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

GB/T 39507-2020

**Leather. Physical and mechanical tests. Determination of
abrasion resistance: Martindale ball plate method**

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Standardization Administration**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1:1-2009:

This standard uses the redrafting method to amend and adopt ISO 17076-2:2011
"Determination of Leather Wear Resistance Part 2: Martindale

The Ball Game:

Compared with ISO 17076-2:2011, the structure of this standard has been adjusted: 5:1 has been added, and the number of chapters and articles has been postponed; ISO 17076-2 has been deleted:

On 6:1 of:2011, the subsequent chapters and articles were in the front row; Chapter 7 was added, and the subsequent chapters and articles were extended:

The technical differences between this standard and ISO 17076-2:2011 and the reasons are as follows:

---Regarding normative reference documents, this standard has made adjustments with technical differences to adapt to my country's technical documents and adjustments:

The situation is collectively reflected in Chapter 2 "Normative Reference Documents", and the specific adjustments are as follows:

- * Replace ISO 12947-1 (see 4:1~4:7 and 6:1:3) with GB/T 21196:1 modified to adopt international standards;
- * Replace ISO 12947-4 (see 6:1:1, 6:1:2 and 6:2:1) with GB/T 21196:4 which is modified to adopt international standards;
- * Replace ISO 11641 (see 4:10) with QB/T 2464:23, which is equivalent to the international standard;
- * Replace ISO 2419 (see 5:2 and 5:3) with QB/T 2707 modified to adopt international standards;

* Added GB/T 39364;

---Modified the expression of the principle (see Chapter 3, Chapter 3 of ISO 17076-2:2011);

---Added the allowable deviation of the size of wear-resistant fixtures, abrasives, felts and foam plastics (see 4:2 and 4:5~4:7);

---Added the allowable deviation of the ball disc and steel ball size (see 4:9);

---Adjust the last paragraph of 4:9 in ISO 17076-2:2011 to note (see 4:9);

---Added the allowable deviation of artificial sweat pH (see 4:10);

---Added provisions on sampling (see 5:1);

---Added the requirement of using surface orientation when fixing the sample (see 6:1:2);

---Added the requirement to record the number of friction times corresponding to the number of wear points (see 6:1:5);

---Adjust the definition and evaluation method of coating wear point in 6:2:4 of ISO 17076-2:2011 to Note (see 6:1:5);

---Simplified the 6:2:5 note in ISO 17076-2:2011;

---Added the result display (see Chapter 7);

---Modified the test report (see Chapter 8, Chapter 7 of ISO 17076-2:2011):

This standard has made the following editorial changes:

---Revised the standard name to "Testing for physical and mechanical wear resistance of leather: Martindale ball and disc method";

--- Modify the items in the "ball board" to untitled (see 4:9);

---Added the title "Sampling and Sample Preparation" (see Chapter 5);

--- 6:1 of ISO 17076-2:2011 is deleted (see 6:1 of ISO 17076-2:2011):

This standard was proposed by the China National Light Industry Council:

This standard is under the jurisdiction of the National Leather Industry Standardization Technical Committee (SAC/TC252):

Drafting organizations of this standard: Guangzhou Inspection, Testing and Certification Group Co., Ltd., Zhejiang Fangyuan Testing Group Co., Ltd., Shenzhen Zongheng

Standard Technology Co., Ltd., China Leather and Shoes Research Institute Co., Ltd., Jiaxing Fur and Shoe Industry Research Institute, Dongguan Junke Instruments and Equipment

Co., Ltd., Foshan Gaoming Shangang Technology Co., Ltd:

1 Scope

This standard specifies the test method for the Martindale ball and disc method to determine the wear resistance of leather:

This standard applies to the determination of the abrasion resistance of semi-aniline leather, pigment leather and painted leather:

2 Normative references

The following documents are indispensable for the application of this document: For dated reference documents, only the dated version applies to this article

Pieces: For undated references, the latest version (including all amendments) applies to this document:

GB/T 21196:1 Textile Martindale Method Determination of Fabric Abrasion Resistance Part 1: Martindale Abrasion Tester

(GB/T 21196:1-2007, ISO 12947-1:1998, MOD)

GB/T 21196:4 Textile Martindale Method Determination of Abrasion Resistance of Fabric Part 4: Evaluation of Appearance Change

(GB/T 21196:4-2007, ISO 12947-4:1998, MOD)

GB/T 39364 Leather chemical, physical, mechanical and color fastness test sampling site (GB/T 39364-2020, ISO 2418:

2017, MOD)

QB/T 2464:23 Method for determination of leather color fastness to perspiration (QB/T 2464:23-1999, eqvISO 11641:1993)

QB/T 2707 Preparation and adjustment of leather physical and mechanical test samples (QB/T 2707-2018, ISO 2419:2012,

MOD)

3 Principle

The abrasives installed in the wear-resistant fixture of the Martindale wear-resistant tester, under a specified load, follow the trajectory as a Lissajous graphic

The plane movement of the sphere is rubbed with the leather sample on the ball disk, and the wear-resistant fixture equipped with abrasive can rotate freely around its axis perpendicular to the horizontal plane:

The friction times when the sample reaches 4 or more wear points are used to characterize

the wear resistance of the leather:

4 Equipment and materials

4:1 Martindale abrasion tester, in line with the provisions of GB/T 21196:1:

4:2 Wear-resistant fixture, with a diameter of 38:0 0:5 0 mm, which meets the requirements of GB/T 21196:1:

4:3 The loading block, the mass is (795+/-7)g, the pressure applied to the sample during the wear test is 12kPa, in line with GB/T 21196:1

Provisions:

4:4 The pressure hammer has a mass of (2:5+/-0:5) kg and a diameter of (120+/-10) mm, which meets the requirements of GB/T 21196:1:

4:5 Abrasive, with a diameter of 38:0 0:5 0 mm, which meets the requirements of GB/T 21196:1:

4:6 Felt, with a diameter of 140 0:5 0 mm, in line with the requirements of GB/T 21196:1:

4:7 Foam plastic with a diameter of 38:0 0:5 0 mm, which meets the requirements of GB/T 21196:1:

4:8 Circular cutting machine or punching cutter, the diameter is about 150mm:

4:9 Ball disc, steel disc or aluminum disc, diameter (120+/-0:1) mm, thickness (4:5+/-0:1) mm, containing 37 pieces of diameter (5:0+/-0:01) mm, mutual