



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

GB/T 39370-2020

**Leather. Physical and mechanical tests. Determination of
surface reflectance**

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Table of Contents

Foreword...	3
1 Scope...	5
2 Normative References...	5
3 Terms and Definitions...	5
4 Principle...	6
5 Instruments and Materials...	6
6 Sampling and Specimen Preparation...	7
7 Test Procedures...	7
8 Result Expression...	9
9 Test Report...	9

Foreword

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

This Standard uses the re-drafting method in the modification and adoption of ISO

17502:2013 Leather - Determination of Surface Reflectance.

In comparison with ISO 17502:2013, this Standard has major structural adjustments.

Appendix A provides a table of comparison of Chapter No. between this Standard and ISO 17502:2013.

In comparison with ISO 17502:2013, the technical differences and the causes for these differences are as follows:

---The description of the object of this Standard is modified in Scope;

---In terms of Normative References, this Standard adjusts the technical differences, so as to adapt to the technical conditions of our country. The adjustments are intensively reflected in Chapter 2 "Normative References". The specific adjustments are as follows:

? The reference of GB/T 13962-2009 is added (see Chapter 3);

? The reference of GB/T 39364 is added (see 6.1);

? The reference of QB/T 2707 is added (see 6.3);

- The terms "Diffuse Reflection" and "Diffuse Reflectance" are added (see 3.1 and 3.2);
- The description of the principle is simplified (see Chapter 4);
- A title is added to the first clause of the Chapter "Instruments and Materials" (see Chapter 5);
- The stipulations of black reference substances are added (see 5.3);
- The stipulations of sampling are added (see 6.1);
- The stipulations of specimen conditioning are added (see 6.3);
- A title is added to the first clause of the Chapter "Test Procedures" (see Chapter 7);
- The second paragraph of 6.1 in ISO 17502:2013 is modified into the NOTE of

7.1 (see 7.1);

Leather - Physical and Mechanical Tests -
Determination of Surface Reflectance

1 Scope

This Standard specifies the method for the determination of surface reflectance of leather under visible light and near-infrared light.

This Standard is applicable to the determination of surface reflectance of various types of leather (especially colored leather).

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 13962-2009 Optical Instruments - Vocabulary

GB/T 39364 Leather - Chemical, Physical, Mechanical and Fastness Tests - Sampling Location (GB/T 39364-2020, ISO 2418:2017, MOD)

QB/T 2707 Leather - Physical and Mechanical Tests - Sample Preparation and Conditioning (QB/T 2707-2018, ISO 2419:2012, MOD)

3 Terms and Definitions

What is defined in GB/T 13962-2009, and the following terms and definitions are applicable to this document. For ease of use, some terms and definitions in GB/T 13962-2009 are repeatedly listed here.

3.1 Diffuse Reflection

Diffuse reflection refers to a phenomenon, in which, light projected on a rough surface is reflected in all directions.

[GB/T 13962-2009, Definition 2.45]

3.2 Diffuse Reflectance

Diffuse reflectance refers to the ratio of the flux diffusely reflected (3.1) in all directions to the total incident flux.

6.1 Sampling

In accordance with the stipulations of GB/T 39364, conduct the sampling.

NOTE: when the surface of the specimen is subject to abrasion or major tensile deformation, the test results might be affected.

6.2 Specimen Preparation

Cut the leather to be tested into a rectangle with a size about 300 mm × 200 mm.

6.3 Specimen Conditioning

In accordance with the stipulations of QB/T 2707, conduct specimen conditioning for at least 24 h.

7.1 Calibration of Spectrophotometer System

Set the spectrophotometer system (5.1) to the detection of reflected light. Within the wavelength range of 400 nm ~ 1,000 nm, the detected diffuse reflectance of the white reference substances (5.2) and the black reference substances (5.3) is respectively

100% and 0%.

NOTE: the calibration is performed before the start of each measurement and after the last measurement after over 1 h. Respectively set the upper limit and the lower limit through the white reference substances (5.2, with a diffuse reflectance of 100%) and the black reference substances (5.3, with a diffuse reflectance of 0%). The setting of the lower limit may also be achieved by completely shielding the light source of the modulator tube or turning off the light source.

7.2 Test of Specimen

Place the leather specimen, with the test surface facing upwards, on the platform; place the integrating sphere flatwise on the test surface of the specimen; measure the diffuse reflectance; record its diffuse reflectance at a wavelength of 900 nm. Change the position of the integrating sphere on the test surface of the leather specimen; measure at least 3 positions. The positions of measurement shall be distributed as evenly as possible in the center of the sample.

If the difference in diffuse reflectance measured at different positions of the specimen exceeds 10%, then, it shall be indicated in the test report.

Appendix B

(informative)

Instruments and Materials

B.1 Overview

The following instruments are confirmed to be effective for this Standard. Other suitable instruments may also be used.

B.2 Spectrophotometer

The spectrophotometer (5.1) includes the following components:

- Ulbricht integrating sphere, with a diameter of 30 mm and a port diameter of 6 mm;
- Halogen light source, with a wavelength range of 360 nm ~ 1,700 nm;
- Visible light - near-infrared spectrophotometer, with a wavelength range of 400