

## **Chapter 22**

### **Cotton Swab Test for Thermal Acoustic Insulation Blankets**

#### **22.1 Scope**

This nonregulatory, industry screening test is intended for use in determining the resistance of thermal acoustic insulation films to flame propagation when tested with alcohol dipped cotton swabs.

#### **22.2 Definitions**

##### **22.2.1 Burn Length**

Burn length is the distance from the original specimen edge to the farthest evidence of damage to the test specimen due to that area's combustion, including areas of partial consumption, charring, or embrittlement but not including areas sooted, stained, warped, or discolored nor areas where material has shrunk or melted away from the heat source.

#### **22.3 Test Apparatus**

##### **22.3.1 Test Area**

Tests will be conducted in a draft-free enclosure. It is suggested that the enclosure be located inside an exhaust hood to facilitate clearing the enclosure of smoke after each test.

##### **22.3.2 Fuel**

Isopropyl alcohol will be used as the flammable solvent.

##### **22.3.3 Ruler**

A ruler or scale graduated to the nearest 0.1 inch (2.5 mm) will be provided to measure the burn length.

##### **22.3.4 Cotton Swabs**

Two cotton tipped applicators (equivalent to Q-tips single-tipped applicators) will be used as the ignition source vehicle. The wooden sticks must be removed before placement on the test samples.

#### **22.4 Test Specimens**

##### **22.4.1 Specimen Size**

The specimen will be a rectangle at least 16 by 24 inches (406.4 by 609.6 mm).

##### **22.4.2 Specimen Fabrication**

Fabricate a test blanket using insulation batting intended for use in the aircraft and the candidate film cover material. The test blanket must be sealed around the perimeter. This may be accomplished by heat sealing, sewing, or using flame-resistant approved tape.

##### **22.4.3 Make sure that the test blanket is vented. This can be accomplished by puncturing the blanket with a small object such as a pin.**

##### **22.4.4 Specimen Number**

One specimen will be prepared and tested.

##### **22.4.5 Specimen Thickness**

The specimen thickness will be the same as the part qualified for use in the airplane.

## 22.5 Test Procedure

22.5.1 Prop the test blanket against a nonflammable surface in the position shown in figure 22-1. Make sure that the orientation is correct.

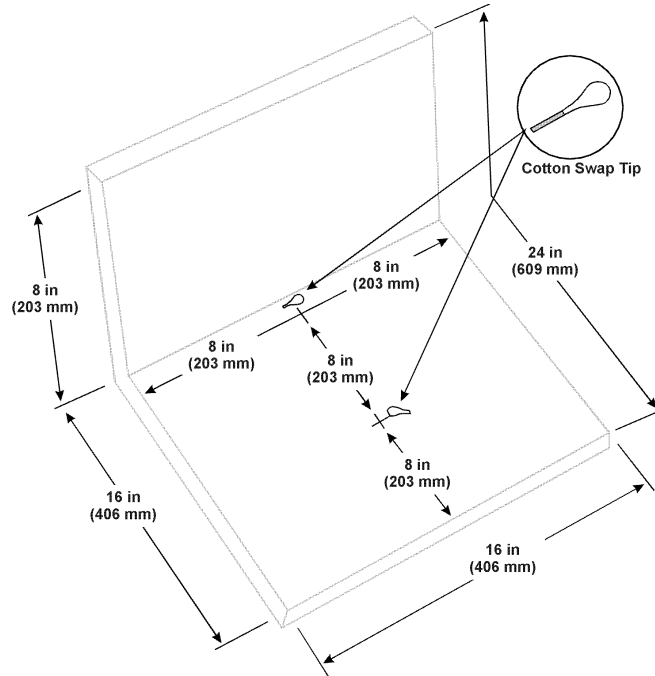


Figure 22-1. Cotton Swab Test Configuration

- 22.5.2 Remove the wooden sticks from the cotton swabs.
- 22.5.3 Dip the cotton-tipped ends into the alcohol. Tweezers can be used to accomplish this.
- 22.5.4 Ignite the cotton-tipped ends and place one flaming tip in the center of the blanket and one in the crease.
- 22.5.5 Allow the cotton-tipped ends to burn to completion or until they self-extinguish.
- 22.5.6 Measure the longest burn lengths extending from the center cotton tip and the crease cotton tip.

## 22.6 Report

- 22.6.1 Identify and describe the test specimen.
- 22.6.2 Report each burn length.
- 22.6.3 Report any flame spread, if applicable.

## 22.7 Requirements

- 22.7.1 No burn length shall exceed 8 inches (203.2 mm).