

## § 1207.12

Defense, 1972, Library of Congress Card No. 72-600054, pp. 457-465.

(d) "The Measure of Man—Human Factors in Design," by Henry Dreyfuss, published by Watson-Guptill Publications, Inc., 1 Astor Plaza, New York, New York, 10036.

(e) "Medical Tribune", Wed., 8/15/73, p. 21.

(f) "Technical Rationale in Support of A Safety Standard for Swimming Pool Slides," 5/30/75. National Swimming Pool Institute, 2000 K Street NW., Washington, D.C. 20006.

### § 1207.12 Stockpiling.

(a) *Definitions.* As used in this section:

(1) *Stockpiling* means manufacturing or importing swimming pool slides between the date of promulgation of part 1207 in the FEDERAL REGISTER and its effective date at a rate greater than five percent more than the rate at which the slides were manufactured or imported during the base period.

(2) *Base period* means, at the option of the manufacturer or importer concerned, any period of 180 consecutive days beginning on or after January 2, 1974, and ending on or before December 31, 1974.

(3) *Rate of production (or importation)* means the total number of swimming pool slides manufactured (or imported) during a stated time period. In determining whether a slide was manufactured (or imported) during a stated time period, the later of the date on which the slide runway was manufactured (or imported) or the date on which the accompanying ladder and other support parts were manufactured (or imported) shall be used.

(b) *Prohibited acts.* Manufacturers and importers of swimming pool slides, as these products are defined in § 1207.3(a)(28) shall not manufacture or import slides that do not comply with the requirements of this part 1207 between January 19, 1976, and July 17, 1976, at a rate which is greater than the rate of production or importation during the base period plus five percent of that rate.

(c) Manufacturers and importers shall maintain appropriate documentation to be able to substantiate to the Commission that they are in compli-

## 16 CFR Ch. II (1-1-21 Edition)

ance with the provisions of this section.

[41 FR 2751, Jan. 19, 1976, as amended at 41 FR 15003, Apr. 9, 1976]

## PART 1209—INTERIM SAFETY STANDARD FOR CELLULOSE INSULATION

### Subpart A—The Standard

Sec.

- 1209.1 Scope and application.
- 1209.2 Definitions and measurements.
- 1209.3 General requirements.
- 1209.4 Test procedures for determining settled density.
- 1209.5 Test procedures for corrosiveness.
- 1209.6 Test procedures for critical radiant flux.
- 1209.7 Test procedures for smoldering combustion.
- 1209.8 Procedure for calibration of radiation instrumentation.
- 1209.9 Labeling requirement.
- 1209.10 Certification and enforcement.
- 1209.11 Effective date.

FIGURE 1 TO SUBPART A OF PART 1209—PARTIAL INSULATION PREPARATION APPARATUS

FIGURE 2 TO SUBPART A OF PART 1209—CYCLONE RECEIVER WELDMENT

FIGURE 3 TO SUBPART A OF PART 1209—FLOORING RADIANT TESTER SCHEMATIC SIDE ELEVATION

FIGURE 4 TO SUBPART A OF PART 1209—FLOORING RADIANT PANEL TESTER SCHEMATIC LOW FLUX END, ELEVATION

FIGURE 5 TO SUBPART A OF PART 1209—ZERO REFERENCE POINT RELATED TO DETECTING PLANE

FIGURE 6 TO SUBPART A OF PART 1209—DUMMY SPECIMEN IN SPECIMEN HOLDER

FIGURE 7 TO SUBPART A OF PART 1209—SPECIMEN TRAY

FIGURE 8 TO SUBPART A OF PART 1209—STANDARD RADIANT HEAT ENERGY FLUX PROFILE

FIGURE 9 TO SUBPART A OF PART 1209—FLUX PROFILE DATA LOG FORMAT

FIGURE 10 TO SUBPART A OF PART 1209—INSULATION RADIANT PANEL TEST DATA LOG FORMAT

### Subpart B—Certification

- 1209.31 Purpose and applicability.
- 1209.32 Definitions.
- 1209.33 Reasonable testing program.
- 1209.34 Qualification testing.
- 1209.35 Product specification.
- 1209.36 Production testing.
- 1209.37 Corrective actions.
- 1209.38 Records.
- 1209.39 Certification of compliance.

## Consumer Product Safety Commission

## § 1209.4

1209.40 Certification responsibility, multiple parties.

1209.41 Effective date.

SOURCE: 44 FR 39966, July 6, 1979, unless otherwise noted.

### Subpart A—The Standard

AUTHORITY: Sec. 35(c)(2), Pub. L. 95-319, 92 Stat. 388-389 (15 U.S.C. 2082).

#### § 1209.1 Scope and application.

(a) *Scope.* This part 1209, an interim consumer product safety standard, prescribes flame resistance and corrosiveness requirements for cellulose insulation that is a consumer product. These requirements are intended to reduce or eliminate an unreasonable risk of injury to consumers from flammable and corrosive cellulose insulation. The requirements are based upon the flame resistance and corrosiveness requirements of General Services Administration Specification HH-I-515D.

(b) *Application.* This part 1209 shall apply to cellulose insulation that is a consumer product, that is, cellulose insulation produced or distributed for sale to, or for the personal use, consumption, or enjoyment of consumers in or around a permanent or temporary household or residence, a school, in recreation, or otherwise. The interim standard applies to cellulose insulation that is produced or distributed for sale to consumers for their direct installation or use, as well as cellulose insulation that is produced or distributed for installation by professionals. This part 1209 applies only to cellulose insulation manufactured after October 15, 1979.

#### § 1209.2 Definitions and measurements.

(a) As used in this part 1209, *Cellulose insulation* means cellulosic fiber, loose fill, thermal insulation that is suitable for blowing or pouring applications.

(b) The definitions given in section 3 of the Consumer Product Safety Act are applicable to this part 1209.

(c) For the purposes of conformance with the technical requirements of this standard, the figures are given in the metric system of measurement. The inch-pound system approximations of these figures are provided in parentheses for convenience and information

only. For numerical quantities for which no specific tolerances are given, the tolerance shall be one half of the unit value of the last significant digit given in the dimension. Where numerical quantities are given without tolerances in both the metric and inch-pound system of measurements, the tolerance shall be one half of the last significant digit of the metric equivalent of the numerical quantity.

(d) The specifications and dimensions in the test methods below are given in metric units, with the English equivalents in parentheses. For enforcement purposes the Commission will use metric units.

#### § 1209.3 General requirements.

(a) All cellulose insulation to which this interim standard applies, as described in § 1209.1, shall be noncorrosive when tested in accordance with the test procedures at § 1209.5 and evaluated using the criteria at § 1209.5(c). This means that after the product is tested, the six metal coupons used in the test shall not have any perforations (excluding notches extending into the coupon 3 mm or less from any edge) when the coupons are observed over a 40-W appliance light bulb.

(b) All cellulose insulation to which this interim standard applies, as described in § 1209.1, shall have a critical radiant flux equal to or greater than 0.12 W/cm<sup>2</sup> for each of the three specimens when tested in accordance with the test procedures at § 1209.6.

(c) All cellulose insulation to which this interim standard applies, as described in § 1209.1, shall have no evidence of flaming combustion and shall also have weight loss of 15 percent or less of the initial weight, for each of the three specimens, when tested in accordance with the test procedures at § 1209.7.

(d) All containers of cellulose insulation to which this interim standard applies, as described in § 1209.1, shall have a labeling statement in accordance with the labeling requirements at § 1209.9.

#### § 1209.4 Test procedures for determining settled density.

The settled density of loose fill insulation must be determined before the

## § 1209.4

corrosiveness test (§1209.5) and the smoldering combustion test (§1209.7) can be performed. This section describes the procedure for determining the settled density of loose fill insulation.

(a) *Apparatus and materials.* (1) An insulation specimen container with a flat bottom and an inside diameter of 15.0±1 cm, straight sides [without a flared lip or spout, (Apparatus #1)]. The height of the beaker shall be such that the distance between the bottom of the cyclone and the top edge of the beaker is 8.5 cm±1.0 cm. (3.39 in±.39 in).

(2) A flat-rigid disc with a total weight of 75±5 g (2.65±0.18 oz) and of a suitable diameter to fit loosely into the specimen container. Weight may be added to the center of the disc to bring the total weight to the required 75±5 g (Apparatus #2).

(3) A balance of 2 kg (4.4 lbs) capacity accurate at least to 0.2 g (0.007 oz) (Apparatus #3).

(4) Blower apparatus, two units (supply and overflow) meeting the following specifications: (The Commission staff has found that a Breuer Electric Manufacturing Co., Model 98805 blower is suitable for this purpose, although other blowers may be suitable.) (Apparatus #4).

(i) Each blower apparatus shall be capable of blowing an average of 272.2 kg (600 lbs.) of insulation per hour.

(ii) Each blower apparatus shall have a nominal air flow of 2.1 cm<sup>3</sup>/min. (75 ft<sup>3</sup>/min.)

(iii) Each blower apparatus shall have a nominal motor speed of 16,450 revolutions per minute at 115 VAC.

(5) A shaker unit capable of shaking 4.5 kg (10 lb) of weight with a vertical motion of 0.5 g Root Mean Square (RMS) acceleration at an approximate frequency of 9 Hertz (Hz) and displacement of approximately 1.17 cm (<sup>15</sup>/<sub>32</sub>±<sup>1</sup>/<sub>32</sub> in.) ±.08 cm peak to peak. (The Commission staff has found that a Tyler Industries, Portable Sieve Shaker Model Rx-24 is suitable for this purpose, although other shakers may be suitable.) (Apparatus #5).

(6) Fill chamber with inside dimensions of 45.7 cm (18 in) high × 38.1 cm (15 in) wide × 38.1 cm (15 in) deep, with covered openings that will allow a radiant panel tray to be slid through the cham-

## 16 CFR Ch. II (1–1–21 Edition)

ber, (see Figure 1 for details) (Apparatus #6).

(7) A cyclone receiver (see Figure 2 for complete details). (Apparatus #7).

(8) Various lengths of nominally 2-inch diameter hose (see Figure 1 for details), as follows:

(i) A supply source hose, 274.3±5.1 cm (9 ft±2 in) (Apparatus #8(i)).

(ii) A cyclone receiver hose, 182.9±5.1 cm (6 ft±2 in) (Apparatus #8(ii)).

(iii) A fill chamber exit hose, 91.4±5.1 cm (3 ft±2 in) (Apparatus #8(iii)).

(iv) An overflow exhaust hose, length as needed (Apparatus #8(iv)).

