

INTERNATIONAL AIRCRAFT MATERIALS FIRE TEST WORKING GROUP

BAE SYSTEMS, WOODFORD, ENGLAND

JUNE 21-22, 2000

WEDNESDAY, JUNE 21, 2000

Discussion on Recent FAA AD (Airworthiness Directive) – R. Hill

Dick Hill fielded questions on the recent AD on metalized mylar film. The AD is specific to certain McDonnell Douglas aircraft (specific tail numbers) that have metalized mylar. It requires replacement material to meet the radiant panel test described in the AD. The certification tests are currently being conducted at the FAATC. However, if another lab is qualified through the Los Angeles ACO and has its test plan approved through the LA ACO, it may run the certification tests provided a FAA representative from the ACO or an FAA DER observes the tests. The proposed NPRM (Notice of Proposed Rulemaking) may change the certification and operating rules for insulation materials in new aircraft. The NPRM covers both the radiant heat panel and burnthrough.

Radiant Heat Panel Discussion – P. Cahill

Air Propane Burner – This is currently being used for the certification tests required by the AD.

Calorimeter calibration discrepancies - It has become apparent that a number of calorimeters purchased from Vatell within the last two years were calibrated to a new standard at Vatell and are off by approximately 11% (in some cases a smaller percentage). Anyone who has purchased a calorimeter from Vatell within the last two years may send their calorimeter to the FAATC (to Pat Cahill's attention) to have it checked and recalibrated (if necessary).

The Line Burner has been tested and investigated, and it has been determined that this burner is not appropriate for this type of test.

A discussion on the air propane burner apparatus venting chimney took place. The Working Group was reminded that the chimney must be an internal chimney. The ventilation issue will be examined and addressed in more detail by the FAATC.

Sample Thickness (height) - Pat encountered samples up to a 5-inch thickness during the recent certification testing that was conducted at the FAATC. For certification all the thicknesses used must be tested. A modification was made to accommodate thicker samples such as the 5-inch thick sample (without compression) Pat recently tested. Pat discussed how the thickness of the samples were maintained without a heavy securing frame (heat sealing method or wrap and tape method). She showed comparison samples that were tested at Jehier earlier this week. These methods do not require the heavy securing frame (a big improvement). A proposal was made to leave the choice of sealing methods up to the lab running the test (ie: choice of using staples, heat sealing method, or tape on the edges). At this point all thicknesses of insulation must be tested. D. Indyke: Tests conducted with and without the securing frame do not always get the same results. Pat will run tests in the next month for comparison with and without the heavy securing frame and send the data out to the Task Group.

If the rule change is more stringent than the AD, materials will have to meet the requirements of the rule. If the rule change is not as stringent as the AD, materials will have to meet the requirements of the AD.

Other Lab Experiences –

Jehier – V. Buffard

Comparison of FAATC calorimeter and Jehier calorimeter discovered a difference between the two of 3 to 5%.

Seam Tape Discussion – P. Cahill

If you use tape to accomplish compliance (such as in the case of metalized mylar), the direction in which you mount it on the sample may make a difference. If you know the material you are mounting that tape on will meet the certification tests, the direction in which you mount the tape may not matter.

Burnthrough – T. Marker

Round Robin II Test Results –

Each lab ran 16 tests in total (4 samples per lab, one test ran on each sample). Complete details of Burnthrough Round Robin II and the test results are posted to this website. All the participating labs will be working to get their burner configuration exactly the same prior to running the next Round Robin.

Boeing Burnthrough Work – S. Morgan

Presented some comparisons made during Round Robin II testing. Air velocity comparison measurements were taken in eight areas in Boeing vs. FAA burners. This data was also presented.

Fire Resistance Testing of Thermal Acoustic Liners – D. Dodd

Darchem Flare has been conducting extensive testing on insulation fastening systems. Plastic, aluminum, and steel fastening pins were all tested. Darren discussed some other insulation installation issues (ie: latitudinal joint that required overlap and tape areas) that have been addressed during this project.

THURSDAY, JUNE 22, 2000

Seat Fabric Cleaning Program at Boeing – S. Hasselbrack

Sally presented highlights of this program to date. She also described the details of the plan for the continuation of this program. A testing program has been contracted with Wronz in New Zealand. She outlined Phase III-Future Work part of the program. Sally is interested in receiving feedback from the Working Group members on this program.

Discussion on Seats – P. Cahill

Adrian De Regt presented preparation and test configuration of seat cushions discussion outcomes of this Task Group. He also presented test preparation and test configuration of $\frac{3}{4}$ dress covers. This group outlined placement of closure section of cushion in relation to the burner flame for the seat bottom cushion and the seat back cushion. This group sees a need for a uniform program for seat sample preparation and test configuration. Dick Hill discussed test configuration and closure location as explained in the A/C (Advisory Circular)—the most critical seat fabric fastening (closure) systems must be pointed toward the flame. Enough information must be provided so that everyone reading the sample configuration specification prepares the sample the same exact way. Dick Hill suggested that this Task Group write up a detailed explanation of the way the samples should be prepared (what is acceptable/what is not acceptable) for testing so that this information may be given to the regulatory side.

Aircraft Materials Fire Test Handbook

The Handbook is available on the Fire Safety Section website. It is also available in hard copy (contact April Horner for a copy). It will be available on CD in the near future (contact April Horner to request a CD when it is available).

Potential Fire Threats Task Group Report – R. Hill

Two of the topics discussed by this Task Group were fiberoptic cables and testing by similarity.

Burnthrough Task Group Report – B. Wulliman

Tim will procure necessary burner parts and send them to the Task Group members. The goal is to have all labs in check prior to starting Round Robin III. Task Group members plan to make lab visits to each other's labs.

ACTION: One sample of each material that will be run in burnthrough Round Robin III will be run in the radiant panel prior to the start of Round Robin III.

The Working Group discussed smoke toxicity and smoke emission on burnthrough materials. Dick Hill explained that the FAA does not have a burnthrough smoke requirement because it does not have the necessary data to support such a requirement, however, if industry sees a need for a smoke requirement, the FAA will add a smoke requirement.

Radiant Panel Task Group Report – P. Cahill

This Task Group outlined the changes/modifications that will be made to the Test Method to be provided to the regulatory side for the NPRM. There are still a number of problem areas that may be resolved by testing. A Round Robin may be discussed once all those labs with radiant panels have them up, running, and standardized.

Quality Assurance – C. Lewis

This Task Group is attempting to address the issue through a fault/logic tree approach by first defining the top level elements of the issue. A smaller focus group is being established to outline the top level elements of this issue. The smaller focus group will coordinate its efforts via email.

Working Group Member Presentations

Airplane Requirements for New Insulations – S. Morgan (Boeing)

OSU Round Robin Results – M. O'Bryant (Boeing)

Mike plans to send more panels out this fall to those who would like to participate. He will also be sending a smoke standard panel with the round robin materials.

Environmentally Friendly Flame Retardant – I. Galek (Nechem)

Next Meeting

The next Working Group meeting will be held at the Sheraton Atlantic City West in New Jersey, USA, on September 13-14, 2000. Complete details are located in the "Upcoming Meetings" section of the "Materials" section of the Fire Safety Website.