

ICS 59.080.40

CCS G 42



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 19089-2012

**Rubber-or plastics-coated fabrics -- Determination of abrasion
resistance -- Martindale method**

(English Translation)

Issued on: June 29, 2012

Implemented on: December 1, 2012

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative references...	5
3 Principle...	5
4 Apparatus and materials...	6
5 Test sample...	9
6 Sample conditioning and abrasive wetting...	9
7 Procedure...	9
8 Damage evaluation - Method 1 and Method 2...	11
9 Test report...	12
Bibliography...	13

Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 19089-2003, Rubber- or plastics-coated fabrics - Determination of abrasion resistance - Martindale method. Compared with GB/T 19089-2003, the major technical changes of this Standard are as follows.

- Delete the foreword to the international standard;
- Change the referenced documents in the normative references (see Chapter 2; Chapter 2 of the 2003 edition);
- Merge the contents of 4.1.6 and 4.1.7 in the 2003 edition into 4.1.4 (see 4.1.4);
- Change 4.2 of the 2003 edition to a new title; move the original content to

4.2.1 (see 4.2);

- Remove the sampling requirements in 5.1.2 of the 2003 edition, and move the content to 5.1.1 (see 5.1.1);
- Add the sample requirements in 5.2.2 and 5.2.3 (see 5.2.2 and 5.2.3);
- Move the second paragraph of 7.2.5 in the 2003 edition to after Table 4 in

Chapter 8 (see Chapter 8);

-- Remove Appendix A of the 2003 edition;

-- Add Bibliography.

This Standard adopts ISO 5470-2:2003 Rubber- or plastics-coated fabrics - Determination of abrasion resistance - Part 2. Martindale abrader by means of translation.

This Standard makes the following editorial changes.

-- The standard name remains the same as the 2003 edition, instead of using the international standard name;

-- Since ISO 12947-2:1998, ISO 12947-3:1998, and ISO 12947-4:1998 cited in Chapter 2 are non-normative references, they are listed in the Bibliography and replaced with their corresponding Chinese standards;

-- Remove the word "minimum" from "minimum mass per unit area" in Table 1 because the representation is incorrect.

1 Scope

This Standard specifies two independent methods for determining the wet and dry abrasion resistance of materials.

This Standard applies to the coated surfaces of coated fabrics. To determine the abrasion properties of the uncoated surface of coated fabrics, use the various test methods for uncoated fabrics in GB/T 21196.2~21196.4.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 24133-2009, Rubber- or plastics-coated fabrics - Standard atmospheres for conditioning and testing (ISO 2231:1989, IDT)

HG/T 3050.1-2001, Rubber- or plastics-coated fabrics - Determination of roll

characteristics - Part 1. Method for determination of length width and net mass
(ISO 2286-1.1998, IDT)

3 Principle

This Standard details two different methods. In Method 1, clamp the sample on a sample holder and use a selected abrasive to rub the sample under constant pressure. A derivative of this method is the application of wet abrasive. Method 2 involves reversing the positions of the abrasive and the sample. In both cases, the relative motion between the abrasive and the sample forms a complex cyclic pattern (Lissajous figure) that generates friction in all directions (see Figure 1). Stop the test when reaching the predetermined number of cycles (after evaluating the degree of damage to the sample) or when the sample reaches the predetermined degree of wear (after recording the number of cycles).

4.1 Abrasion machine

The abrasion machine shall have one or more test benches, each equipped with the components specified in 4.1.1 ~ 4.1.6.

4.1.1 Circular sample holder with an annular sample clamp that clamps the sample

along its edge, exposing a raised, flat circular portion with an area of $(645 \pm 5) \text{ mm}^2$.

4.1.2 Horizontal grinding table, large enough to form a square central test area with a

side length of 88 mm. The grinding table is usually circular, with a minimum diameter of 125 mm.

4.1.3 A device that keeps the raised, flat circular part of the sample holder (4.1.1) in

contact with the grinding table (4.1.2) while allowing the sample holder to rotate freely within the plane of the grinding table.

4.1.4 A device that generates relative motion between the sample holder (4.1.1) and the

grinding table (4.1.2), forming a Lissajous figure with an area of (60 ± 1) mm x (60 ± 1) mm (see Figure 1). Each Lissajous figure requires 16 elliptical movements (revolutions) of the sample holder, and the operating speed of the testing machine shall be (48 ± 4) r/min.

In each Lissajous figure, the parallelism between the circular sample holder (4.1.1) and the grinding table (4.1.2) shall be maintained within ± 0.05 mm. The micrometer mounted on a circular sample holder can be used to verify the parallelism of the grinding table.

The circumferential parallelism of the sample holder (4.1.1) in contact with the grinding table shall be better than ± 0.05 mm. This can be verified by inserting a guide gauge with a thickness of less than 0.05 mm into the edge of the flat surface of the grinding head.

.....