(9) Blower Control(s) capable of operating the two blowers at 40 volts RMS. As an example, a variac for each of the two blowers with sufficient rating to operate at 40 volts and 12 amperes RMS would be acceptable (Apparatus #9).

(10) An insulation holding container to hold a sufficient quantity of insulation to fill the specimen container four times.

(11) A garden rake, 50.8 cm (20 in) wide (Apparatus #11).

(12) A shovel (Apparatus #12).

(b) *Conditioning.* Specimens shall be conditioned to equilibrium at 21±5 °C (69.8±9 °F) and 50±5 % relative humidity. A less than 1% change in net weight of the specimen in two consecutive weighings with two hours between each weighing constitutes equilibrium.

(c) *Test specimen preparation*—(1) *Insulation intended for pneumatic applications.* If the insulation is intended for pneumatic applications, the test specimens shall be prepared in the following manner:

(i) If ambient laboratory conditions are different from the conditioning requirements specified in (b) above, begin testing the specimen for settled density within 10 minutes after it has been removed from the conditioned area.

(ii) Pour the conditioned insulation into the holding box (Apparatus #10) in sufficient quantity to fill the specimen container (Apparatus #1 shown in Figure 1) four times. Manually break up any large clumps of material that might cause feeding problems.

(2) *Insulation intended for pouring applications.* If the insulation is intended for pouring applications, the test specimens shall be prepared in the following manner:

(i) If ambient laboratory conditions are different from the conditioning requirements specified in (b) above, begin testing 10 minutes after it has been removed from the conditioned area.

(ii) Pour loose fill insulation into a simulated attic space until full. The attic space shall be formed by two nominal 2 × 6 (243 cm) (8 ft) long joists placed 40.6 cm (16 in) on center with 1.27 cm (½ in) plywood nailed to the ends and bottom. Fluff the material with a garden rake (Apparatus #11), applying a series of small amplitude strokes while moving the rake slowly along the joist. Repeat the fluffing process six times.

(d) *Procedures*—(1) *Procedures for insulation intended for pneumatic applications.* If the insulation is intended for pneumatic applications, conduct the following procedures:

(i) The test shall be conducted in an area conditioned to the requirements of § 1209.4(b).

(ii) The apparatus shall be set up as shown in Figure 1. (Apparatus #9 and #10 are not shown in Figure 1, but are described at § 1209.4(a)). Connect one end of the supply source hose (Apparatus #8.i) to the intake of the supply blower (Apparatus #4). The other end will be used to pick up insulation from the holding container (Apparatus #10). Connect one end of the cyclone receiver hose (Apparatus #8.ii) to the outlet of the supply blower and the other end to the cyclone receiver (Apparatus #7). Connect one end of the fill chamber exit hose (Apparatus #8.iii) to the intake of the overflow blower (Apparatus #4) and the other end to the fill chamber (Apparatus #6). The fill chamber shall be placed on a flat and level surface. Connect one end of the variable length overflow exhaust hose (Apparatus #8.iv) to the outlet of the overflow blower. The other end should be conveniently placed to reduce insulation dust in the test area.

(iii) Weigh the empty insulation specimen container and record its weight.

(iv) Place the empty insulation specimen container in the fill chamber (Apparatus #6) centered under the cyclone receiver (Apparatus #7), and close the front cover.

(v) Adjust the blower control(s) (Apparatus #9) such that the supply and overflow blowers will operate at a no load voltage of 40 volts RMS.

(vi) Turn on the blowers simultaneously and proceed to fill the insulation specimen container by picking up material from the holding container using the supply source hose.

(vii) The container may fill unevenly, i.e. a void may tend to form off center in the container. If this occurs, stop the blowing process and rotate the container 180 degrees and continue the blowing process until the container just begins to overflow. If, for any reason, the filling process is interrupted for more than one minute or for more than the one time allowed to rotate the container, begin the process again.

(viii) Gently screed the excess material using a straight edge so as to leave a uniform surface of the insulation flush with the top of the container.

(ix) Weigh the filled and leveled container and record the weight. Take care not to bump or jar the container so as not to introduce any extraneous settling of the insulation.

(x) Cover the container to prevent spilling and secure the container to the shaker. Operate the shaker for a period of 5 minutes±15 seconds.

(xi) Remove the container from the shaker and uncover, taking care not to bump or jar it. Lower the disc (Apparatus #2) very slowly into the container until it starts to contact the insulation. At this point, release the disc and allow it to settle onto the insulation under its own weight.

(xii) Measure the volume of the space occupied by the settled insulation using the bottom edge of the disc as the upper datum point. If the disc is not level, measure the high and low points of the bottom of the disc and average the readings and use this as the height measurement in calculating the volume ( $V_s$ ). This settled insulation volume and insulation weight ( $w$ ) shall be used to calculate the settled density.

(xiii) Repeat this procedure [steps (i) through (xi)] using another specimen of the insulation until four settled densities are obtained for a given material. Then average these figures to arrive at a final settled density.

## § 1209.5

## 16 CFR Ch. II (1–1–21 Edition)

(2) *Procedures for insulation intended for pouring applications.* If the insulation is intended for pouring applications, conduct the following procedures:

(i) Weigh the empty insulation specimen container and record its weight.

(ii) Using a shovel (Apparatus #12) remove insulation from the simulated attic space and place it into the specimen container until the container just begins to overflow.

(iii) Follow steps (vi) through (xii) as specified under *Procedures for insulation intended for pneumatic applications.*

(iv) Repeat this procedure (steps (i) through (iii)) using another specimen of the insulation until four settled densities are obtained for a given material. Then average these figures to arrive at a final settled density.

(e) *Insulation intended for pouring and pneumatic applications.* If the insulation is intended for both pouring and pneumatic applications, or if it is uncertain whether the insulation will be poured or installed pneumatically, the insulation shall be tested for settled density using the test specimen preparation and test procedures at §1209.4 (c) and (d) for each of the applications. The larger of the two settled density values shall be used in performing the corrosiveness test at §1209.5 and the smoldering combustion test at §1209.7.

(f) *Calculations.* Calculate the settled density of each specimen using the following formula:

Settled Density in  $\text{kg/m}^3 = W/V_s$ , where

W = combined weight of the container and insulation in grams, minus the weight of the container in grams.

$V_s$  = volume of insulation in liters after shaking.

### § 1209.5 Test procedures for corrosiveness.

This section prescribes the procedures for determining the corrosiveness of cellulose insulation. Cellulose insulation shall be tested for corrosiveness using the measured settled density, obtained by following the test procedure at §1209.4, to calculate the amount of distilled or deionized water to add to the test specimens. Determination of corrosiveness shall be in accordance with the following test procedure:

(a) *Apparatus and materials*—(1) *Humidity chamber.* A forced-air humidity chamber capable of maintaining  $48.9 \pm 1.7$  °C ( $120 \pm 3$  °F) and 97  $\pm 1.5$  percent relative humidity.

(2) *Crystallizing dishes.* Six glass crystallizing dishes, 90 mm (3.54 in) diameter by 50 mm (1.9 in) height.

(3) *Test coupons.* (i) Two aluminum coupons. 3003 bare aluminum, zero temper.

(ii) Two copper coupons. ASTM B 152, type ETP, Cabra No. 110 soft copper.

(iii) Two steel coupons. Low carbon, commercial quality, cold rolled, less than 30 carbon content, shim steel.

Each coupon shall be 50.8 by 50.8 mm (2 by 2 in) by 0.076 mm (0.003 in) thick metal free of tears, punctures, or crimps.

(4) *Test specimens:* Six test specimens of insulation shall be used for one test. Each specimen shall weigh 20g (0.7 oz).

(b) *Procedure*—(1) *General procedures for cleaning all metal coupons.* The metal coupons shall be cleaned by the following method:

(i) At no time during the fabrication, cleaning or testing shall the metal coupons be touched by ungloved hands.

(ii) Gloves shall be clean and in good condition.

(iii) All chemicals used shall be of American Chemical Society reagent grade or better, free from oily residues and other contaminants.

(iv) Water shall be distilled or deionized water.

(v) Handle cleaned coupons only with clean forceps.

(vi) In order to avoid exposing laboratory personnel to toxic fumes, the commission recommends that all cleaning procedures be performed in a fume hood.

(vii) Clean the coupons by vapor degreasing with 1,1,1-trichloroethane for ten minutes. Following vapor degreasing, subject the coupons to caustic and/or detergent washing as appropriate. Following caustic or detergent washing, rinse the coupons in flowing water to remove residues. Inspect each coupon for a water-break free surface. (A water-break is a break, separation, beading or retraction of the water film as the coupon is held

vertically after wetting. As the coupons are cleaned, the water film should become gradually thinner at the top and heavier at the bottom.) Hot air dry the coupons at 105 °C (221 °F).

(2) Specimens of cellulose insulation submitted for testing shall be blown, combed, or otherwise mixed to reasonably assure homogeneity in the cellulose insulation test specimens.

(3) Before presaturating each 20g (0.7 oz) test specimen, subdivide it into two 10g (0.35 oz) portions. The quantity of distilled or deionized water to be used for each 10g (0.35 oz) portion shall be determined using the following formula:

$$\text{ml distilled water} = 46 / (\text{settled density, Kg/m}^3) \times 75$$

or

$$\text{ml distilled water} = 2.9 / (\text{settled density, lb/ft}^3) \times 75$$

(4) Presaturate each 10g (0.35 oz) portion with the determined amount of water. Place one presaturated 10g (0.35 oz) portion into a crystallizing dish, tamp level using the bottom of a clean suitably sized glass beaker. Place a metal coupon onto the presaturated insulation portion and center it in a horizontal plane. Place the other presaturated 10g (0.35 oz) portion into the crystallizing dish on the metal coupon and tamp the composite specimen (metal coupon plus saturated insulation in the crystallizing dish) to assure an even distribution of this material and to assure good contact of the insulation with the metal. Exercise care in preparing the composite specimens to eliminate air pockets from forming next to the metal coupons.

(5) Do not cover the crystallizing dish. (Care should be taken to avoid evaporation from the composite specimen while it is being prepared until it is placed in the humidity chamber.) If dripping occurs in the chamber, position a drip guard in the chamber to divert condensation to the chamber floor. Repeat the above for the other metal coupons. Place all six composite specimens into the humidity chamber. The chamber shall be preconditioned to 48.9 ±1.7 °C (120 ±3 °F) and 97 ±1.5 percent relative humidity. The specimens shall remain in the chamber for 336 ±4

hours. (Keep the chamber door open a minimum of time while placing composite specimens in and removing them from the chamber.)

