

Australian/New Zealand Standard®

Textile floor coverings—Tests and measurements

Method 3: Determination of mass per unit area

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TX/9 on Carpets. In Australia, the Standard supersedes AS 2111.3—1978, *Methods of test for textile floor coverings*, Method 3: *Determination of mass per unit area of textile floor coverings*.

Changes include an increase in the number of test specimens, and the application of the method to hand-made, as well as machine-made, textile floor coverings.

METHOD

1 SCOPE This Standard describes the procedure for determining the mass per unit area of a textile floor covering in its entirety.

2 APPLICATION The method is applicable to all textile floor coverings.

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

AS

2001 Methods of test for textiles

2001.1 Method 1: Conditioning procedures

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

2454 Textile floor coverings—Terminology

4 DEFINITIONS For the purpose of this Standard, the definitions given in AS 2454 apply.

5 PRINCIPLE A known area of textile floor covering is weighed in its entirety.

6 APPARATUS The following apparatus is required:

- (a) *Means for cutting the sample accurately* An example of a suitable apparatus is a circular cutter of known cross-sectional area of not less than 1 dm².
- (b) *Rule* A rule graduated in millimetres.
- (c) *Balance* A balance capable of weighing a specimen to an accuracy of 0.25 percent.
- (d) *Conditioning apparatus* Means for producing and maintaining the standard atmosphere as specified in AS 2001.1.

7 SAMPLES AND TEST SPECIMENS

7.1 Sampling The sample and the test specimens shall be selected and prepared in accordance with the requirements of AS 2119.

7.2 Number and area

7.2.1 Textile floor coverings without pile Not less than four test specimens shall be taken, using a suitable cutter described in Clause 6(a).

7.2.2 Textile floor coverings with pile At least four test specimens shall be taken, each of area not less than 1 dm². Care shall be taken to make cuts, as far as possible, between two rows of tufts (or loops) parallel with and at right-angles to the direction of manufacture unless using a suitable cutter such as that described in Clause 6(a).

7.3 Preparation Preconditioning of the samples according to AS 2001.1 is required to 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 as specified in AS 2001.1.

8 PROCEDURE The test procedure shall be as follows:

- (a) Determine the mass of each specimen to the nearest 0.5 percent.
- (b) Measure the dimensions on the back surface of each test specimen to the nearest millimetre as follows:
 - (i) *Circular specimens*—measure two diameters at right-angles to each other and determine the mean diameter.
 - (ii) *Rectangular specimens*—measure the length and width of each test specimen to the nearest millimetre. The measurements shall be the mean of four evenly spaced measurements made across the length or the width on the back surface of each specimen, as appropriate.

9 CALCULATIONS The following calculations shall be made:

- (a) Calculate the area of each test specimen and determine the mean mass per unit area in grams per square metre (g/m²).
- (b) Calculate the coefficient of variation (CV) in percent. Use this to determine the total number of test specimens required to give 95 percent confidence limits of ± 6 percent from the following tabulation:
 - (i) If CV is 4 percent or less, then 4 tests are sufficient.
 - (ii) If CV is 6 percent or less, then test 2 more (total 6).
 - (iii) If CV is 7.5 percent or less, test 4 more (total 8).
 - (iv) If CV is 8.5 percent or less, test 6 more (total 10).
 - (v) If CV is over 8.5 percent, test 8 more (total 12).

NOTE: Although 12 samples are tested this may not meet the confidence limits requirements of ± 6 percent due to large variation between samples.

- (c) Recalculate the coefficient of variation of all the specimens tested.