Subpart B—Rules and Regulations

SOURCE: 40 FR 59898, Dec. 30, 1975, unless otherwise noted.

CODIFICATION NOTE: Part 1611 is a codification of the previously unpublished flammability standard for vinyl plastic film which was derived from part of the requirements of Commercial Standard 192–53, issued by the Department of Commerce, effective on May 22, 1953. This flammability standard became mandatory through section 4(a) of the Flammable Fabrics Act, as amended in 1954, and remains in effect due to the savings clause (section 11) of Public Law 90–189. Paragraph 3.11 of the Commercial Standard, referred to in the 1954 act, has been codified as §1611.3 16 CFR part 1609 containes the text of the Flammable Fabrics Act of 1953, as amended in 1954.

Subpart A—The Standard

AUTHORITY: Sec. 4, Pub. L. 83–88, 67 Stat. 112, as amended, 68 Stat. 770 (15 U.S.C. 1193); sec. 11, Pub. L. 90–189, 81 Stat. 568.

§ 1611.1 Purpose and scope.

The purpose of this standard is to promulgate a minimum standard for flammability of vinyl plastic film which are subject to the requirements of the Flammable Fabrics Act.

§ 1611.2 General description of products covered.

The material covered is nonrigid, unsupported, vinyl plastic film, including transparent, translucent, and opaque material, whether plain, embossed, molded or otherwise surface treated. [a]

[a] Refer to sections 2 and 4 of the Flammable Fabrics Act of 1953, as amended in 1954, set out at 16 CFR part 1609 for the scope of this standard. The vinyl plastic film covered by Commercial Standard 192–53, as promulgated by the Secretary of Commerce was vinyl plastic film 10 mils and less in thickness (see §1.3 of the voluntary standard). After CS 191–53 and CS 192–53 were made mandatory by section 4 of the act, the Federal Trade Commission clarified the scope of the standards in rules and regulations now found at §§1611.31(i) and 1611.33(b) (formerly 16 CFR 302.1(a)(9) and 302.3(b)).

§ 1611.3 Flammability—general requirement.

The rate of burning shall not exceed 1.2 in./sec as judged by the average of five determinations lengthwise and five determinations transverse to the direction of processing, when the material is tested with the SPI flammability tester in accordance with the method described in §1611.4.

§ 1611.4 Flammability test.

(a) *Apparatus and materials.* The apparatus shall be constructed essentially as shown in figure 1 and shall consist of the following:

(1) *Specimen holder.* (i) A removable, flat, specimen-holding rack, the upper and lower sections of which are separate, shall have the shape and dimensions shown in figure 2 (sketch of sample-holding rack). The specimen is supported by tight closure of the upper and lower sections around the sides of the specimen. The center section of the rack contains an open U-shaped area in which burning of the specimen takes place. At the open end of the rack the forked sides are at an angle of 45° for the last inch. Thus, when the rack is slid into the cabinet on runners mounted at a 45° angle, the bent portion of the specimen adjacent to the igniter flame is vertical and the remainder is at 45°.

(ii) The switch actuators consist of suitable springs mounted on the side of the rack, one just beyond the curved portion at the open end, and the other at the closed end of the U-shaped holder. The springs are depressed and held in position prior to ignition by means of cotton thread suitably wound across the specimen and securely attached to the rack. As flame reaches these threads, the springs are released, thus activating the microswitches of the stop clocks.

(2) *Igniter flame.* The igniter flame shall be produced at the tip of a No. 22

hypodermic needle jet. The igniter shall be so located in the cabinet that the tip of the needle is 9/16 in. from the surface of the specimen when the specimen rack is in place.

(3) *Cabinet.* The cabinet shall protect the igniter flame and specimen from air currents during tests, yet contain a suitable door or window for visual operation, provision for inserting the specimen holder, and adjustable vents to supply sufficient air for combustion of the specimen. It should also be capable of rapid ventilation following a test so that all combustion products can be removed between tests. A hood may be used if its exhaust fan is turned off during the test.

(4) *Timing mechanism.* The burning rate shall be determined by a stop clock through microswitches mounted on the specimenholder rack. The clock is started when the specimen flame burns the first thread, and is stopped when the thread at the upper end of the holder, 6 in. from the first thread, burns apart. The timing mechanism shall be capable of indicating time interval to 0.1 second.

(5) *Butane.* Unless otherwise specified, butane gas shall be used for the igniter flame.

(6) *Thread.* J. & P. Coats heavy-duty white cotton thread.

(7) *Microburner.*

(b) *Test specimens.* (1) Test specimens shall be 3 in. in width and 9 in. in length. They shall be free from folds or wrinkles. Five specimens from each direction (machine and transverse) of a given material shall be tested.

(2) *Conditioning.* The conditioning procedure shall conform to the requirements of procedure B of ASTM D618, Tentative Methods of Conditioning Plastics and Electrical Insulating Materials for Testing.