(6) Upon completion of the test disassemble the composite specimens. Thoroughly wash the metal coupons under running water and lightly brush them using a soft nylon bristle brush or equivalent to remove loose corrosion products. Remove the remaining corrosion products from the metal coupons by cleaning them in accordance with the following practices:<sup>1</sup>

(i) Technique #1—Electrolytic Cleaning. This technique can be used for post-cleaning the tested copper, steel and aluminum coupons.

Description: Electrolyze the coupons as follows: Make a solution containing 28 ml of sulfuric acid (specific gravity 1.84), 2 ml of organic inhibitor, e.g. about 0.5 g/liter of such inhibitors as diorthotolyl thiourea, quinoline ethiodide, or betanaphthol quinoline may be used, and 970 ml of water. The solution shall be at 75 °C (167 °F). The anode shall be carbon or lead, and the cathode shall be one metal coupon. The electrolyzing shall run for 3 minutes at a current density of 20 A/dm<sup>2</sup>. *Caution:* If lead anodes are used, lead may deposit on the coupon. If the coupon is resistant to nitric acid, the lead may be removed by a flash dip in 1 + 1 nitric acid (plus water). To avoid injury in this and subsequent techniques when mixing acid and water, gradually pour the acid into the water with continuous stirring, provide cooling if necessary.

(ii) Technique #2—Copper. This technique or Technique #1 can be used for post-cleaning the tested copper coupons only.

Description: Make a solution containing 500 ml of hydrochloric acid (specific gravity 1.19), 100 ml of sulfuric acid (specific gravity 1.84), and 400 ml of water. To avoid injury, prepare the solution by slowly adding the sulfuric

<sup>1</sup>These practices are the recommended practices in "ASTM G1—Standard Recommended Practice for Preparing, Cleaning, and Evaluating Corrosion Test Specimens," published by American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.

## § 1209.6

## 16 CFR Ch. II (1–1–21 Edition)

acid to the water with continuous stirring. Cool, then add the hydrochloric acid slowly with continuous stirring. The solution shall be at room temperature. Dip the coupons in the solution for 1 to 3 minutes.

(iii) Technique #3—Steel. This technique or technique #1 can be used for post-cleaning the tested steel coupons only.

Description: Use one of the following two solutions:

Solution #1. Add 100 ml of sulfuric acid (specific gravity 1.84), 1.5 ml organic inhibitor, and water to make a 1 liter solution. The solution shall be 50 °C (120 °F). Dip the coupons in this solution.

Solution #2 (also referred to as Clarke's solution). Add 20 g of antimony trioxide and 50 g of stannous chloride to 1 liter of hydrochloric acid (specific gravity 1.19). The solution shall be stirred and be used at room temperature. Dip the coupons in this solution stirring the solution at a rate such that deformation of the coupons does not occur. This dipping shall last for up to 25 minutes.

(iv) Technique #4—Aluminum. This technique or technique #1 can be used for post-cleaning the tested aluminum coupons only.

Description: Make a 1 liter solution by adding 20g of chromic acid, and 50 ml of phosphoric acid (specific gravity 1.69), to water. The solution shall be 80 °C (176 °F). Dip the coupons in this solution for 5–10 minutes. If a film remains, dip the coupons in nitric acid (specific gravity 1.42) for 1 minute. Repeat the chromic acid dip. Nitric acid alone may be used if there are no deposits.

(7) After cleaning, examine the metal coupons over a 40-W appliance light bulb for perforation.

(c) *Noncorrosiveness*. Noncorrosiveness shall be determined by the absence of any perforations (excluding notches which extend into the coupon 3 mm or less from any edge) on each of the six test coupons when the coupons are observed over a 40-W appliance light bulb.

### § 1209.6 Test procedures for critical radiant flux.

This section provides the test procedure for determining the critical radi-

ant flux of exposed attic floor insulation using a radiant heat energy source.

(a) *Apparatus and description of test procedure*. Test chamber (Figures 3 and 4 paragraph (b) of this section). An air-gas fueled radiant heat energy panel or equivalent panel inclined at 30° above and directed at a horizontally-mounted attic floor insulation specimen. The radiant panel generates a radiant energy flux distribution ranging along the approximately 100-cm length of the test specimen from a nominal maximum of 1.0 W/cm<sup>2</sup> to a minimum of 0.1 W/cm<sup>2</sup>. The test is initiated by open flame ignition from a pilot burner. The distance burned to flame-out is converted to W/cm<sup>2</sup> from the flux profile graph (Figure 8) and reported as critical radiant flux, W/cm<sup>2</sup>. Section 1209.8 provides a procedure for calibrating the radiation pyrometer used to standardize the thermal output of the panel.

(b) *Construction and instrumentation of the radiant panel test chamber*. The radiant panel test chamber shall be constructed and instrumented as follows:

(1) The radiant panel test chamber employed for this test shall be located in a draft protected area maintained at 21±3 °C (69.8±9 °F) and relative humidity of 50±20%. The radiant panel test chamber, (Figures 3 and 4) shall consist of an enclosure 140 cm (55 in) long by 50 cm (19½ in) deep by 71 cm (28 in) above the test specimen. The sides, ends, and top shall be of 1.3 cm nominal (½ in) calcium silicate board, such as Marinite I, 0.74 g/cm<sup>3</sup> (46 lb/ft<sup>3</sup>) nominal density, with a thermal conductivity at 177 °C (350 °F) of 1.11 cal (g)/hr cm<sup>2</sup> °C/cm [0.89 Btu/(hr) (ft<sup>2</sup>) (°F/in)]. One side shall be provided with an approximately 10 cm × 110 cm (4 × 44 inches) draft tight fire resistant glass window so that the entire length of the test specimen may be observed from outside the fire test chamber. On the same side and below the observation window is a door which, when open, allows the specimen platform to be moved out for mounting or removal of test specimens. A draft tight, fire resistant observation window may be installed at the low flux end of the chamber.

(2) The bottom of the test chamber shall consist of a sliding steel platform

which has provisions for rigidly securing the test specimen holder in a fixed and level position. The free, or air access, area around the platform shall be in the range of 1935–3225 cm<sup>2</sup> (300–500 square in). The top of the chamber shall have an exhaust stack with interior dimensions of 10.2 cm (4 in) wide by 38 cm (15 in) deep by 31.8 cm (12.5 in) high at the opposite end of the chamber from the radiant energy source. The radiant heat energy source shall be a panel of porous refractory material mounted in a cast iron frame, with a radiation surface of 30.5 × 45.7 cm nominal (12 by 18 in). The panel fuel system shall consist of a venturi-type aspirator or equivalent system for mixing gas and air at approximately atmospheric pressure, a clean dry air supply capable of providing 28.3 NTP (Normal Temperature and Pressure m<sup>3</sup> per hr (1000 standard cubic feet per hour) at 7.6 cm (3.0 in) of water, and suitable instrumentation for monitoring and controlling the flow of fuel to the panel.

(3) The radiant heat energy panel shall be mounted in the chamber 30±0.5° to the horizontal specimen plane. The horizontal distance from the 0 mark on the specimen fixture to the bottom edge (projected) of the radiating surface of the panel is 8.9 cm±0.1 (3½±½ in). The panel to specimen vertical distance is 14.0 cm±0.1 (5½±½ in) (see Figure 5). The angle and dimensions given above are critical in order to obtain the required radiant flux. The radiation pyrometer for standardizing the thermal output of the panel shall be suitable for viewing a circular area 25.0 cm (10 in) in diameter at a range of about 1.37 m (54 in). It shall be calibrated over the black body temperature range of 490–510 °C (914–950 °F) in accordance with the procedure described in §1209.8. A high impedance voltmeter with a suitable millivolt range shall be used to monitor the output of the radiation pyrometer described. The dummy holder (see Figure 6), shall be constructed from 14 gauge heat-resistant stainless steel (AISI Type 300 (UNA-N08330)) or equivalent thickness 0.198 cm (0.078 in), having overall dimension of 114 cm (45 in) by 32 cm (12¾ in) with a specimen opening of 20 cm (7.9 inches) by 100 cm (39.4 in). Six slots are cut in the flange on either

side of the holder to reduce warping. The holder is fastened to the platform with two stud bolts at each end.

(4) The specimen tray (see Figure 7) shall be constructed from 14 gauge heat-resistant stainless steel (AISI Type 300 (UNA-N08330)) or equivalent, thickness 0.198 cm (0.078 in). The depth of the tray is 5.0±0.2 cm (2±5/64 in). The flanges of the specimen tray are drilled to accommodate two stud bolts at each end; the bottom surface of the flange is 2.1±0.1 cm (0.83±0.04 in) below the top edge of the specimen tray. The overall dimensions of the tray and the width of the flanges are not critical and should be chosen so that the tray essentially fills the open space in the sliding platform. Tray must be adequate to contain a specimen at least 100 cm long and 25 cm wide. It is important to note that the zero reference point on the dummy specimen coincides with the pilot burner flame impingement point (see Figure 5).

(5) The pilot burner used to ignite the specimen shall be a propane venturi torch with an axially symmetric burner tip having a propane supply tube with an orifice diameter of 0.0076±0.0013 cm (0.003±0.0005 in). In operation, the propane flow is adjusted to give a pencil flame blue inner cone length of 1.3 cm (½ in). The pilot burner is positioned so that the flame generated will impinge on the centerline of the specimen at the zero reference point and at right angles to the specimen length (see Figures 3 and 4). The burner shall be capable of being swung out of the ignition position so that the flame is horizontal and at least 5 cm (2 in) above the specimen plane.

(6) Two 3.2 mm nominal (¼ in) diameter stainless steel sheathed, grounded junction chromel alumel thermocouples are located in the flooring radiant panel test chamber (see Figures 3 and 4). Thermocouples shall be kept clean to ensure accuracy of readout. The chamber thermocouple is located in the longitudinal central vertical plane of the chamber 2.5 cm±0.1 (1±1/32 in) down from the top and 10.2 cm±0.1 (4 in±1/32) back from the inside of the exhaust stack. The exhaust stack thermocouple is centrally located 15.2±0.1 cm (6±1/32 in) from the top. A temperature indicating device with a



## § 1209.6

## 16 CFR Ch. II (1–1–21 Edition)

range of 100–500 °C (212–932 °F) may be used to determine the chamber temperatures prior to a test.

(7) An exhaust duct with a capacity of 28.3–85 NTP m<sup>3</sup> per minute (1000–3000 standard cubic feet per minute) decoupled from the chamber stack by at least 7.6 cm (3 in) on all sides and with an effective area of the canopy slightly larger than the plane area of the chamber with the specimen platform in the out position shall be used to remove combustion products from the chamber. With the panel turned on and dummy specimen in place, there shall be no measurable difference in air flow through the chamber stack with the exhaust on or off.

