AS/NZS 60695.10.2:2004
IEC 60695-10-2:2003, IDT
(Incorporating Amendment No. 1)

AS/NZS 60695.10.2:2004

Australian/New Zealand Standard™

Fire Hazard Testing

Part 10.2: Abnormal heat—Ball pressure test

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The following are represented on Committee EL-002:

Australian Industry Group
Australian Retailers Association
Australian Electrical and Electronic Manufacturers Association
Business New Zealand
Consumer Electronic Suppliers Association, Australia
Consumers' Federation of Australia
Electrical regulatory authorities, Australia
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-002 - Safety of Household and Similar Electrical Appliances and Small Power Transformers to supersede AS/NZS 60695.10.2:2002 from the date of publication.

A1 This Standard incorporates Amendment No. 1 (April 2006). The amendment is applicable from its date of publication The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide guidance to manufacturers and designers, testing laboratories and similar organizations on the application of the ball pressure test for testing for resistance to heat of non-metallic materials in order to assess the fire hazard of electrotechnical products.

This Standard forms the second edition of AS/NZS 60695.10.2, *Fire hazard testing* - Part 10.2: *Abnormal heat - Ball pressure test.* It is a revision of AS/NZS 60695.10.2:2002 and it effects changes to the Title and clauses 1, 5, 6 and 7 and Figure 2 of that Standard that were issued in draft form for comment as document DR 03942.

A1 This Standard is identical to and contains the full text of IEC 60695-10-2:2003, *Fire hazard testing* - Part 10.2: *Abnormal heat – Ball pressure test*, including its corrigendum 1 (02-2006)

Clause 2 has been reformatted to indicate the Australia/New Zealand standard that is equivalent to the IEC standard or ISO standard to which normative reference is made.

As this Standard is reproduced from an international Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown on the cover and title page only.

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FIRE HAZARD TESTING –

Part 10.2: Abnormal heat – Ball pressure test

1 Scope

This part of IEC 60695 specifies the ball pressure test as a method for testing parts of non-metallic materials for resistance to heat.

It is applicable to electrotechnical equipment, its subassemblies and components, and to solid electrical insulating materials except ceramics.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications in the preparation of its publications.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

International Standard	Year	*Title*	AU/NZ Standard	Year
IEC 60216-4-1	1990	*Guide for the determination of thermal endurance properties of electrical insulating materials – Part 4-1: Ageing ovens – Section 1: Single-chamber ovens*		
IEC Guide 104	1997	*The preparation of safety publications and the use of basic safety publications and group safety publications*		
ISO 3290	2001	*Rolling bearings – Balls – Dimensions and tolerances*		

3 General description of the test

With the test specimen at a temperature specified in the relevant specification, a specified downward force is applied through a steel ball and dimension *d* of the indentation is measured as described in 7.2.

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4 Test apparatus

The test apparatus consists essentially of the elements listed below.

4.1 *Loading device*

The loading device shall consist of a 5 mm diameter pressure ball (a finished steel ball for rolling bearings in accordance with ISO 3290) attached to a system of weights designed to apply a downward force equivalent to a 20 N ± 0,2 N load including the mass of the pressure ball.

An example of a typical loading device is shown in Figure 1.

4.2 *Test specimen support*

The test specimen support shall be such that

a) it rigidly supports the test specimen in a horizontal position;

b) it has sufficient strength to support the loading device;

c) it has a smooth flat surface;

d) it has sufficiently large mass to prevent a significant reduction in temperature of the test apparatus during the installation and removal of the test specimen from the heating oven.

NOTE 1 A solid steel cylinder with a flat smooth mounting surface 50 mm in diameter and 100 mm in height has been found adequate for the test specimen support.

NOTE 2 It has been found useful to mount a separate thermocouple in the centre of the test specimen support approximately 3 mm below the surface to check that the temperature of the test specimen support does not significantly deviate from the test temperature.

4.3 *Heating oven*

The heating oven shall be a single chamber type with an air temperature distribution in accordance with IEC 60216-4-1.

NOTE This does not preclude the use of an oven without forced air circulation

4.4 *Optical measuring instrument*

The measuring instrument shall have an optical magnification between 10 × and 20 × and shall incorporate a calibrated reticule or cross-travel measuring table. A lighting device can be used to illuminate the surface where the pressure ball was applied.

5 Test specimens

If possible, cut a test specimen from the product in such a way that a piece at least 2,5 mm thick with approximately parallel upper and lower surfaces is obtained. If necessary, the thickness may be attained by stacking two or more sections. If it is not possible to cut a test specimen with parallel surfaces, care shall be taken to support the area of the test specimen directly under the pressure ball. The test specimen shall be a square with a minimum of 10 mm sides or a circle with a diameter of at least 10 mm.

If it is impracticable to use a test specimen from the product then a plaque of identical material may be used as the test specimen. The plaque shall have a thickness of 3,0 mm ± 0,5 mm and shall be at least a square with 10 mm sides or a circle with a diameter of at least 10 mm.

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