

Australian Standard™

AS 2001.2.25.4—2006

Methods of test for textiles

Method 2.25.4: Physical tests—Determination of the abrasion resistance of fabrics by the Martindale method—Assessment of appearance change

PREFACE

This Standard was prepared by the Standards Australian Committee TX-020, Testing of Textiles to supersede, in part, AS 2001.2.25—1990, *Methods of test for textiles*, Method 2.25: *Physical tests—Determination of flat abrasion of textile fabrics (Martindale abrasion method)*.

The objective of this Standard is to provide manufacturers and testing bodies with a Standard for specifying the testing apparatus required for the determination of the abrasion resistance of fabrics.

This Standard is identical with and has been reproduced from ISO 12947-4:1998, *Textiles—Determination of the abrasion resistance of fabrics by the Martindale method—Part 4: Assessment of appearance change* and its Corrigendum 1:2002, which has been added after the main source text.

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

- (a) Its number appears on the cover and title page while the International Standard number appears only on the cover.
- (b) In the source text ‘this part of ISO 12947’ should read ‘this Australian Standard’.
- (c) A full point should be substituted for a comma when referring to a decimal marker.

The reference to International Standard should be replaced by references to the following Australian Standards:

References to International Standards		Australian Standards	
ISO		AS	
105	Textile—Tests for colour fastness	2001	Methods of test for textiles
105-A02	Part A02: Grey scale for assessing change in colour	2001.4.A02	Method A02: Grey scale for assessing change in colour
139	Textiles—Standard atmospheres for conditioning and testing	2001.1	Part 1: Conditioning procedures
2859	Sampling procedures for inspection by attributes	1199	Sampling procedures for inspection attributes.
2859-1	Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection	1199.1	Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
12947	Textiles—Determination of the abrasion resistance of fabrics by the Martindale method	2001.2.25.1	Method 2.25.1: Physical tests—Determination of the abrasion resistance of fabrics by the Martindale method—Martindale abrasion testing apparatus
12947-1	Part 1: Martindale abrasion testing apparatus		

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.

1 Scope

This part of ISO 12947 is applicable to the assessment of the appearance change of specimens covering all textile fabrics including nonwovens and fabrics where the specifier indicates the end performance as having a low abrasion wear life. This method differs appreciably from those in ISO 12947-2 and 12947-3.

NOTE Further introductory comments are given in ISO 12947-1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 12947. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 12947 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 105-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*.

ISO 139:1973, *Textiles — Standard atmospheres for conditioning and testing*.

ISO 2859-1:—¹⁾, *Sampling procedures for inspection by attributes — Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection*.

ISO 12947-1:1998, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 1: Martindale abrasion testing apparatus*.

3 Definitions

For the purposes of this part of ISO 12947 the definitions given in ISO 12947-1 apply.

4 Principle

A circular specimen is subjected to a defined load and rubbed against an abrasive medium (standard fabric) in a translational movement tracing a Lissajous figure. The specimen holder containing the abrasive medium is additionally freely rotatable around its own axis perpendicular to the plane of the specimen. The evaluation of the abrasion resistance of the textile fabric is determined from assessment of the appearance change.

¹⁾ To be published. (Revision of ISO 2859:1989)

Tests are performed using the mass of the specimen holder and spindle alone at (198 ± 2) g.

The surface change of the test specimen is assessed and compared with an untested specimen of the same fabric, with the option of using two methods:

- a) abrasion testing to an agreed number of rubs and assessing whether a surface change has occurred;
- b) abrasion testing to an agreed surface change and determination of the test interval in which the surface change has been produced.

5 Apparatus and materials

The test apparatus and auxiliary materials are specified in ISO 12947-1.

6 Conditioning and testing atmosphere

The standard temperate atmosphere for conditioning and testing textiles as defined in ISO 139 shall be used, i.e a temperature of (20 ± 2) °C and a relative humidity of (65 ± 5) %.

7 Sampling and preparation of test specimens

7.1 General

Perform sampling in accordance with statistical rules (see ISO 2859-1).

Ensure throughout sampling and specimen preparation that handling imposes the minimum possible tensile stress so as to prevent incorrect extension of the textile fabric.

7.2 Selection of the laboratory sample

Select the laboratory sample from a test lot to be representative of properties of the textile fabric. Check the representative nature of sampling from the start or end of a textile fabric.

Take the laboratory sample from across the full fabric width.

7.3 Sampling of the test specimens from the laboratory sample

Before sampling the test specimens from the laboratory samples, condition the laboratory samples free from tension, for at least 18 h on a smooth horizontal surface with free access of air exposed to the standard atmosphere specified in clause 6.

For woven fabrics, take the specimens so that they each contain different warp and weft threads.

Take the test specimens at least 100 mm from the edge distributed across the entire laboratory sample. Take a sufficient number of test specimens (at least three) to be in accordance with statistical notes (see 7.1).

For patterned fabrics or fabrics with textured surface, take care that the test specimens contain all characteristic parts of the pattern, ensuring that the parts of the pattern likely to be sensitive to abrasion are contained in the test specimens.

7.4 Dimensions of specimens and auxiliary materials

7.4.1 Dimensions of the test specimens

The dimensions of the test specimen shall be at least 140 mm in diameter or length and width.