(8) The dummy specimen which is used in the flux profile determination shall be made of 1.9±0.1 cm ( $\frac{3}{4}\pm\frac{1}{32}$  in) 0.74 g/cm<sup>3</sup> (46 lb/ft<sup>3</sup>) nominal density calcium silicate board, such as Marinite I (see Figure 6). It is 25 cm (10 in) wide by 107 cm (42 in) long with 2.7±0.1 cm ( $1\frac{1}{16}\pm\frac{1}{32}$  in) diameter holes centered on and along the centerline at the 10, 20, 30, 40, 50, 60, 70, 80, 90 cm locations (within ±0.1 cm), measured from the zero reference point at the maximum flux end of the specimen. The total heat flux transducer used to determine the flux profile of the chamber in conjunction with the dummy specimen should be of the Schmidt-Boelter type, having a range of 0–1.5 W/cm<sup>2</sup> (0–1.32 Btu/ft<sup>2</sup> s), and shall be calibrated over the operating flux level range of .10 to 1.5 W/cm<sup>2</sup> in accordance with the procedure outlined in §1209.8. The incoming cooling water flowing through the instrument shall be 15–25 °C (59–77 °F). A high impedance voltmeter with a resolution of at least 0.01 mV shall be used to measure the output of the total heat flux transducer during the flux profile determination. A timer shall be used for measuring preheat and pilot contact time.

(c) *Safety procedures.* The possibility of a gas-air fuel explosion in the test chamber should be recognized. Suitable safeguards consistent with sound engineering practice should be installed in the panel fuel supply system. These may include one or more of the following:

(1) A gas feed cut-off activated when the air supply fails,

(2) A fire sensor directed at the panel surface that stops fuel flow when the panel flame goes out,

(3) A commercial gas water heater or gas-fired furnace pilot burner control thermostatic shut-off, which is activated when the gas supply fails, or other suitable and approved device.

Manual reset is considered a desirable feature of any safeguard system used. In view of the potential hazard from products of combustion, the exhaust system must be so designed and operated that the laboratory environment is protected from smoke and gas. The operator should be instructed to minimize exposure to combustion products by following sound safety practices, such as ensuring that the exhaust system is working properly and wearing appropriate clothing, including gloves.

(d) *Test specimens*—(1) *Specimens of insulation intended for pneumatic applications.* (i) Insulation shall be installed into the specimen tray using the blower/cyclone apparatus described in §1209.4(a).

(ii) Insulation shall be conditioned as described in §1209.4(b).

(iii) Apparatus #4, 6, 7, 8, 9 and 10 shall be used as described in §1209.4(d)(1)(i) with the following additional requirements.

(iv) The fill chamber (apparatus #6) shall be equipped with openings in the front and back so that a radiant panel specimen tray can be slid through the fill chamber.

(v) Adjust the blower control(s) (apparatus #9) such that the supply and overflow blowers will operate at a no load voltage of 40 volts RMS.

(vi) Turn on the blowers simultaneously and proceed to fill the fill chamber by picking up material from the box using the supply source hose. Large clumps of insulation shall be broken by hand before feeding them into the hose. Continue filling the chamber until large amounts of insulation are being drawn into the overflow hose.

(vii) Slowly slide the specimen tray through the fill chamber so that the low flux end of the tray is parallel with the back of the fill chamber filling the tray by sliding the tray forward to

allow an excess of insulation to build up in the tray.

(viii) Shut off the blowers and remove the specimen tray and gently screed the insulation so that the insulation is level across the top of the tray. Take care not to compact the insulation or to leave large voids in the material. The tray may now be inserted into the radiant panel.

(2) *Specimens of insulation intended for pouring applications.* Insulation intended for pouring applications shall be poured into the tray until the tray is overfilled and then carefully screeded to the top of the tray taking care not to compact the insulation or leave large voids in the surface of the material.

(3) *Specimens of insulation intended for pouring and pneumatic applications.* If the insulation is intended for both pouring and pneumatic applications, or if it is uncertain whether the insulation will be poured or blown, the insulation shall be tested using the test procedures at paragraphs (d) (1) and (2) of this section for each of the applications. Three specimens shall be tested under the test procedure for each application. All of the specimens shall meet the criteria at § 1209.3(b) for passing the attic floor radiant panel test.

(e) *Radiant heat energy flux profile standardization.* In a continuing program of tests, determine the flux profile at least once a week. Where the time interval between tests is greater than one week, determine the flux profile at the start of the test series.

(1) Mount the dummy specimen in the mounting frame and attach the assembly to the sliding platform. With the sliding platform out of the chamber, ignite the radiant panel. Allow the unit to heat for 1 hour. The pilot burner is off during this determination. Adjust the fuel mixture to give an air-rich flame. Make fuel flow settings to bring the panel to an apparent black body temperature as measured by the radiation pyrometer, of approximately 500 °C (932 °F), and bring the chamber to a temperature of approximately 180 °C (356 °F). When equilibrium has been established, move the specimen platform into the chamber. Allow 0.5 hour for the closed chamber to reach equilibrium.

(2) Measure the radiant heat energy flux level at the 40 cm point with the total flux meter instrumentation. This is done by inserting the flux meter in the opening so that its detecting plane is 0.16-0.32 cm ( $\frac{1}{16}$ - $\frac{1}{8}$  inch) above and parallel to the plane of the dummy specimen and reading its output after 30±10 seconds. If the level is within the limits specified, the flux profile determination is started. If it is not, make the necessary adjustments in the panel fuel flow. A suggested flux profile data log format is shown in Figure 9.

(3) The test shall be run under chamber operating conditions which give a flux profile as shown in Figure 8. The radiant heat energy incident on the dummy specimen shall be between 0.87 and .95 W/cm<sup>2</sup> (0.77 and .83 Btu/ft<sup>2</sup> sec) at the 20 cm point, between 0.48 and 0.52 W/cm<sup>2</sup> (0.42 and 0.46 Btu/ft<sup>2</sup> sec) at the 40 cm point, and between 0.22 and 0.26 W/cm<sup>2</sup> (0.19 and 0.23 Btu/ft<sup>2</sup> sec) at the 60 cm point. Insert the flux meter in the 10 cm opening, following the procedure given above. Read the millivolt output at 30±10 seconds and proceed to the 20 cm point. Repeat the 10 cm procedure. The 30 to 90 cm flux levels are determined in the same manner. Following the 90 cm measurement, make a check reading at 40 cm. If this is within the limits set forth, the profile determination is completed. If not, carefully adjust fuel flow, allow 0.5 hour for equilibrium and repeat the procedure. Plot the radiant heat energy flux data as a function of distance along the specimen plane on rectangular coordinate graph paper. Carefully draw the best smooth curve through the data points. This curve will hereafter be referred to as the flux profile curve.

(4) Determine the open chamber apparent black body and chamber temperatures that are identified with the standard flux profile by opening the door and moving the specimen platform out. Allow 0.5 hour for the chamber to reach equilibrium. Read the radiation pyrometer output and record the apparent black body temperature. This is the temperature setting that can be used in subsequent test work in lieu of measuring the radiant flux at 20 cm, 40 cm, and 60 cm using the dummy specimen. The chamber temperature

## § 1209.7

## 16 CFR Ch. II (1-1-21 Edition)

also shall be determined again after 0.5 hour and is an added check on operating conditions.

(f) *Conditioning.* Test specimens shall be conditioned to equilibrium at  $21\pm 3$  °C ( $69.8\pm 5.4$  °F) and a relative humidity of  $50\pm 5$  percent immediately prior to testing. A less than 1% change in net weight of the specimen in two consecutive weighings with two hours between each weighing constitutes equilibrium. The maximum cumulative time a conditioned sample may be exposed to conditions different from  $21\pm 3$  °C ( $69.8\pm 5.4$  °F) and relative humidity of  $50\pm 5\%$  before insertion in to the radiant panel chamber for testing is 10 minutes.

(g) *Test Procedure.* (1) With the sliding platform out of the chamber, ignite the radiant panel. Allow the unit to heat for 1 hour. It is recommended that a 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  $\pm 5$  °C ( $\pm 9$  °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  $\pm 5$  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  $\pm 5$  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/ft<sup>2</sup>sec) 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  $20\pm 0.2$  cm ( $7.87\pm 0.08$  in) square box,  $10\pm 0.2$  cm ( $3.94\pm 0.08$  in) in height, fabricated from a single piece of  $0.61\pm 0.08$  mm thick (24 U.S. Standard gauge) stainless steel sheet with the vertical edges of the box overlapped, not to exceed 7 mm (.28 in) in seam width, and soldered so as to be watertight. A removable extension top extending  $8\pm 5$  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  $0.30\pm 0.05$  cal(g)/hr  $cm^2$  °C/cm ( $0.24\pm 0.04$  Btu/hr ft<sup>2</sup> °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,  $85\pm 2$  mm ( $3.35\pm 0.08$  in) long with a tobacco packing density of  $0.270\pm 0.020$  g/cm<sup>3</sup>

(16.9±1.25 lb/ft<sup>3</sup>) 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<sup>3</sup> or 0.14 ft<sup>3</sup>) 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 contents 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) *Radiation 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),

## § 1209.9

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 shall place on all containers of cellulose insulation the following statement:

This product meets the amended CPSC standard for flame resistance and corrosiveness of cellulose insulation.

To meet this requirement manufacturers, importers, and private labelers may use any type of label, including one which is pressure sensitive or glued on, provided the label is made in such a manner that it will remain attached to the container for the expected time interval between the manufacture of the product and its installation.

(b) This label shall appear prominently and conspicuously on the container in letters which are at least one-fourth inch in height. The labeling statement shall be printed with legible

## 16 CFR Ch. II (1-1-21 Edition)

type in a color which contrasts with the background on which the statement is printed.

### § 1209.10 Certification and enforcement.

(a) While this part 1209 prescribes test methods to determine whether cellulose insulation subject to this interim standard meets its requirements, the interim standard itself does not require that a manufacturer or private labeler test any cellulose insulation. However, section 14 of the Consumer Product Safety Act (15 U.S.C. 2063) requires manufacturers and private labelers of products subject to safety standards to certify that the product conforms to the standard based on either a test of each product or a reasonable testing program. (Elsewhere in this issue of the FEDERAL REGISTER, 44 FR 39983, the Commission has issued a certification rule that prescribes requirements that manufacturers and private labelers shall follow to certify that their cellulose insulation complies with the requirements of the amended standard.)

