

Australian/New Zealand Standard®

Textile floor covering—Tests and measurements

Method 16: Determination of bond strength between backing components

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TX/9 on Carpets. In Australia, the Standard supersedes AS 2111.16—1991, *Methods of test for textile floor coverings, Method 16: Determination of bond strength between backing components of a textile floor covering*.

METHOD

1 SCOPE This Standard describes a method for determining the strength of the bond between the backing components of a textile floor covering which can be peeled apart. This method is applicable to tufted carpets which have primary and secondary backing materials forming a bonded composite substrate. It is not applicable to textile floor coverings with an integral non-textile backing.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

2001 Methods of test for textiles

2001.1 Part 1: Conditioning procedures

2119 Method for sampling and cutting specimens of textile floor coverings for testing

2193 Methods for calibration and grading of force-measuring systems of testing machines

3 DEFINITION For the purpose of this Standard, the definition below applies.

3.1 Bond strength—the mean force required to separate two backing components of a strip of textile floor covering as determined by the method described herein.

4 PRINCIPLE A strip of the floor covering is manually separated at one end into two components. The component containing the wear surface is gripped in the jaw connected to the load cell of a tensile testing machine of suitable capacity. The jaws are separated and a record of the force required to separate the two components is obtained on a graph. The mean force is calculated from the five highest forces recorded.



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5 APPARATUS

5.1 Testing machine The testing machine shall meet the following requirements:

- (a) It shall comply with the requirements for Grade C machines as specified in AS 2193.
- (b) The capacity of the machine on the range selected shall be such that the value of the bond strength of the sample under test is not less than 10 percent of the capacity.
- (c) The machine shall provide means to indicate the maximum and minimum load applied while separating the backing fabrics; the loads shall be indicated clearly and continuously on a chart, with the chart moving at the same speed as the moving jaws.
- (d) The machine shall operate at a constant rate of jaw separation of 100 ± 10 mm/min. The weighing mechanism shall allow little or no movement of the fixed jaws in the direction of the applied force.
- (e) The jaws of the machine shall be wider than the test specimen and so constructed that they do not damage it. Suitable packing pieces or other embedding techniques may be used whenever necessary to prevent slipping of the test specimens in the jaws. The fixed and moving jaws shall be in the same plane and at right angles to the direction of traverse.

5.2 Conditioning apparatus A means of producing and maintaining the standard atmosphere as specified in AS 2001.1 is required.

6 SAMPLES AND TEST SPECIMENS

6.1 Selection of specimens The samples and test specimens shall be selected in accordance with AS 2119.

6.2 Preparation of specimens The specimens shall be prepared as follows:

- (a) Preconditioning of the samples according to AS 2001.1 shall be carried out prior to conditioning the specimens in the standard atmosphere as specified in AS 2001.1 by laying them out flat and singly with the use surface uppermost. Condition them for a minimum of 24 h or until they reach moisture equilibrium.

For the purpose of this Standard, moisture equilibrium is considered to have been reached when successive weighings at 2 hourly intervals show no progressive change in mass greater than 0.25 percent.

The test shall be conducted in the standard atmosphere specified in AS 2001.1.

NOTE: If tested within 48 h of manufacture, erroneous results may be obtained.

- (b) Six specimens shall be cut parallel to the length-wise or machine direction, each measuring 300 mm in length and 50 mm in width. Mark the same direction on each sample. Repeat this procedure for six specimens from the width-wise direction.
- (c) Where the samples have a woven secondary backing fabric, the thread direction of the secondary backing shall be followed if it is different from that of the primary structure.

7 TEST PROCEDURE The procedure shall be as follows:

- (a) Adjust the machine to operate in the manner prescribed in Clause 5.1, and set the jaws so that at the commencement of each test the distance between them is 25 mm.
- (b) Divide the six length-wise specimens into two groups of three specimens. Manually separate the secondary backing from the other component of each specimen in a longitudinal direction for 75 mm from the same end of one of the groups of three specimens and from the opposite end for the other group of three specimens. Repeat this procedure for the width-wise specimens, separating the secondary backing for