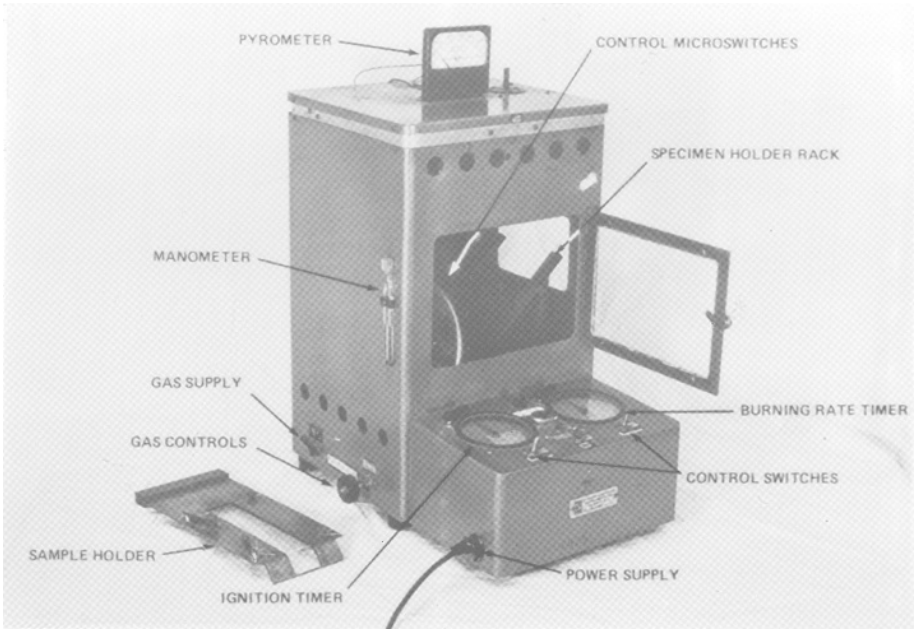
(c) *Procedure.* (1) After preparing the specimens, the holder shall be threaded so as to depress the switch actuators (springs) at least ¼ in. from the edge of the holder. Each actuator shall be separately threaded, the thread passing down through the J-slots and under the upper jaws so that the thread is adjacent to the specimen when the holder is closed.

(2) The specimen shall be inserted into the holder so that it extends down into the lock springs and is held firmly between the two wires at the open end of the burning channel. These wires insure that the end of the specimen is always the correct distance from the igniter flame. The sample shall be free from wrinkles or distortion when the holder is closed. The specimen should not extend beyond the outer edge of the lower plate, otherwise the rack may not slide freely on the slide channel on introducing it into the cabinet.

(3) Prior to introducing the specimen and holder into the cabinet, both electrical switches shall be set for automatic timing. The needle valve regulating the butane flow shall be adjusted to provide a ½-in. flame. (When the specimen is in place its surface is 9/16 in. from the tip of the needle and the flame is just barely flattened against the specimen. This can be checked by using a specimen made of asbestos in place of a plastic specimen.)

(4) With the hood fan off, clocks zeroed, and the flame adjusted as mentioned, the door is closed and the specimen holder is then inserted at a constant rate. The holder should be allowed to slide down the rails by gravity, taking about one-half second to travel the length of the slide. Any hesitation in bringing the specimen holder fully into burning position may cause erroneous ignition results.

(5) The burning time shall be read from the stop clock and the rate of burning calculated. Results that deviate from the mean value of all tests should be rejected if the deviation of the doubtful value is more than five times the average deviation from the mean obtained by excluding the doubtful value. Such doubtful values shall be discarded and retests made.



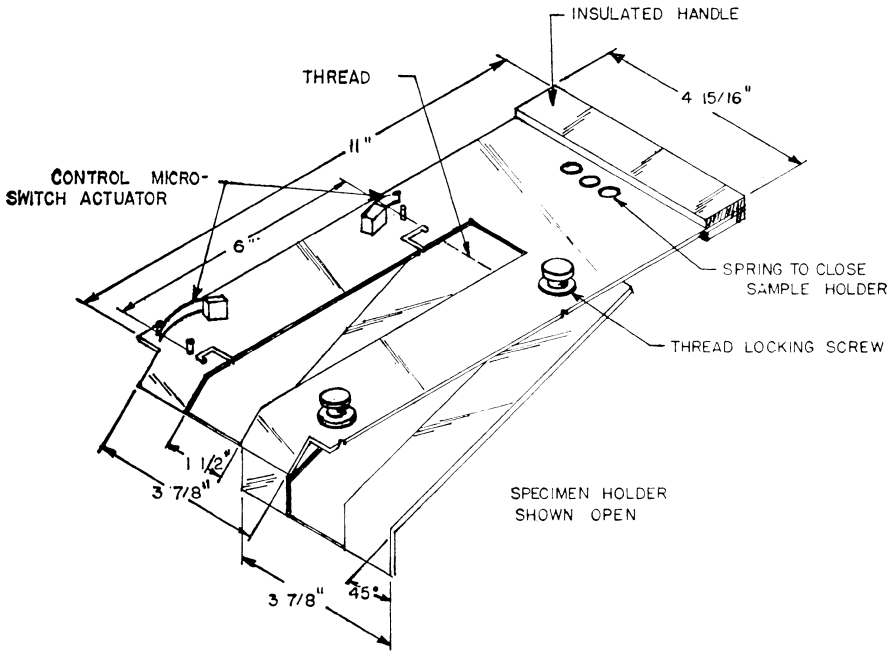


FIGURE 2 —Specimen holder