(b) The Commission intends to use the test procedures set forth in this part 1209 to determine whether insulation subject to the interim standard meets the requirements of the interim standard.

### § 1209.11 Effective date.

All cellulose insulation that is a consumer product and that is manufactured after October 15, 1979 shall meet the requirements of this standard, including the labeling requirement of § 1209.9.

FIGURE 1 TO SUBPART A OF PART 1209—PARTIAL INSULATION PREPARATION APPARATUS

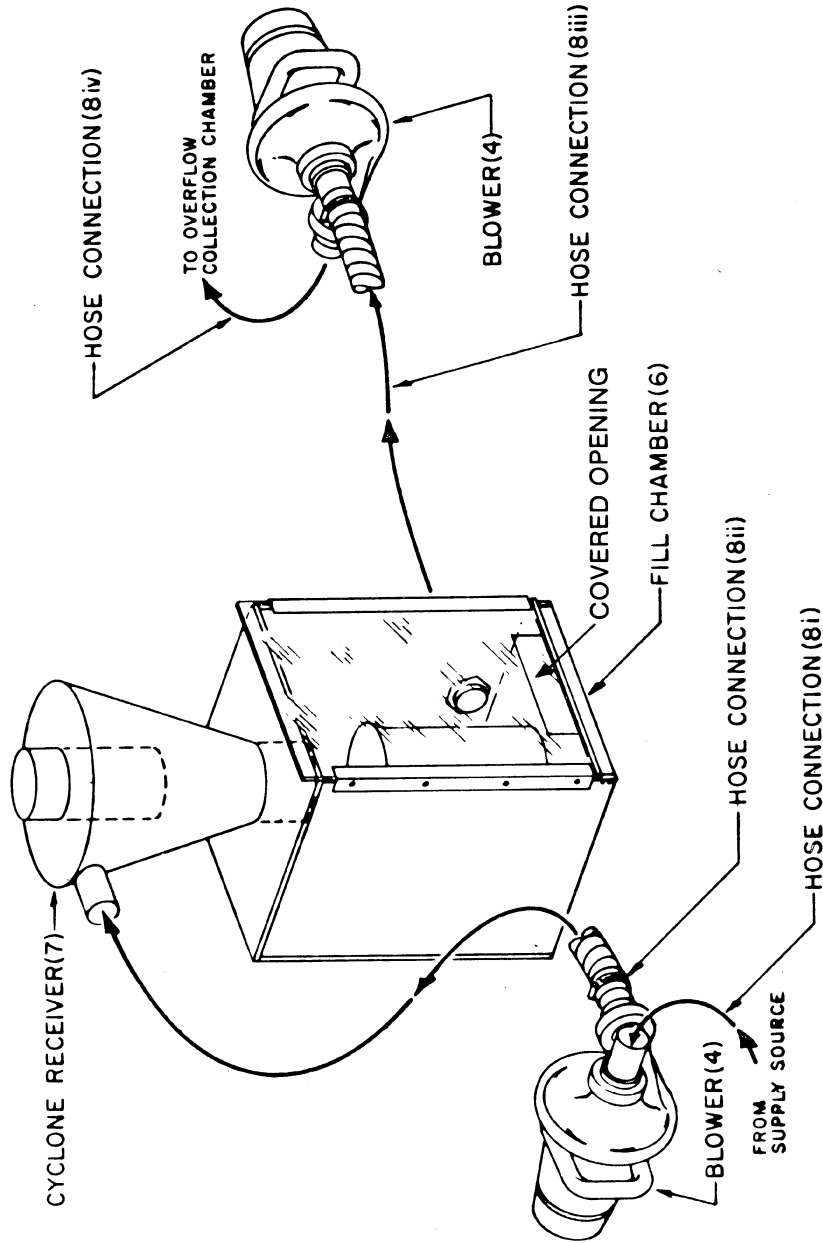
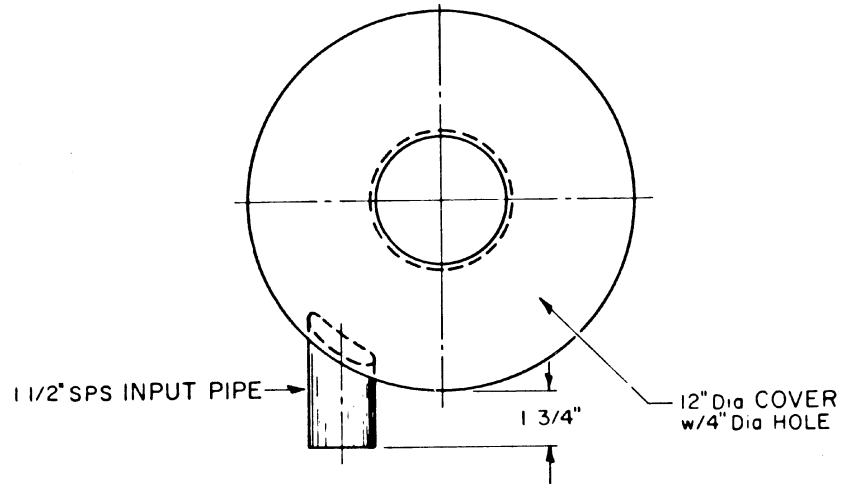


FIG 1—PARTIAL INSULATION PREPARATION APPARATUS

FIGURE 2 TO SUBPART A OF PART 1209—CYCLONE RECEIVER WELDMENT



This Unit DESIGNED & MFD By:  
HAMMERLUND MFG Co  
607 2ND ST. South  
HOPKINS, MN.  
55343  
(612) 935-3454

