



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

GB/T 3903.42-2019

**Footwear - Test methods for uppers, lining and insoles - Colour
migration**

Issued on: August 30, 2019

Implemented on: March 1, 2020

Issued by: SAMR; SAC

Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and definitions

4 instruments and materials

4.1 Cut the knife of the sample.

4.2 Two smooth glass plates measuring at least 70mm x 70mm and having a mass of 50g +/- 5g.

4.3 Weight, large enough to apply a pressure of 5.2 kPa +/- 0.5 kPa along with the glass plate.

4.4 Oven, no glass door or glazing, temperature 60 °C +/- 2 °C.

5 Sampling and environmental conditioning

5.1 Color migration test between materials

5.2 Determination of bonding effect

5.3 Determination of adhesion between layers

5.4 Test of parts such as outsole

6 Test methods

6.1 Principle

6.2 Steps

7 test report

Foreword

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 3903.42-2008 "Color migration of footwear uppers, linings and inner cushion test methods", and

Compared with GB/T 3903.42-2008, the main technical changes are as follows.

--- Revised the normative reference document (see Chapter 2, Chapter 2 of the.2008 edition);

---Modified equipment and materials (see Chapter 4, Chapter 4 of the.2008 edition);

--- Modified sampling and environmental conditioning (see Chapter 5, Chapter 5 of the.2008 edition);

---Modified test methods (see Chapter 6, Chapter 6 of the.2008 edition);

--- Revised the test report (see Chapter 7, Chapter 7 of the.2008 edition).

This section uses the translation method equivalent to ISO 17701.2016 "shoes, lining and inner pad test method color mobility".

The documents of our country that have a consistent correspondence with the international documents referenced in this part are as follows.

---GB/T 250-2008 Textile color fastness test for gray color card for color change (ISO 105-A02.1993, IDT)

---GB/T 251-2008 Textile color fastness test evaluation gray sample card for staining (ISO 105-A03..1993, IDT)

---GB/T 2703-2017 footwear terminology (ISO .19952.2005, NEQ)

---GB/T 6151-2016 Textile color fastness test test general (ISO 105-A01.2010, MOD)

---GB/T 22049-2019 Standard environment for environmental conditioning and testing of footwear footwear and footwear components (ISO 18454.2018, IDT)

This section has made the following editorial changes.

--- 4.2 added the note "calculated by the average glass density of 2.5g/cm³, the above size and quality of the glass thickness is about 4mm",

In order to facilitate the user to choose the appropriate glass plate.

1 Scope

This part of GB/T 3903 stipulates that when a material is in close contact with storage, a material causes the color migration of another material to cause mutual dyeing.

test methods.

This section applies to all closely contacted materials and adhesives used in bonding materials.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

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

ISO 105-A01 Textile colour fastness test - Part A01. General rules for testing

ISO 105-A02 Textiles - Tests for colour fastness - Part A02. Gray-like card for assessing discoloration

ISO 105-A03 Textiles - Tests for colour fastness - Part A03. Gray-like card for assessing stains

ISO 18454 Standard environment for environmental conditioning and testing of footwear footwear and footwear components

ISO 19952 Footwear term (Footwear - Vocabulary)

CIE15 Colorimetry

3 Terms and definitions

The following terms and definitions as defined by ISO .19952 apply to this document.

3.1

Color migration colourmigration

The discoloration that occurs when a color migrates from one material to another.

4 instruments and materials

The following test equipment and materials should be used.

4.2 Two smooth glass plates measuring at least 70mm x 70mm and having a mass of 50g +/- 5g.

Note. The glass thickness of the above size and quality is about 4mm, calculated from the average glass density of 2.5g/cm³.

4.3 Weight, large enough to apply a pressure of 5.2 kPa +/- 0.5 kPa along with the glass plate.

Note. In order to make the pressure the same, the weight depends on the sample area.

Example.

Sample area = 30mm x 20mm = 600mm²

Heavy object = pressure x area

Weight = 5.2 kPa x 600 mm² = 5200 Pa x 600 mm² = 5200 kg x m - 1 x s - 2 x 6 x 10 - 4 m - 2

Heavy object = 3.12kg x m x s - 2 = 3.12N

The pressure of the 3.12 N (0.318 kg) weight should be 5.2 kPa.

Note that the quality of a piece of glass should be subtracted. weight = 318g-50g = 268g.

If the sample area is 50 mm x 40 mm, the same pressure can be obtained with a weight of 1.060 kg.

Note that the quality of a piece of glass should be subtracted. weight = 1060g-50g = 1010g.

4.4 Oven, no glass door or glazing, temperature 60 °C +/- 2 °C.

4.5 The color of the sample and reference sample is measured with a colorimeter, and the result is converted into a CIE color value, and CIELAB is automatically calculated according to CIE15.

Color difference.

Calibrate the colorimeter with a white standard (light source D65, observation angle 10°, measurement geometry dl 8°).

4.6 Gray sample card to assess discoloration and staining, in accordance with ISO 105-A02 and ISO 105-A03.

4.7 Artificial light source conditions, in accordance with ISO 105-A01, or from daylight in the north.

5 Sampling and environmental conditioning

Pre-test samples are placed in a standard environment as defined by ISO 18454 for environmental conditioning for at least 24 h.

5.1 Color migration test between materials

Two samples of at least (30 +/- 2) mm x (20 +/- 2) mm were taken from the dark material and the light material, respectively. Each of them

The model has a sample as a control.

If there is not enough material, you can use a smaller sample and correspondingly reduce the mass of the weight to make it less than 1000g +/- 10g

Maintain the same pressure.

5.2 Determination of bonding effect

Two samples were taken with a size of (50 +/- 2) mm x (50 +/- 2) mm. One of the samples was used as a reference sample.

Use the adhesive to be tested and apply it to the center of the sample surface, the same area as the area where the adhesive is to be used in the production.