STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard**

**TEXTILE FABRICS—BURNING BEHAVIOUR**

# AS 2755.2
# MEASUREMENT OF FLAME SPREAD PROPERTIES OF VERTICALLY ORIENTED SPECIMENS

**1 SCOPE AND APPLICATION.** This standard sets out a method for the measurement of flame spread properties of vertically oriented textile fabrics intended for apparel, curtains and draperies in the form of single- or multi-component (coated, quilted, multi-layered, sandwich construction and similar combinations) fabrics.

NOTE: This standard takes into account the development of ISO 6941 and is technically identical with that standard. The Explanatory Report of the development of ISO 6941 is given in the Annex to this standard.

**2 REFERENCED DOCUMENT.** The following standard is referred to in this standard:

AS 2001.1 Methods of Test for Textiles—Conditioning Procedures

**3 DEFINITIONS.** For the purpose of this standard, the following definitions apply:

**3.1 Afterflame**—persistence of flaming of a material, under specified test conditions, after removal of the ignition source.

**3.2 Afterflame time**—the length of time for which the material continues to flame, under specified test conditions, after removal of the ignition source. (*Also called* Duration of flame.)

**3.3 Afterglow**—persistence of glowing of a material, under specified test conditions, after cessation of flaming or, if no flaming occurs, after removal of the ignition source.

**3.4 Afterglow time**—the time for which a material continues to glow, under specified test conditions, after cessation of flaming, or after removal of the ignition source. (*Also called* Duration of afterglow.)

**3.5 Flame spread time**—the time taken by a flame on a burning material to travel a specified distance under specified test conditions.

**4 PRINCIPLE.** A defined ignition flame from a specified burner is applied for a defined period of time to textile specimens which are vertically oriented. The flame spread time is the time in seconds for a flame to travel between marker threads located at defined distances. Other properties relating to flame spread may also be observed, measured and recorded.

NOTE: Attention is drawn to Appendix B regarding quality of experimental techniques.

**5 HEALTH AND SAFETY OF TEST OPERATORS.** Burning of textiles may produce smoke and toxic gases which can affect the health of operators. The testing area should be cleared of smoke and fumes by suitable means.

**6 APPARATUS AND MATERIALS.**

**6.1 Construction of Testing Equipment.** Some products of combustion are corrosive. The equipment should be constructed of material which will not be adversely affected by the fumes.

**6.2 Location of Test.** A location in which the air movement is less than 0.2 m/s at the commencement of the test and is not further influenced by mechanical devices operating during the test. The volume of air surrounding the test location shall be such that the test is not affected by any reduction of oxygen concentration. Where an open fronted cabinet is used for the test, provision shall be made to permit the specimen to be mounted at least 300 mm from any wall.

**6.3 Template.** A flat rigid template made of suitable material and of a size corresponding to the size of the specimen to be used. Holes approximately 2 mm diameter are drilled in the template and positioned so that the distances between the centres of the holes correspond to the distances between the pins on the frames (see Fig. 1). The holes shall be located equidistant about the vertical centrelines of the template (see Note to Clause 7.2).

**6.4 Specimen Holder.** A specimen holder consisting of a rectangular frame 560 mm high having two rigidly connected parallel rods spaced 150 mm apart on which are fitted pins for mounting the test specimen which is located in a plane at least 20 mm from the frame. The mounting pins shall be not greater than 2 mm diameter and at least 27 mm long. The pins are located on the parallel rods at locations shown in Fig. 1. The frame is fitted onto a suitable support to maintain the rods in a vertical orientation during testing.

NOTE: For the purpose of locating the specimen on the pins in a plane away from the frame, spacer stubs of 2 mm diameter may be provided adjacent to the pins.

**6.5 Gas Burner.** A gas burner as described in Appendix A.

NOTE: Small differences in the design and dimensions of the burner can influence the configuration of the burner flame and so affect the results of the tests.

**6.6 Gas.** Commercial grade propane or butane gas.

**6.7 Marker Threads.** White mercerized cotton threads having a maximum linear density of 50 tex.

**6.8 Timing Devices.** An appropriate number of suitable timing devices having an accuracy of at least 0.2 s.

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