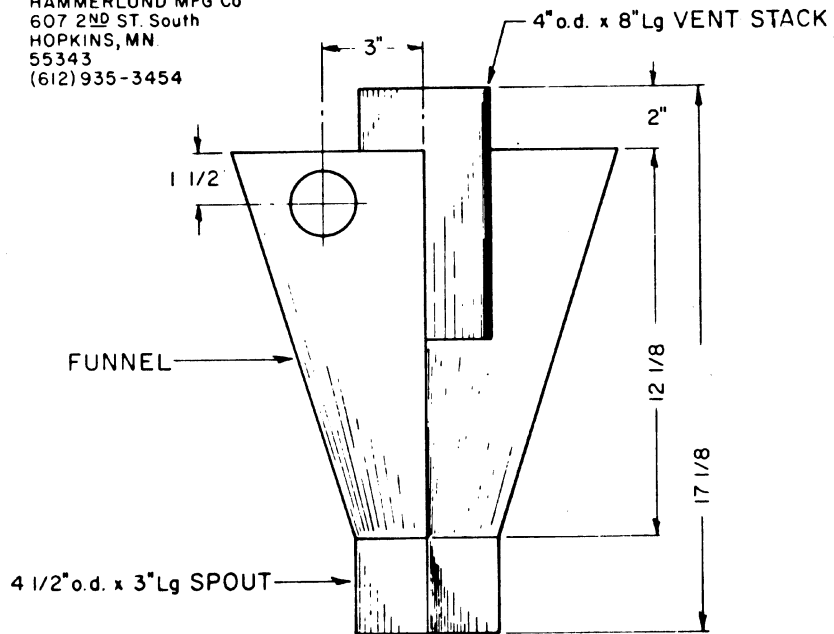


FIG 2—CYCLONE RECEIVER WELDMENT

FIGURE 3 TO SUBPART A OF PART 1209—FLOORING RADIANT TESTER SCHEMATIC SIDE ELEVATION

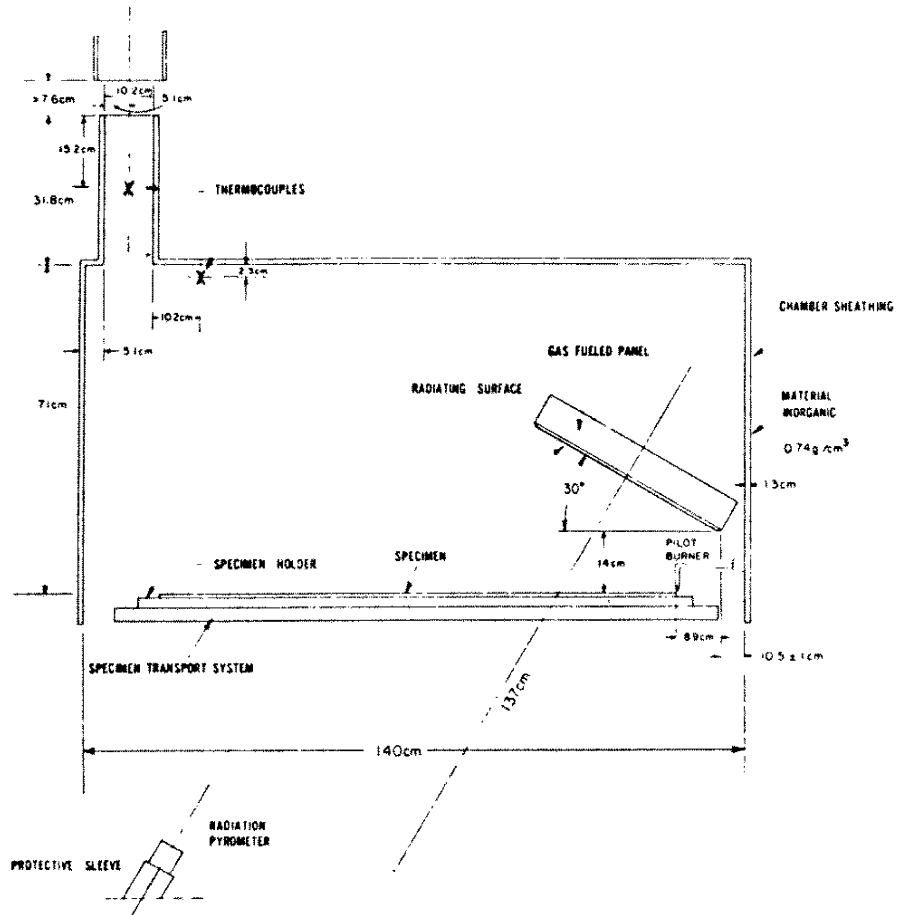


FIG 3 — FLOORING RADIANT TESTER SCHEMATIC  
SIDE ELEVATION



FIGURE 4 TO SUBPART A OF PART 1209—FLOORING RADIANT PANEL TESTER  
SCHEMATIC LOW FLUX END, ELEVATION

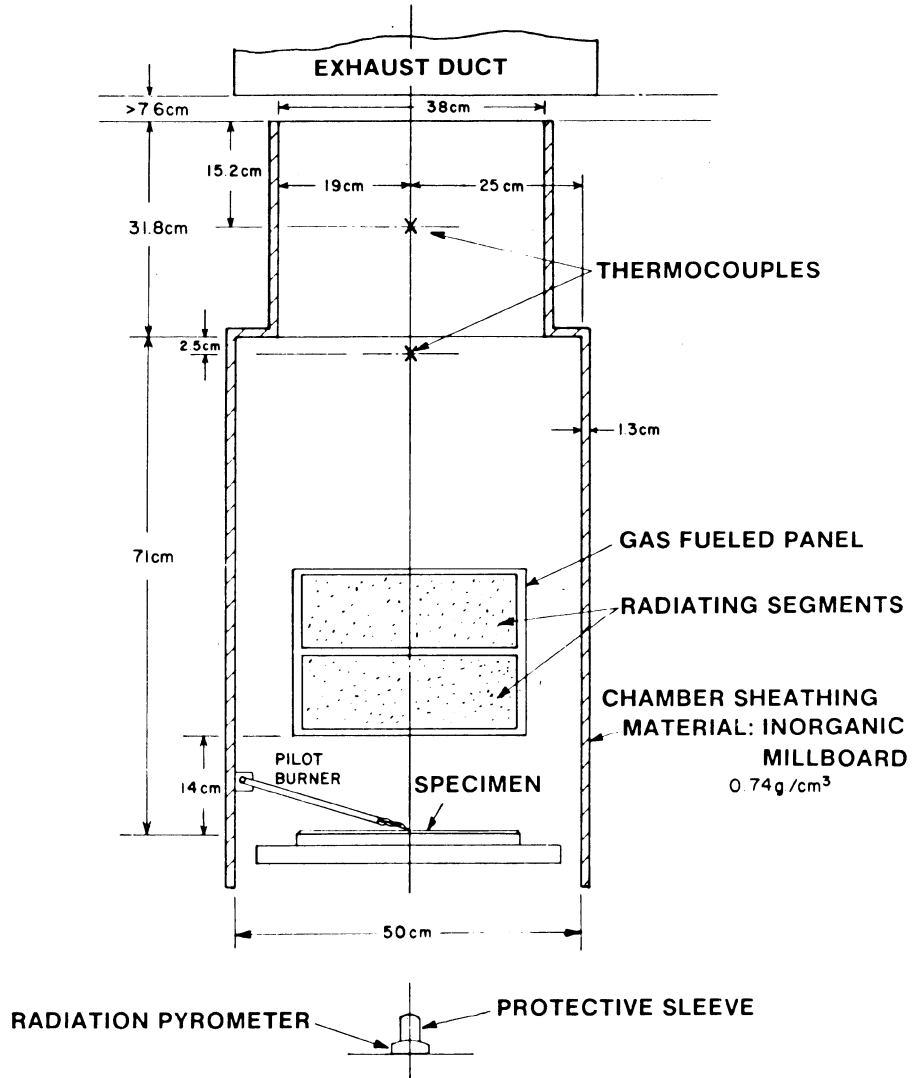


FIG 4 — FLOORING RADIANT PANEL TESTER SCHEMATIC  
LOW FLUX END, ELEVATION

FIGURE 5 TO SUBPART A OF PART 1209—ZERO REFERENCE POINT RELATED TO DETECTING PLANE

BASIC COMPONENT INTERRELATIONSHIPS

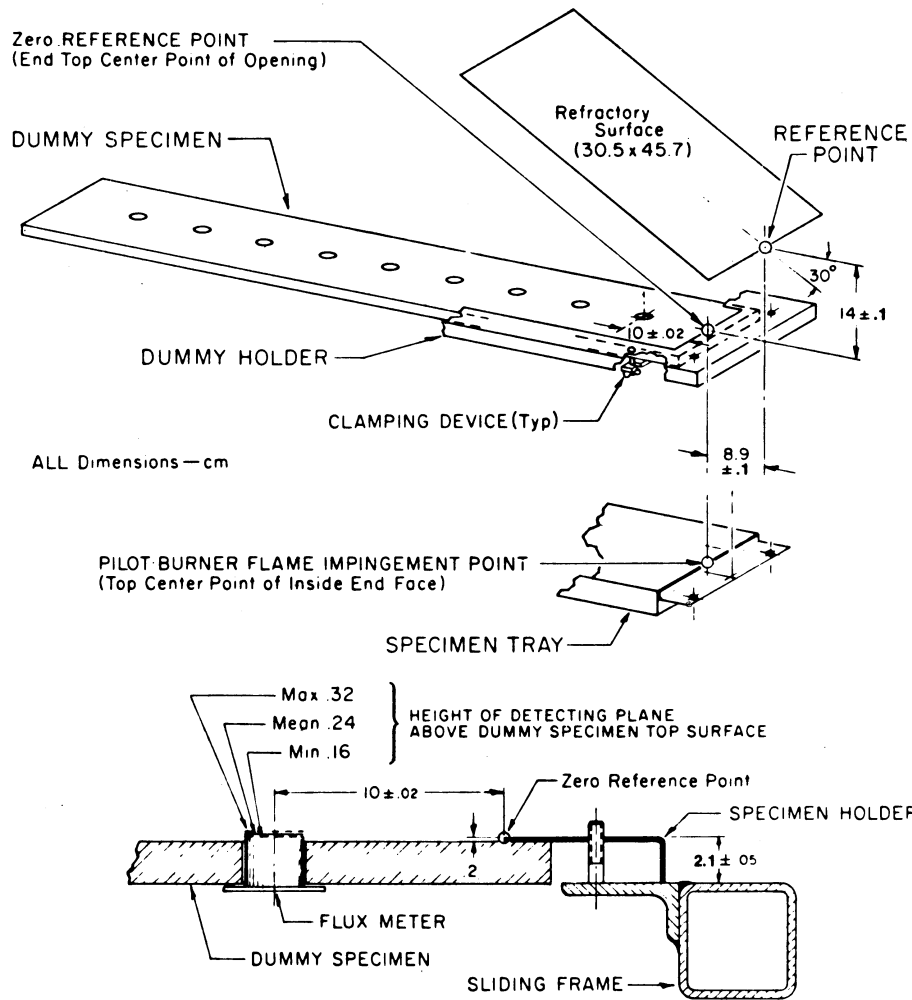


FIG 5 — ZERO REFERENCE POINT RELATED TO DETECTING PLANE



FIGURE 7 TO SUBPART A OF PART 1209—SPECIMEN TRAY

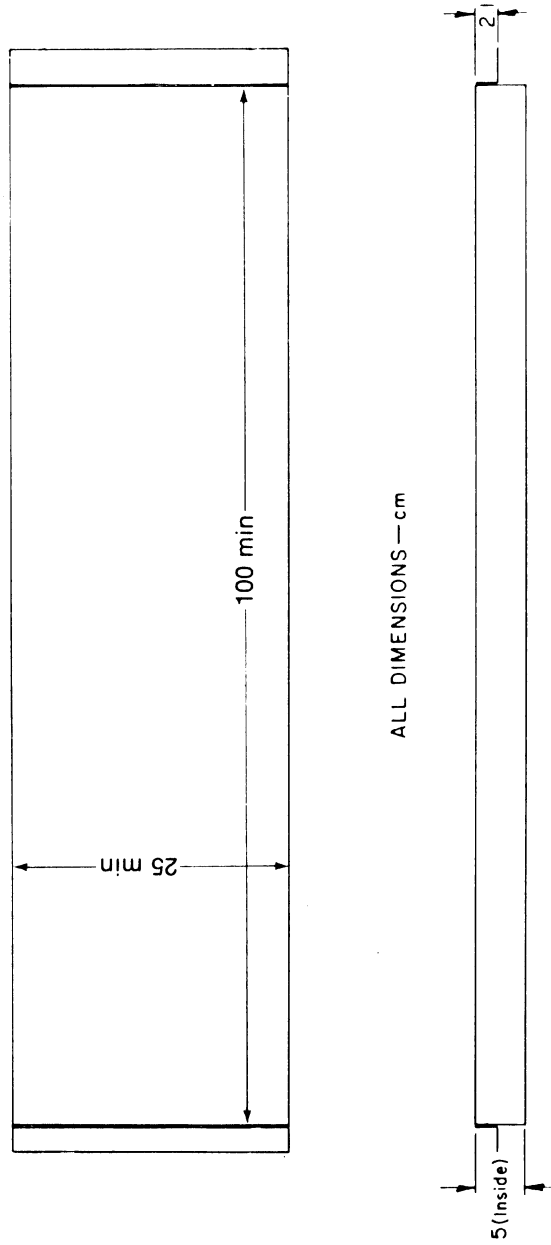


FIG 7 — SPECIMEN TRAY

FIGURE 8 TO SUBPART A OF PART 1209—STANDARD RADIANT HEAT ENERGY FLUX PROFILE

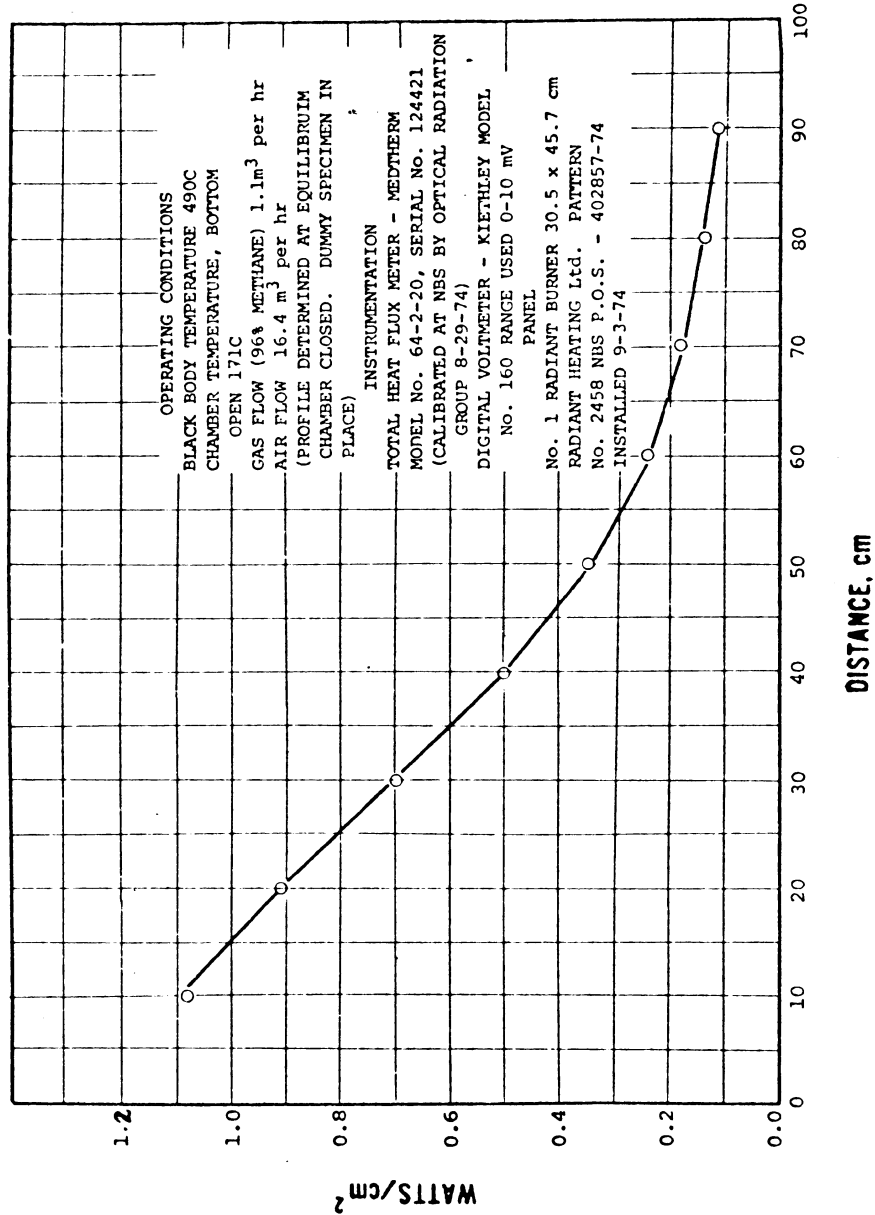


FIG 8 — STANDARD RADIANT HEAT ENERGY FLUX PROFILE

FIGURE 9 TO SUBPART A OF PART 1209—FLUX PROFILE DATA LOG FORMAT

RADIANT FLUX PROFILE

Date \_\_\_\_\_  
 Black Body Temperature \_\_\_\_\_ m.v. \_\_\_\_\_ °C (°F)  
 Gas Flow \_\_\_\_\_ NTPm<sup>3</sup>H (SCFH) Air Flow \_\_\_\_\_ NTPm<sup>3</sup>H (SCFH)  
 Room Temperature \_\_\_\_\_ °C (°F)  
 Air Pressure \_\_\_\_\_ Gas \_\_\_\_\_ cm (in) of H<sub>2</sub>O  
 Flux Meter \_\_\_\_\_ Conversion Factor \_\_\_\_\_  
 Radiometer No. \_\_\_\_\_ From Calibration on \_\_\_\_\_

Distance (cm)	MV	Watts/cm <sup>2</sup>
10	_____	_____
20	_____	_____
30	_____	_____
40	_____	_____
50	_____	_____
60	_____	_____
70	_____	_____
80	_____	_____
90	_____	_____

Signed \_\_\_\_\_

FIG. 9 Flux Profile Data Log Format

FIGURE 10 TO SUBPART A OF PART 1209—INSULATION RADIANT PANEL TEST DATA  
LOG FORMAT

Test Number \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Laboratory \_\_\_\_\_  
 Specimen Identification/Code No. \_\_\_\_\_  
 Test Assembly: \_\_\_\_\_  
 Panel: Temperature \_\_\_\_\_ °C (°F)  
 Flow: Gas \_\_\_\_\_ NTPm<sup>3</sup>H (SCFH) Air \_\_\_\_\_ NTPm<sup>3</sup>H  
 Pressure, cm (in) H<sub>2</sub>O: Initial, Air \_\_\_\_\_ Gas \_\_\_\_\_  
 Chamber Temperature (Initial) \_\_\_\_\_ °C (°F)  
 Room: Temperature \_\_\_\_\_ °C (°F) Hood Draft \_\_\_\_\_ cm (in) water  
 Total Burn Length \_\_\_\_\_ cm (in)  
 Critical Radiant Flux watts/cm<sup>2</sup> \_\_\_\_\_  
 Flux Profile Reference \_\_\_\_\_  
 Observations:

Signed \_\_\_\_\_

FIG. 10 - Insulation Radiant Panel Test Data Log Format

### Subpart B—Certification

AUTHORITY: Secs. 14, 16; 86 Stat. 1220, 1222; (15 U.S.C. 2063, 2065).

#### § 1209.31 Purpose and applicability.

(a) *Purpose.* The purpose of this subpart B of part 1209 is to establish requirements that manufacturers, importers, and private labelers must follow to certify that their products comply with the Amended Interim Standard for Cellulose Insulation (16 CFR part 1209, subpart A). This subpart B

includes requirements for conducting a reasonable testing program, certifying with labels and separate certificates, and recordkeeping.

(b) *Applicability.* (1) Cellulose insulation which is subject to the standard includes all cellulose insulation, manufactured after the effective date (as described in § 1209.41), produced or distributed for sale to, or for the personal use, consumption, or enjoyment of, consumers in or around a permanent or temporary household or residence, a school, in recreation or otherwise. The standard applies to cellulose insulation

that is produced or distributed for sale to consumers, for their direct installation or use, as well as cellulose insulation that is produced or distributed for installation by professionals.

(2) The term *cellulose insulation* is defined in §1209.2(a) of the standard to mean cellulosic fiber, loose fill, thermal insulation that is suitable for blowing or pouring applications.

#### § 1209.32 Definitions.

In addition to the definitions set forth in section 3 of the act and in §1209.2 of the standard, the following definitions shall apply to this subpart:

*Private labeler* means an owner of a brand or trademark which is used on the label of cellulose insulation subject to the standard which bears a private label as defined in section 3(a)(7) of the act (15 U.S.C. 2052(a)(7)).

*Production interval* means a time span determined by the manufacturer, private labeler, or importer to be appropriate for conducting a test or series of tests on samples of the cellulose insulation being produced to demonstrate that the product meets the requirements of the standard. An appropriate production interval may vary from test to test. The time period for a production interval shall be short enough to ensure that if the samples selected for testing comply with the standard or a portion of the standard, the insulation produced during the period will meet the standard or the appropriate portion of the standard.

#### § 1209.33 Reasonable testing program.

(a) *General.* Section 14(a) of the Consumer Product Safety Act (15 U.S.C. 2063(a)) requires each manufacturer, importer, or private labeler of a product which is subject to a consumer product safety standard to issue a certificate of compliance with the applicable standard and to base that certificate upon a test of each item or upon a reasonable testing program. Because it is not practical to test each item subject to the standard, a reasonable testing program shall be used to support certificates of compliance for cellulose insulation.

