

standard are applicable to each “manufacturer” (as that term is defined in §1632.1(i)) of mattresses or mattress pads subject to the standard which are manufactured for sale in commerce. The requirements of this standard for prototype testing are also applicable to all other persons or firms initially introducing mattresses or mattress pads into commerce, including importers; each such firm shall be deemed to be a “manufacturer” for purposes of this standard.

(2) The test at §1632.6 for classification of ticking materials may be used by manufacturers of mattresses or mattress pads and by manufacturers of ticking materials. The test at §1632.7 may be used by manufacturers of mattresses to demonstrate that substitution of tape edge materials will not reduce ignition resistance of a mattress prototype or a mattress pad prototype. Use of the tests in §§1632.6 and 1632.7 is optional.

§ 1632.3 General requirements.

(a) *Summary of test method.* The method measures the ignition resistance of a mattress or mattress pad by exposing the surface to lighted cigarettes in a draft-protected environment. The surfaces to be tested include smooth, tape edge, and quilted or tufted locations, if they exist on the mattress or mattress pad surface. A two-sheet test is also conducted on similar surface locations. In the latter test, the burning cigarettes are placed between the sheets.

(b) *Test criterion.* When testing the mattress or mattress pad surface in accordance with the testing procedure set forth in §1632.4 *Mattress test procedure*, individual cigarette test locations pass the test if the char length is not more than 2 inches (5.1 cm) in any direction from the nearest point of the cigarette. In the interest of safety, the test operator should discontinue the test and record a failure before reaching the 2 inch char length if an obvious ignition has occurred.

(c) *Pre-market testing.* Each manufacturer required to perform prototype testing by the standard shall perform the testing required by the standard with acceptable results before selling in commerce or introducing in com-

merce any mattress or mattress pad which is subject to the standard.

(d) *Specimen selection and qualification.* (1) Each manufacturer required to perform prototype testing by the standard shall construct or select enough units of each proposed mattress prototype or proposed mattress pad prototype to provide six surfaces for testing. A minimum of three mattresses or mattress pads are required if both sides can be tested; six mattresses or mattress pads are required if only one side can be tested. Test each of the six surfaces according to §1632.4(d). If all the cigarette test locations on all six mattress surfaces yield passing results using the criterion specified in §1632.3(b), accept the mattress prototype. If all six surfaces of a mattress pad yield passing results using the criterion in §1632.3(b), and all other applicable requirements prescribed by §1632.5 are met, accept the mattress pad prototype. If one or more of the cigarette test locations on any of the six surfaces fail to meet the test criterion of §1632.3(b), reject the mattress prototype or the mattress pad prototype.

(2) Prototype qualification testing may be repeated after action has been taken to improve the resistance of the mattress prototype or the mattress pad prototype to cigarette ignition by changes in design, construction methods, materials selection, or other means. When prototype qualification is repeated after rejection of a prototype, such qualification testing shall be conducted in the same manner as original qualification testing.

(3) Each mattress prototype and each mattress pad prototype must be accepted in prototype qualification before any mattress or mattress pad manufactured in accordance with such mattress prototype or mattress pad prototype is sold in commerce or introduced in commerce. Any manufacturer required to perform testing by the standard may rely on prototype tests performed before the effective date of this amended standard, provided that such tests were conducted in accordance with all requirements of §§1632.1(i), 1632.3(d), and 1632.4, and yield passing results when the test criterion of §1632.3(b) is applied. If the

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ticking classification test at §1632.6 is to be used when relying on prototype tests performed before the effective date of the standard, the ticking currently used on that mattress prototype must be classified before substitution of ticking using §1632.6.

(4) Rejected prototype mattresses or prototype mattress pads shall not be retested, offered for sale, sold, or promoted for use as a mattress (as defined in §1632.1(a)) or for use as a mattress pad (as defined in §1632.1(b)) except after reworking to improve the resistance to ignition by cigarettes, and subsequent retesting and acceptance of the mattress prototype (as defined in §1632.1(j)) or the mattress pad prototype (as defined in §1632.1(k)).

§ 1632.4 Mattress test procedure.

(a) *Apparatus and Test Materials*—(1) Testroom. The testroom shall be large enough to accommodate a full-scale mattress in a horizontal position and to allow for free movement of personnel and air around the test mattress. The test area shall be draft-protected and equipped with a suitable system for exhausting smoke and/or noxious gases produced by testing. The testroom atmospheric conditions shall be greater than 18 °C (65 °F) and at less than 55 percent relative humidity.

(i) The room shall be equipped with a support system (e.g. platform, bench) upon which a mattress may be placed flat in a horizontal position at a reasonable height for making observations.

(ii) If thin flexible mattresses or mattress pads are being testing the room shall also be equipped with a glass fiberboard test surface. The glass fiberboard shall be approximately 1 inch (2.5 cm) thick and have a thermal conductivity of 0.30 ± 0.05 cal (g) / hr cm² °C/cm (0.24 ± 0.04 Btu/hr ft² °F/in) at 23.9 °C (75 °F).¹

(2) *Ignition source*. The ignition source shall be cigarettes without filter tips made from natural tobacco,

¹Glass fiberboard that meets Federal Specification HH-I-558B is acceptable. Under this specification, the board must be Form A, Class 1, and plain faced. Copies of the specifications may be obtained from the Business Service Centers of the General Services Administration Regional Offices.

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85±2 mm long with a tobacco packing density of 0.270±0.02 g/cm³ and a total weight of 1.1±gm.

(3) *Fire extinguisher*. A pressurized water fire extinguisher, or other suitable fire extinguishing equipment, shall be immediately available.

(4) *Water bottle*. A water bottle fitted with a spray nozzle shall be used to extinguish the ignited portions of the mattress.

(5) *Scale*. A linear scale graduated in millimeters, 0.1 inch, or 1/16 inch divisions shall be used to measure char length.

(6) *Sheets or Sheeting Material*. White, 100 percent cotton sheets or sheeting material shall be used. It shall not be treated with a chemical finish which imparts a characteristic such as permanent press or flame resistance. It shall have 120-210 threads per square inch and fabric weight of 3.7±0.8 oz/yd² (125±28 gm/m²). The size of the sheet or sheeting material shall be appropriate for the mattress being tested.

(7) *Other apparatus*. In addition to the above, a thermometer, a relative humidity measuring instrument, a thin rod, straight pins, a knife or scissors, and tongs are required to carry out the testing.

(b) *Test Preparation*—(1) *Mattress samples*. The mattress shall be removed from any packaging prior to conditioning. The mattress surface shall be divided laterally into two sections (see fig. 1), one section for the bare mattress tests and the other for the two-sheet tests.

(2) *Sheets or sheeting material*. The sheets or sheeting material shall be laundered once before use in an automatic home washer using the hot water setting and longest normal cycle with the manufacturer's recommended quantity of a commercial detergent, and dried in an automatic home tumble dryer.

(i) The sheet shall be cut across the width into two equal parts after washing.

(ii) Sheeting material shall be cut in lengths to cover 1/2 of a mattress as described in §1632.4(d)(3).