

Australian Standard®

Methods of test for textiles

Method 2.5: Physical tests— Determination of the number of threads per unit length in woven fabric

PREFACE

This Standard was prepared by the Standards Australia Committee on Testing of Textiles to supersede the 1981 edition.

This edition has changed requirements for sampling, and for selection of test specimens of open weave fabrics.

METHOD

1 SCOPE This Standard sets out a method which provides three tests for the determination of the number of threads per unit length in woven fabrics.

The method is applicable to woven fabrics of all types. Each test, and its preferred use, is as follows:

- (a) *Test A*—by dissection—suitable for all woven structures, including complicated structures where individual threads are not readily distinguishable.
- (b) *Test B*—by traversing thread counter—suitable for all woven fabrics in which the threads or pattern repeats are distinguishable.
- (c) *Test C*—by counting glass—suitable for fabrics with 25 or more threads per centimetre, where the threads or pattern repeats are distinguishable.

2 REFERENCED DOCUMENTS

AS

1199 Sampling procedures and tables for inspection by attributes

2001 Methods of test for textiles

2001.1 Method 1: Conditioning procedures

3 PRINCIPLE The number of ends and picks in accurately measured lengths of woven fabric are counted along a line at right angles to the yarn being considered. The lengths of fabric are chosen so that the number of threads counted, in each case, is not less than 50.

4 APPARATUS The following items of apparatus are required:

- (a) *For Test A—*

Method I

- (i) A gauge (see Figure 1) comprising a clamp holding two short pins, parallel to each other, such that the distance between the pin points is known to within an accuracy of 0.2 mm.
- (ii) Means of cutting test pieces.

Method II A cutting press having a smooth flat surface and a cutting template, the dimensions of which are known to an accuracy of 0.2 mm.

- (b) *For Test B*—a traversing thread counter, consisting of a low powered microscope mounted so that it can be traversed over a base by means of a screw and graduated to an accuracy of 0.2 mm.
- (c) *For Test C*—a counting glass, the dimensions of which are known to within an accuracy of 0.2 mm.

5 SAMPLE AND TEST SPECIMENS

5.1 Sample

5.1.1 Lot sampling A lot sample shall be selected in accordance with the relevant material specification.

Where there is no material specification, the sample shall be selected using a sampling plan developed in accordance with AS 1199.

NOTE: To provide a sampling plan with a meaningful producer's risk and consumer's risk, an adequate specification needs to take into account the variability between rolls of fabric, and between specimens from a sample taken from a roll of fabric.

5.1.2 Laboratory sample A laboratory sample shall be either—

- (a) taken from a lot sample, which is intended to be representative of the bulk; or
- (b) a sample which has been submitted for testing, and which may or may not be representative of the bulk.

5.2 Selection of test specimens The lengths of test specimens shall be such that the number of threads counted, in each case, shall be not less than 50. The positions where the determinations are to be made shall be selected to represent the fabrics as fully as possible.

For open weave fabrics with a wide variation in warp density, the number of threads shall be counted over the full pattern repeat.

NOTE: In some cases, the test may be carried out on whole pieces, without necessarily cutting a test specimen.

5.3 Conditioning The test samples shall be conditioned in accordance with AS 2001.1.

6 PROCEDURE

6.1 Preliminary procedure The preliminary procedure shall be as follows:

- (a) Examine the sample, taking cognizance of the advice given in Appendix A.
- (b) Select a test (A, B or C) suitable for the woven fabric construction (see Clause 1).
- (c) Ensure that at least 50 threads are counted on each test in each direction.
- (d) Make the determination not closer than one-tenth of the width of the fabric to the edge of the fabric being tested.
- (e) Make five counts in each of the warp and weft directions, selecting positions which are evenly spaced along or across the fabric, avoiding the selvages and ensuring that no count in either direction includes the same threads.
- (f) For narrow fabrics of width less than 10 cm—
 - (i) count all the warp threads, including the selvages; and
 - (ii) measure and record the width between the selvages.

NOTE: Appendix A indicates counting procedures which may be adopted.

6.2 Test A—Determination by dissection The procedure for determination by dissection shall be as specified in Clauses 6.2.1 or 6.2.2.

6.2.1 Method I The procedure shall be as follows:

- (a) For each determination, cut a test piece from the test specimen so that its length in the direction to be tested is at least 6 mm greater than the distance between the pins of the gauge selected.
- (b) Pass the pins of the selected gauge through the test piece, while it is laid out or held flat and free from applied tensions and creases, so that the line joining the points of the pins is at right angles to the direction of the threads being counted and so that there is at least 3 mm of the fabric outside the gauge points on either side (see Figure 1).
- (c) Remove the threads, in the direction of the threads to be counted, that are outside the two pins.
- (d) Separate and count the remaining threads, i.e. those between the two pins, counting any thread impaled on a pin as half a thread.
- (e) Measure and record the gauge length used.

6.2.2 Method II The procedure shall be as follows:

- (a) For each determination, lay the fabric, free from creases and applied tension, on the smooth, flat surface of the cutting press.
- (b) Position the cutting template over the fabric so that the cutting edge is at right angles to the direction of the threads to be counted.