(b) *Requirements of testing program.* A reasonable testing program for cellulose insulation is one which dem-

onstrates with reasonable certainty that insulation certified to comply with the standard will meet all requirements of the standard. Manufacturers, private labelers, and importers shall determine the types and frequency of testing for their own reasonable testing programs. A reasonable testing program may include either the tests prescribed by the standard, or any other reasonable test procedures. However, a reasonable testing program cannot consist of tests which the party issuing the certificate of compliance knows (or through the exercise of reasonable diligence should know) will pass or accept insulation which will yield failing results when subjected to any of the tests in the standard. All reasonable testing programs shall consist of four elements:

(1) Qualification tests which must be performed on samples of the manufacturer's cellulose insulation to demonstrate that the product is capable of passing the tests prescribed by the standard.

(2) A description of the cellulose insulation which passed the qualification testing. This description is known as the "product specification."

(3) Production tests, which must be performed at appropriate production intervals as long as the cellulose insulation is being manufactured.

(4) Corrective action, which must be taken whenever samples of the cellulose insulation yield unacceptable or failing test results.

(c) *Commission testing.* The Commission will test for compliance with the standard by using the test procedures contained in the standard, and will base enforcement actions for violation of the standard on the results of such testing.

(d) *Testing by third parties.* At the option of the manufacturer, importer, or private labeler, some or all of the testing for the reasonable testing program may be performed by a commercial testing laboratory. However, the manufacturer, importer, or private labeler is responsible for ensuring that all testing used to support the certificate of compliance has been properly performed with passing or acceptable results and for maintaining all records of



## § 1209.34

such tests in accordance with § 1209.38 below.

### § 1209.34 Qualification testing.

(a) *Requirement.* Before any manufacturer, importer, or private labeler begins distribution in commerce of cellulose insulation which is subject to the standard, samples of the insulation shall be tested for compliance with the standard. Manufacturers, importers, and private labelers shall determine the types of tests for qualification testing.

(b) *Timing, Sampling.* Any or all of the qualification testing required by this § 1209.34 may be performed before the effective date of the standard. Manufacturers, private labelers, or importers may select samples for qualification testing of a product in any manner they desire.

### § 1209.35 Product specification.

(a) *Requirement.* Before any manufacturer, importer, or private labeler distributes in commerce cellulose insulation which is subject to the standard, it shall ensure that the insulation is described in a written product specification.

(b) *Contents of specification.* The product specification shall include the following information:

(1) A description of the equipment used to manufacture the insulation, including the model number and names of the equipment manufacturers, and details of any modification made to any item of equipment.

(2) A description of the cellulosic stock material used to manufacture the insulation, identifying the extent of impurities allowed.

(3) The formulation of the fire-retardant chemicals added, including their chemical constituents and their form (for example, granulated, powdered, or liquid); the amount of fire-retardant chemicals present in the finished insulation, expressed as a percentage of the total weight of chemicals and cellulosic stock; the average weight of chemicals per bag; and the name and address of each chemical supplier. Where the chemical composition or formula of a commercially premixed fire retardant is not known to the insulation manufacturer, the pre-

## 16 CFR Ch. II (1-1-21 Edition)

mixed fire retardant may be described simply by the name and address of the supplier and its brand or trade name.

(4) A description of the tests which were used to qualify the product as well as the dates of performance and results and actual values, where applicable, of the tests.

(5) Any other information necessary to describe the insulation.

(c) *Distribution in commerce.* After the qualification testing required by § 1209.34 has been completed with acceptable results and the product specification required by this § 1209.35 has been recorded, the cellulose insulation may be manufactured and distributed in commerce, subject to the provisions of § 1209.36.

(d) *New product.* Whenever a manufacturer, private labeler, or importer makes any change to any item of equipment, cellulosic stock material, or formulation of a fire-retardant chemical, or any other factor which is likely to affect the ability of the cellulose insulation to meet the standard, that change will result in a new cellulose insulation product, requiring the preparation of a new product specification. The new product must be subjected to qualification tests and must yield passing or acceptable results.

