

Australian/New Zealand Standard®

Textile floor covering—Tests and measurements

Method 11: Determination of total pile mass per unit area by complete dissection

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TX/9 on Carpets. In Australia, the Standard supersedes AS 2111.11—1990 *Methods of test for textile floor coverings, Method 11: Determination of total pile mass per unit area by complete dissection of textile floor coverings*.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

METHOD

1 SCOPE This Standard describes the procedure for determining total pile mass per unit area by complete dissection of textile floor coverings. The total pile mass per unit area can be expressed at its equilibrium condition or in terms of clean conditioned mass at agreed commercial allowances.

2 APPLICATION The method is applicable to textile floor coverings which have a cut or loop pile, including multiframe Wilton carpets. It is not applicable to textile floor covering wherein the yarn is not readily and totally separable from the rest of the structure, as occurs with most adhesive-backed structures.

The method may also be applied to tufted textile floor coverings at the stage of manufacture prior to backcoating.

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

BS

1752 Specification for laboratory sintered or fritted filters including porosity grading

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

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4.1 Buried pile yarn (Wilton carpet)—the pile yarn in a multiframe Wilton carpet in those parts of the carpet where it is held in the substrate and has not been raised to the surface by the Jacquard mechanism. It excludes all yarn forming the surface pile and the pile root.

4.2 Dead frame yarn (Wilton carpet)—yarn from a complete frame which is present in every end in the carpet and which has been programmed so that the yarn never appears on the use surface at any point. It remains held in the substrate for its complete length, solely for structural purposes.

4.3 Total pile mass per unit area—the mass of pile yarn in the given area, including that forming the base of the tufts or held in the backing, determined in equilibrium with the standard atmosphere for testing.

NOTES:

- 1 Total pile mass does not include the mass of any backing compound adhering to the pile yarn.
- 2 For Wilton carpets, total pile mass includes buried pile yarn, but excludes dead frame yarn.

4.4 Working pile yarn (Wilton carpet)—all of the pile yarn which, anywhere along its length, forms part of the surface pile. This includes buried pile yarn held in the substrate in parts of the carpet where not required in the use surface as part of the pattern. It excludes dead frame yarn.

5 PRINCIPLE A known area of the textile floor covering is dissected completely; the pile yarn is separated from the other components and weighed.

The result may be expressed at its equilibrium condition or a sample of the dissected yarn may be cleaned and dried and the result corrected for agreed commercial allowances.

6 REAGENT

6.1 General requirements Unless otherwise specified, distilled water or water of equivalent purity shall be used.

6.2 Wetting agent Nonyl (C9–11) alcohol ethoxylate 6 mol of ethylene oxide (Teric 9A6) or equivalent.

7 APPARATUS The following apparatus is required:

- (a) *Balance* A balance capable of determining mass to 0.001 g.
- (b) *Dissection needles and forceps*
- (c) *Scale* A scale graduated in millimetres.
- (d) *Conditioning apparatus* Means of producing and maintaining the standard atmosphere as specified in AS 2001.1.
- (e) *Sintered glass crucibles** Glass filter crucibles with sealed-in sintered disc filters of porosity grade 1 complying with BS 1752 and provided with either ground-glass stoppers or watch glass covers. Any other apparatus giving identical results may be used.
- (f) *Weighing bottles**
- (g) *Ventilated oven** An oven for drying specimens at $105 \pm 3^\circ\text{C}$.
- (h) *Desiccator** A desiccator containing self-indicating silica gel.

* Only required if the mass per unit area is to be corrected for agreed commercial allowances.

8 SAMPLES AND TEST SPECIMENS

8.1 Sampling The samples and test specimens shall be selected in accordance with the requirements of AS 2119.

8.2 Number and area From the sample selected for testing, cut out four squares, each measuring not less than 150 mm × 150 mm. Care should be taken to make cuts, as far as possible, between two rows of tufts (or loops) parallel to, or at right-angles to, the selvage.

8.3 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.

9 PROCEDURE The procedure shall be as follows:

- (a) Measure the length and the width of each test specimen to an accuracy of 1.0 mm. The measurements shall be the mean of four evenly spaced measurements made across the length or the width on the back surface of the specimen, as appropriate. Calculate the area (A_1) in square metres.
- (b) Separate all pile yarn with a needle and forceps, and transfer into suitable container(s).

NOTES:

- 1 In some multiframe Wilton carpets, the buried pile yarn may be of readily apparent different composition from the bulk of the working pile. If this is so in the specimen under test, transfer the different yarn types into separate container(s).
- 2 In multiframe Wilton carpets, treat buried pile yarn as pile yarn, irrespective of whether it forms tufts in the specimen under test or not.
- 3 Include with the working pile mass any buried pile yarn of which only some of the ends of yarn in a frame have been brought to the surface as part of the pattern, the other ends remaining buried for their total length.
- 4 In multiframe Wilton carpets, separate any dead frame yarn and transfer it to a separate container for weighing.

- (c) Determine the mass of each specimen (m_1) to an accuracy of 1.0 mg.

NOTE: This sample can be used to determine the correction for agreed commercial allowance if required (see Clause 10.2).

10 CORRECTION FOR AGREED COMMERCIAL ALLOWANCE

10.1 General If results are required at an agreed commercial allowance the procedures given in Clause 10.2 shall be followed.

10.2 Procedure The procedure shall be as follows:

- (a) Subsample the test specimens of pile fibre resulting from Clause 9 to provide at least 2×10 g specimens, ensuring representative samples. Weigh each specimen to an accuracy of ± 0.01 g (m_2).