

FAA William J. Hughes Technical Center

Materials Fire Test Facility, Building 203

The Materials Fire Test Facility is dedicated to small-scale fire testing of aircraft materials. The test equipment required to conduct all the regulatory tests for aircraft interior materials specified in Title 14 Code of Federal Regulations 25.853 is located in the Materials Fire Test Facility. This includes the Ohio State University rate of heat release apparatus, the National Bureau of Standards (NBS) smoke chamber, oil burners for the seat cushion and cargo liner tests, and Bunsen burners for the vertical, horizontal, and 45 and 60 degree flammability tests.



are used in some laboratories, a number of the NASA laboratories have adopted the dry-arc propagation test developed in the Materials Fire Test Facility, with a few minor modifications. A more realistic smoke test for aircraft wiring using the NBS smoke chamber was also developed in this facility.

This test duplicates the behavior of overheated wire insulation in an in-flight, hidden-fire scenario.

Blanket Flammability Test

As a result of a fire in a stowage bin aboard an aircraft and a recommendation from the National Transportation Safety Board, a new flammability test for aircraft blankets was developed. The blanket flammability test procedure is described in the "Aircraft Materials Fire Test Handbook," DOT/FAA/AR-00/12. The Handbook contains the most detailed description of all Federal Aviation Administration (FAA)-required and other aircraft material fire test methods in a consistent format.

Round-Robin Tests

The FAA sponsors round-robin tests that are conducted by laboratories in the United States and Europe during the standardization of new material fire tests. The test data are collected and analyzed by FAA personnel. This has led to improved flammability tests for aircraft materials, which produce more consistent data in terms of repeatability within a laboratory



Small-Scale Flammability Tests

The facility is used to develop nonrequired small-scale flammability tests such as the wet- and dry-arc propagation tests for aircraft wiring. While other test methods



designs that discriminate between real fire and sources of false alarms. Cargo fire tests support this goal, as well as the development of a mathematical model for predicting the transport and distribution of heat, smoke, and gases during a cargo compartment fire. The model would be helpful in setting detector alarm levels and determining optimal detector locations.

The DC-10 test article is currently under modification to add a full-length upper deck. When completed, this will provide the unique capability to conduct fire tests under conditions similar to the new very large transport aircraft, such as the Airbus 380.

To find out more about the Full-Scale Fire Test Facility, contact:

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