### § 1209.36 Production testing.

(a) *General.* Manufacturers, private labelers, and importers shall test the cellulose insulation periodically as it is manufactured to demonstrate that the product being manufactured is substantially similar to the product which passed the qualification testing and to demonstrate that the product being manufactured meets the requirements of the standard.

(b) *Types and frequency of testing.* Manufacturers, private labelers, and importers shall determine the types of tests for production testing. Each production test shall be conducted at a production interval short enough to ensure that if the samples selected for testing meet the standard or a portion of the standard, the insulation produced during the interval will also meet the standard or the appropriate portion of the standard.

(c) *Test failure.* If any test yields failing results, production must cease and

## Consumer Product Safety Commission

## § 1209.39

the faulty manufacturing process must be corrected (see §1209.37). In addition, the material from which the samples were taken may not be distributed in commerce unless the material can be corrected (see §1209.37) so as to yield passing results and meet the standard. Cellulose insulation that does not comply with the standard cannot be sold or offered for sale.

### § 1209.37 Corrective actions.

(a) *Test failure.* When any test required by §1209.36 yields failing or unacceptable results, corrective action must be taken. Corrective action includes changes to the manufacturing process as well as reworking the insulation product itself. Corrective action may consist of equipment adjustment, equipment repair, equipment replacement, change in chemical formulation, change in chemical quantity, change in cellulosic stock, or other action deemed appropriate by the manufacturer, private labeler or importer to achieve passing or acceptable test results.

(b) *New product.* If any corrective action required by this §1209.37 results in a change in the product specification and a new cellulose insulation product (see §1209.34(b)), the product specification for the new product must be recorded in accordance with §1209.35, and qualification tests must be performed with passing or acceptable results in accordance with §1209.34, before the new product is distributed in commerce.

### § 1209.38 Records.

(a) *Establishment and maintenance.* Each manufacturer, importer, and private labeler of cellulose insulation subject to the standard shall establish and maintain the following records which shall be available to any designated officer or employee of the Commission upon request in accordance with section 16(b) of the act (15 U.S.C. 2965(b)):

(1) A record of each product specification containing all information required by §1209.35. (This includes information concerning the types of qualification tests as well as the results from these tests.)

(2) Records to demonstrate compliance with the requirements for produc-

tion testing in §1209.36, including a description of the types of production tests conducted and the production interval selected for performance of each production test.

(3) Records of all corrective actions taken in accordance with §1209.37, including the specific action taken, the date the action was taken, and the test failure which necessitated the action. Records of corrective action must relate the corrective action taken to the product specification of the insulation product which was the subject of that corrective action, and the product specification of any new product which results from any corrective action.

(4) Records indicating exactly which insulation material is covered by each certificate of compliance issued.

(b) *Retention*—(1) *Product specification.* The records of each product specification shall be retained for as long as the cellulose insulation covered by that specification is manufactured and for a period of two (2) years thereafter.

(2) *Other records.* Records of production testing, corrective actions taken, and certificates issued shall be maintained for a period of two (2) years.

(c) *Confidentiality.* Requests for confidentiality of records provided to the Commission will be handled in accordance with section 6(a)(2) of the CPSCA (15 U.S.C. 2055(a)(2)), the Freedom of Information Act as amended (5 U.S.C. 552), and the Commission's regulations under that act (16 CFR part 1015, February 22, 1977).

### § 1209.39 Certification of compliance.

(a)(1) *Responsibilities of manufacturer for insulation sold in bags.* Manufacturers of cellulose insulation subject to the standard which is sold in bags or other containers shall certify compliance with the standard by marking each bag or container with the following information:

(i) The statement "This product meets the amended CPSC standard for flame resistance and corrosiveness of cellulose insulation." (This statement is the same statement provided in §1209.9 of the standard; it need not appear twice on the bag or container.)

(ii) The name of the manufacturer, private labeler, or importer issuing the

## § 1209.40

## 16 CFR Ch. II (1-1-21 Edition)

certificate of compliance. See paragraphs (b) and (c), below.

(iii) The date of manufacture by day, month, and year.

(iv) The place of manufacture, by city, state, and zip code, or in the case of products manufactured outside the United States, by city and country.

The information required by this § 1209.39(a) may appear anywhere on the bag or container. The information required need not appear at the same place on the bag or container. The information shall be permanent until the bag or container is opened and used. The information shall be conspicuous and must appear in letters and figures at least ¼ inch in height. The date and place of manufacture may be in code, provided the person or firm issuing the certificate maintains a written record of the meaning of the code that can be made available to consumers, persons in the chain of distribution, and the Commission upon request.

(2) *Insulation not sold in bags or containers.* The manufacturer of cellulose insulation subject to the standard which is not sold in bags or other containers shall certify compliance with the standard by accompanying each shipment or delivery of the product, with a document such as an invoice, bill, statement, or separate document, which states the following: "This product meets the amended CPSC standard for flame resistance and corrosiveness of cellulose insulation. This material was manufactured on (insert day, month, and year of manufacture) at (insert city, state, and zip code, or in the case of insulation manufactured outside the United States, city and country)." The certificate of compliance must also contain the name of the manufacturer, private labeler, or importer issuing the certificate. See paragraphs (b) and (c), below. The certificate of compliance must appear in letters and figures which are conspicuous and legible. The date and place of manufacture may be in code, provided the person or firm issuing the certificate maintains a written record of the meaning of the code that can be made available to consumers, persons in the chain of distribution, and the Commission upon request.

(b) *Responsibilities of private labelers.* A private labeler who distributes a product subject to the standard which is manufactured by another person or firm but which is sold under the private labeler's name, brand, or trademark must issue the certificate of compliance required by section 14 of the Consumer Product Safety Act and this section. If the testing required by this subpart has been performed by or for the manufacturer of the product, the private labeler may rely on any such tests to support the certificate of compliance if the records of such tests are maintained in accordance with § 1209.38, above. The private labeler is responsible for ensuring that all testing used to support the certificate of compliance has been performed properly with passing or acceptable results, and that all records of such tests are accurate and complete.

(c) *Responsibilities of importers.* The importer of any product subject to the standard must issue the certificate of compliance required by section 14(a) of the act and this § 1209.39. If the testing required by this subpart B of part 1209 has been performed by or for the foreign manufacturer of the product, the importer may rely on any such tests to support the certificate of compliance if the importer is a resident of the U.S. or has a resident agent in the U.S. and the records are maintained in the U.S. in accordance with § 1209.38 above. The importer is responsible for ensuring that all testing used to support the certificate of compliance has been performed properly with passing or acceptable results, and that all records of such tests are accurate and complete.

### § 1209.40 Certification responsibility, multiple parties.

If there is more than one party (i.e., manufacturer, private labeler, or importer) otherwise subject to the requirements of this subpart B of part 1209 for certain cellulose insulation, only the party closest to the consumer in the distribution chain is required to issue a certificate.

### § 1209.41 Effective date.

The requirements of this subpart B of part 1209 shall become effective on October 16, 1979. Any cellulose insulation

manufactured after October 15, 1979 must be certified as complying with the standard. Cellulose insulation which is sold in bags or other containers is "manufactured" when the insulation is packaged in the bag or other container in which it will be sold. Insulation which is not sold in bags or containers is "manufactured" when the insulation leaves the manufacturing site to be sold.

## PART 1210—SAFETY STANDARD FOR CIGARETTE LIGHTERS

### Subpart A—Requirements for Child Resistance

Sec.

- 1210.1 Scope, application, and effective date.
- 1210.2 Definitions.
- 1210.3 Requirements for cigarette lighters.
- 1210.4 Test protocol.
- 1210.5 Findings.

### Subpart B—Certification Requirements

- 1210.11 General.
- 1210.12 Certificate of compliance.
- 1210.13 Certification tests.
- 1210.14 Qualification testing.
- 1210.15 Specifications.
- 1210.16 Production testing.
- 1210.17 Recordkeeping and reporting.
- 1210.18 Refusal of importation.

### Subpart C—Stockpiling

- 1210.20 Stockpiling.

SOURCE: 58 FR 37584, July 12, 1993, unless otherwise noted.

### Subpart A—Requirements for Child Resistance

AUTHORITY: 15 U.S.C. 2056, 2058, 2079(d).

#### § 1210.1 Scope, application, and effective date.

This part 1210, a consumer product safety standard, prescribes requirements for disposable and novelty lighters. These requirements are intended to make the lighters subject to the standard's provisions resistant to successful operation by children younger than 5 years of age. This standard applies to all disposable and novelty lighters, as defined in § 1210.2, that are manufactured or imported after July 12, 1994.

#### § 1210.2 Definitions.

As used in this part 1210:

(a) *Cigarette lighter*. See *Lighter*.  
 (b) *Disposable lighter*—means a lighter that either is:

(1) Not refillable with fuel or  
 (2)(i) Its fuel is butane, isobutane, propane, or other liquified hydrocarbon, or a mixture containing any of these, whose vapor pressure at 75 °F (24 °C) exceeds a gage pressure of 15 psi (103 kPa), and

(ii) It has a Customs Valuation or ex-factory price under \$2.00, as adjusted every 5 years, to the nearest \$0.25, in accordance with the percentage changes in the appropriate monthly Producer Price Index (Producer Price Index for Miscellaneous Fabricated Products) from June 1993. The adjusted figure, based on the change in that Index since June 1993, is \$2.75.

(c) *Lighter*, also referred to as *cigarette lighter*, means a flame-producing product commonly used by consumers to ignite cigarettes, cigars, and pipes, although they may be used to ignite other materials. This term does not include matches or any other lighting device intended primarily for igniting materials other than smoking materials, such as fuel for fireplaces or for charcoal or gas-fired grills. When used in this part 1210, the term *lighter* includes only the disposable and novelty lighters to which this regulation applies.

(d) *Novelty lighter* means a lighter that has entertaining audio or visual effects, or that depicts (logos, decals, art work, etc.) or resembles in physical form or function articles commonly recognized as appealing to or intended for use by children under 5 years of age. This includes, but is not limited to, lighters that depict or resemble cartoon characters, toys, guns, watches, musical instruments, vehicles, toy animals, food or beverages, or that play musical notes or have flashing lights or other entertaining features. A novelty lighter may operate on any fuel, including butane or liquid fuel.

(e) *Successful operation* means one signal of any duration from a surrogate lighter within either of the two 5-minute test periods specified in § 1210.4(f).