-26 Project – P. Cahill

Pat showed a video of a test conducted on a contaminated insulation blanket taken from a Delta aircraft.

### Flammability Certification of Printed Wiring Boards – J. Peterson

Jim provided the background of this project. Boeing's plan is Certification by Similarity by developing baseline certification by resin type. He reviewed the current plan developed by Kendall Hester's group at Boeing. A longer range plan was also presented. Possible goals are to get agreement on this plan from members of the Working Group and possibly including some of this information in the Aircraft Materials Fire Test Handbook. Jim presented the test results to date. Photographs showing the burn lengths on test specimens from recent tests conducted at Boeing.

### Lightweight Seat Cushions – T. Marker

Tim reviewed the Testing Criteria for seats. He also described the full-scale test apparatus and test set-up.

### Handbook Discussion – R. Hill

Working Group members volunteered to review existing Aircraft Materials Fire Test Handbook Chapters and provide suggestions for updates. If you have any updates you would like to suggest, please contact the Chairperson for that Chapter directly as listed below.

### Bunsen Burner Chapters: Chair: Jim Peterson (Boeing)

Chapter 1 – Vertical Bunsen Burner Test for Cabin and Cargo Compartment Materials

Chapter 2 – 45-Degree Bunsen Burner Test for Cargo Compartment Liners and Waste Stowage Compartment Materials

Chapter 3 – Horizontal Bunsen Burner Test for Cabin, Cargo Compartment, and Miscellaneous

## Materials

Chapter 4 – 60-Degree Bunsen Burner Test for Electric Wire

Chapter 5 – Heat Release Rate Test for Cabin Materials: Chair: Heinz-Peter Busch (Airbus)

Chapter 6 – Smoke Test for Cabin Materials: Chair: Jason Rathbun (Schneller)

Chapter 7 – Oil Burner Test for Seat Cushions: Chair: Heiko Neussel (Lanthal)

Chapter 8 – Oil Burner Test for Cargo Liners: Chair: George Danker (Akro Fireguard)

Chapter 9 – Radiant Heat Testing of Evacuation Slides, Ramps, and Rages: *ON HOLD*.

Chapter 10 – Fire Containment Test of Waste Stowage Compartments: Chair: Ingo Weichert (Airbus)

Chapter 15 – Two Gallon Per Hour Oil Burner Certification Testing for Repaired Cargo Compartment Liners: Chair: George Danker (Akro Fireguard)

Chapter 18 – Recommended Procedure for the 4-Ply Horizontal Flammability Test for Aircraft Blankets: *ON HOLD*, because there is a proposed TSO in process.

## Handbook

### Chapter/Test Related Questions/Answers

Dick will discuss listing industry questions and authority-provided answers related to specific Handbook Chapters on the Fire Safety Branch website (in a format similar to a “Frequently Asked Questions” section with FAA Certification authorities).

## Task Groups

The Production Quality Assurance Task Group report has been finalized and is available on the Materials Group page of the Fire Safety Branch website ([www.fire.tc.faa.gov](http://www.fire.tc.faa.gov)). It is currently listed on the Fire Safety Branch website as a final draft.

## THURSDAY, OCTOBER 10, 2002

### Task Group Meeting Summary Reports

#### Thermal/Acoustic Insulation – P. Cahill

The hook and loop and the tape AC's were discussed. The group also discussed the characteristics observed by one lab during testing of polyimide material. Pilot flame length, preheated sample holder, humidity, and other variables will be investigated by the FAA lab and Boeing lab.

### Burnthrough – T. Marker

Boeing will refine the tool developed to locate the stator in the burner cone. The group has agreed to repeat the mapping exercise after making a few adjustments to the procedure.

### Fire in Hidden Areas – R. Hill

Test work on wiring currently underway at the FAATC was discussed. The other materials in inaccessible areas were also discussed including those materials that face in such as cargo liners and interior panels and bins and composite skins – will these be included in a test method developed for materials in hidden areas.

### Printed Wiring Boards – R. Hill

Jim Peterson provided some materials for the FAATC to test. If any other labs would like to participate in this test program, please contact Dick Hill or Jim Peterson.

### Introduction of Contamination in Hidden Areas Task Group – R. Hill

This group will address contamination of materials in inaccessible areas including aging whether due to contamination or aging as it affects flammability characteristics of these materials. Contaminants include CIC's, lint, dirt, grease, etc. The issue of minimizing contamination of these materials will also be investigated.

### Initial Work on Contamination in Hidden Areas – K. Tran

Khang Tran presented the preliminary test results of tests on contaminated insulation blankets conducted at Mexmil earlier this year. The purpose of these tests is to share the results of the tests on these locally contaminated materials. A copy of this presentation will be available on the Fire Safety Branch website.

### Additional Discussion

All those who volunteered to chair the groups on the test methods in the Handbook will give a presentation on the summary of the comments at the Spring 2003 meeting.

### Next Meeting

The next meeting will be held in the Atlantic City, New Jersey, area in Spring 2003.

### Working Group Member Presentations

#### Flame Retardant Fluoropolymer Foams – B. Simkin/R. Amin-Sanayei