sheet of inorganic millboard be used to cover the opening when the hinged portion of the front panel is open and the specimen platform is moved out of the chamber. The millboard is used to prevent heating of the specimen and to protect the operator. Read the panel apparent black body temperature and the chamber temperature. When these temperatures are in agreement to within ±5 °C (±9 °F) with those determined previously, during the flux profile standardization procedure, the chamber is ready for use.

(2) Mount the specimen tray with insulation on the sliding platform and position with stud bolts (see Figure 9). Ignite the pilot burner, move the specimen into the chamber, and close the door. Start the timer. After 2 minutes ±5 seconds preheat, with the pilot burner on and set so that the flame is horizontal and about 5 cm above the specimen, bring the pilot burner flame into contact with the center of the specimen at the 0 mark. Leave the pilot burner flame in contact with the specimen for 2 minutes ±5 seconds, or until all flaming other than in the area of the pilot burner has ceased, then remove to a position of at least 5 cm above the specimen and leave burning until the test is terminated.

(3) If the specimen does not ignite within 2 minutes following pilot burner flame application, the test is terminated by extinguishing the pilot burner flame. For specimens that do ignite, the test is continued until the flame goes out. When the test is completed, the door is opened, and the specimen platform is pulled out.

(4) Measure the distance burned, (the point of farthest advance of the flame front) to the nearest 0.1 cm (.03 in). From the flux profile curve, convert the distance to W/cm^2 (Btu/ft2sec) critical radiant heat flux at flame out. Read to two significant figures. A suggested data log format is shown in Figure 10.

(5) Remove the specimen tray from the moveable platform. The succeeding test can begin as soon as the panel apparent black body temperature and chamber temperature are verified. The specimen tray should be at room temperature before the next specimen is inserted.

§ 1209.7 Test procedures for smoldering combustion.

This section provides the test method for determining smoldering combustion characteristics of materials used for thermal insulation. This test shall be conducted on materials at the measured settled density as provided in § 1209.4.

(a) *Apparatus.* (1) The specimen holder shall be an open-top 20±0.2 cm (7.87±.08 in) square box, 10±0.2 cm (3.94±.08 in) in height, fabricated from a single piece of 0.61±0.08 mm thick (24 U.S. Standard gauge) stainless steel sheet with the vertical edges of the box overlapped, not to exeed 7 mm (.28 in) in seam width, and soldered so as to be watertight. A removable extension top extending 8±.5 cm. above the top of the smolder box shall also be provided. The specimen holder during test use shall rest upon a pad of unfaced glass fiberboard or equivalent having dimensions equal to or greater than those of the bottom of the specimen holder. The unfaced glass fiberboard shall be approximately 2.5 cm (1 in) thick with a thermal conductivity of 0.30±0.05 cal(g)/hr cm^2 °C/cm (0.24±0.04 Btu/hr ft^2 °F/in) at 23.9 °C (75 °F).

(2) Ignition source. The ignition source shall be a cigarette without filter tip made from natural tobacco, 85±2 mm (3.35±.08 in) long with a tobacco packing density of 0.270±0.020 g/cm^3 (16.9±1.25 lb/ft^3) and a total weight of 1.1±0.1 gm (0.039±0.004 oz).

(3) Balance. A balance of 1 kg (2.2 lb) capacity, accurate at least to 0.1 g (0.004 oz), is required.

(4) Test area. The test area shall be draft-protected and equipped with a suitable system for exhausting smoke and/or noxious gases produced by testing. Air velocities as measured by a hot wire anemometer in the vicinity of the surface of the specimen shall not exceed 0.5 m/sec (1.64 ft/sec). The test area shall be at 21±3 °C (69.8±5.4 °F) and 50±5 percent relative humidity at the time the test begins.

(b) *Test procedure.* (1) Specimens and cigarettes shall be conditioned in air at a temperature of 21±3 °C (69.8±5.4 °F) and a relative humidity of 50±5 percent to equilibrium prior to test. A change of less than 1% in net weight of the specimen in two consecutive weighings

with two hours between each weighing constitutes equilibrium. Cigarettes shall be removed from any packaging and exposed in a suitable manner to permit free movement of air around them during conditioning. Calculate the weight of material necessary to fill the holder (volume 4,000 cm^3or 0.14 ft^3) at the settled density as determined in § 1209.4(e). The material shall be blown, combed, or otherwise mixed to remove lumps and shall be loaded uniformly into each specimen holder, level and flush to the top of the holder. The weight of each specimen shall be measured to the nearest 0.2 g (0.007 oz) or less by weighing the holder before and after filling. If the weight of the specimen is less than that calculated, a removable extension top shall be placed on top of the holder, the necessary amount of insulation is placed inside the extension and the loaded holder shall be dropped from a height no greater than 7.6 cm. (3 in) onto a hard flat surface. This process shall be repeated until the calculated weight of material completely fills the holder. The extension top is then removed. With the specimen in the holder and placed on the insulated pad, a rod of 8 mm (.31 in) diameter with a pointed end shall be inserted vertically into the approximate center of the material being tested and withdrawn to form an appropriate cavity for the ignition source, such that the cigarette fits snugly and maintains uniform contact with the specimen. A well lit cigarette, burned not more than 8 mm (0.31 in), shall be inserted in the formed cavity, with the lit end upward and flush with the specimen surface. Burning of the cigarette and specimen shall be allowed to proceed undisturbed in the test area for at least 2 hours or until the smoldering is no longer progressing, whichever period is longer.

(2) After completion of burning and after the holder has cooled down to approximately room temperature, the specimen holder with its material residue shall be weighed, at least to the nearest 0.1 g (0.003 oz), and the percent weight loss of the original specimen calculated. The weight of the cigarette residue is ignored in this calculation. (That is, the weight of the cigarette residue is not subtracted from the net weight of the specimen holder's contends at the conclusion of the test.)

(3) Three specimens per sample shall be tested.

§ 1209.8 Procedure for calibration of radiation instrumentation.

This procedure is used to calibrate the radiation instruments used in the test procedures for measuring critical radiant flux.

(a) *Radition pyrometer*. Calibrate the radiation pyrometer by means of a conventional black body enclosure placed within a furnace and maintained at uniform temperatures of 490, 500, and 510 °C (914, 932, and 950 °F). The black body enclosure may consist of a closed chromel metal cylinder with a small sight hole in one end. Sight the radiation pyrometer upon the opposite end of the cylinder where a thermocouple indicates the black body temperature. Place the thermocouple within a drilled hole and in good thermal contact with the black body. When the black body enclosure has reached the appropriate temperature equilibrium, read the output of the radiation pyrometer. Repeat for each temperature.

(b) *Total heat flux meter*. The total flux meter shall be calibrated by the National Bureau of Standards, (direct request for such calibration services to the: Radiometric Physics Division, 534, National Bureau of Standards (NBS), Washington, DC 20234.), or, alternatively, its calibration shall be developed by transfer calibration methods with an NBS calibrated flux meter. This latter calibration shall make use of the radiant panel tester as the heat source. Measurements shall be made at each of the nine dummy specimen positions and the mean value of these results shall constitute the final calibration.

(c) *Recommendation*. It is recommended that each laboratory maintain a dedicated calibrated reference flux meter against which one or more working flux meters can be compared as needed. The working flux meters should be calibrated according to this procedure at least once per year.

§ 1209.9 Labeling requirement.

(a) Manufacturers, importers, and private labelers of cellulose insulation