

## §7.21

pressures during these tests that exceed those specified in existing requirements must be provided with a warning tag. The durable warning tag must indicate that the insulating barriers, sectionalizing terminals, or other isolating parts be maintained in order to insure the explosion-proof integrity for either enclosure sharing a common wall. A warning tag is not required if the enclosures withstand a static pressure of twice the maximum value observed in the explosion tests.

(2) [Reserved]

(d) After MSHA has determined that non-MSHA product safety standards are equivalent and has notified the public of such determinations, applicants may seek MSHA product approval based on such non-MSHA product safety standards.

[68 FR 36418, June 17, 2003, as amended at 71 FR 28583, May 17, 2006; 73 FR 52210, Sept. 9, 2008]

### Subpart B—Brattice Cloth and Ventilation Tubing

#### §7.21 Purpose and effective date.

This subpart establishes the specific requirements for approval of brattice cloth and ventilation tubing. It is effective August 22, 1988. Applications for approval or extension of approval submitted after August 22, 1989, shall meet the requirements of this part.

#### §7.22 Definitions.

The following definitions apply in this subpart:

*Brattice cloth.* A curtain of jute, plastic, or similar material used to control or direct ventilating air.

*Denier.* A unit of yarn size indicating the fineness of fiber of material based on the number of grams in a length of 9,000 meters.

*Film.* A sheet of flexible material applied to a scrim by pressure, temperature, adhesion, or other method.

*Scrim.* A substrate material of plastic or fabric laminated between or coated with a film.

*Ventilation tubing.* Rigid or flexible tubing used to convey ventilating air.

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#### §7.23 Application requirements.

(a) *Brattice cloth.* A single application may address two or more products if the products differ only in: weight of the finished product; weight or weave of the same fabric or scrim; or thickness or layers of the same film. Applications shall include the following information:

(1) Trade name.

(2) Product designations (for example, style and code number).

(3) Color.

(4) Type of brattice (for example, plastic or jute).

(5) Weight of finished product.

(6) Film: type, weight, thickness, supplier, supplier's stock number or designation, and percent of finished product by weight.

(7) Scrim: Type, denier, weight, weave, the supplier, supplier's stock number or designation, and percent of finished product by weight.

(8) Adhesive: type, supplier, supplier's stock number or designation, and percent of finished product by weight.

(b) *Flexible ventilation tubing.* Applications shall include the product description information in paragraph (a) of this section and list the type of supporting structure, if applicable; inside diameters; and configurations.

(c) *Rigid ventilation tubing.* A single application may address two or more products if the products differ only in diameters, lengths, configuration, or average wall thickness. Applications shall include the following information:

(1) Trade name.

(2) Product designations (for example, style and code numbers).

(3) Color.

(4) Type of ventilation tubing (for example, fiberglass, plastic, or polyethylene).

(5) Inside diameter, configuration, and average wall thickness.

(6) Suspension system (for example, metal hooks).

(7) Base material: type, supplier, the supplier's stock number, and percent of finished product by weight.

(8) Resin: type, supplier, the supplier's stock number, and percent of finished product by weight.

(9) Flame retardant, if added during manufacturing: type, supplier, the supplier's stock number, and percent of finished product by weight.

[53 FR 23500, June 22, 1988, as amended at 60 FR 33722, June 29, 1995]

**§7.24 Technical requirements.**

(a) Brattice cloth shall be flame resistant when tested in accordance with the flame resistance test in §7.27.

(b) Flexible ventilation tubing shall be manufactured using an MSHA-approved brattice cloth. If a supporting structure is used, it shall be metal or other noncombustible material which will not ignite, burn, support combustion or release flammable vapors when subjected to fire or heat.

(c) Rigid ventilation tubing shall be flame resistant when tested in accordance with the flame resistance test in §7.28.

**§7.25 Critical characteristics.**

A sample of each batch or lot of brattice cloth and ventilation tubing shall be flame tested or a sample of each batch or lot of the materials that contribute to the flame-resistance characteristic shall be inspected or tested to ensure that the finished product will meet the flame-resistance test.

**§7.26 Flame test apparatus.**

The principal parts of the apparatus used to test for flame-resistance of brattice cloth and ventilation tubing shall be constructed as follows:

(a) A 16-gauge stainless steel gallery lined on the top, bottom and both sides with ½ inch thick Marinite or equivalent insulating material yielding inside dimensions approximately 58 inches long, 41 inches high, and 30 inches wide;

(b) Two ⅜-inch diameter steel J hooks and a ¼-inch diameter steel rod to support the sample located approximately 2⅜-inches from the front and back ends of the test gallery, 1½-inches from the ceiling insulation and centrally located in the gallery along its length. Samples shall be suspended to preclude folds or wrinkles;

(c) A tapered 16-gauge stainless steel duct section tapering from a cross sectional area measuring 2 feet 7 inches wide by 3 feet 6 inches high at the test gallery to a cross-sectional area 1 foot

6 inches square over a length of 3 feet. The tapered duct section must be tightly connected to the test gallery;

(d) A 16-gauge stainless steel fan housing, consisting of a 1 foot 6 inches square section 6 inches long followed by a 10 inch long section which tapers from 1 foot 16 inches square to 12 inches diameter round and concluding with a 12 inch diameter round collar 3 inches long. A variable speed fan capable of producing an air velocity of 125 ft./min. in the test gallery must be secured in the fan housing. The fan housing must be tightly connected to the tapered duct section;

(e) A methane-fueled impinged jet burner igniting source, measuring 12 inches long from the threaded ends of the first and last jets and 4 inches wide with 12 impinged jets, approximately 1⅜-inches long and spaced alternately along the length of the burner tube. The burner jets must be canted so that they point toward each other in pairs and the flame from these pairs impinge upon each other.

**§7.27 Test for flame resistance of brattice cloth.**

(a) *Test procedures.* (1) Prepare 6 samples of brattice cloth 40 inches wide by 48 inches long.

(2) Prior to testing, condition each sample for a minimum of 24 hours at a temperature of 70 ±10 °F (21 ±5.5 °C) and a relative humidity of 55 ±10%.

(3) For each test, suspend the sample in the gallery by wrapping the brattice cloth around the rod and clamping each end and the center. The brattice cloth must hang 4 inches from the gallery floor.

(4) Use a front exhaust system to remove smoke escaping from the gallery. The exhaust system must remain on during all testing, but not affect the air flow in the gallery.

(5) Set the methane-fueled impinged jet burner to yield a flame height of 12 inches as measured at the outermost tip of the flame.

(6) Apply the burner to the front lower edge of the brattice cloth and keep it in contact with the material for 25 seconds or until 1 foot of material, measured horizontally, is consumed, whichever occurs first. If the material