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QB

**LIGHT INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Footwear - Test methods for uppers, linings and insoles -
Colour fastness to rubbing and bleeding
(English Translation)**

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1 Scope

This document describes three methods for evaluating the surface color migration of materials in dry and wet rubbing (methods A, B, C), as well as a method for determining the possibility of color bleeding (method D).

This document is applicable to the determination of color fastness to rubbing and bleeding uppers, linings and insoles of footwear made of various materials. Method D is also applicable to the determination of color fastness of color bleeding of stitches and shoelaces.

The methods are as follows.

- Method A. Square head reciprocating rubbing color fastness;
- Method B. Rotating rubbing color fastness;
- Method C. Round head reciprocating rubbing color fastness;
- Method D. Bleeding color fastness.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in the text. Among them, for dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB/T 250 Textiles - Tests for color fastness - Grey scale for assessing change in color (GB/T 250-2008, ISO 105-A02.1993, IDT)

GB/T 251 Textiles - Tests for color fastness - Grey scale for assessing staining (GB/T 251-2008, ISO 105-A03.1993, IDT)

GB/T 6151 Textiles - Tests for color fastness - General principles of testing (GB/T 6151-2016, ISO 105-A01.2010, MOD)

GB/T 6682-2008 Water for analytical laboratory use - Specification and test methods (GB/T 6682-2008, ISO 3696.1987, MOD)

GB/T 7568.7 Textiles - Tests for color fastness - Standard adjacent fabrics - Part 7. Multi-fiber (GB/T 7568.7-2008, ISO 105-F10.1989, MOD)

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

GB/T 33729 Textiles - Tests for color fastness - Cotton rubbing cloth (GB/T 33729-2017, ISO 105-F09.2009, MOD)

QB/T 2724 Leather - Chemical tests - Determination of pH (QB/T 2724-2018, ISO 4045.2008, MOD)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Color fastness

The ability of footwear materials or components to retain their color after exposure to various factors.

4.1 Method A

4.1.1

Test equipment, including the components specified in 4.1.1.1 ~ 4.1.1.8.

4.1.1.7

A device that can apply a downward force of (4.9 ± 0.1) N or (9.8 ± 0.2) N to the rubbing head.

4.1.1.8

A device that records the number of platform operations.

4.1.2

White square pure wool felt block, meeting the requirements of 4.1.2.1 ~ 4.1.2.4.

4.1.2.1

The side length is (15 ± 1) mm.

4.1.2.2

The mass per unit area is (1900 ± 150) g/m².

4.1.3 The gray scale with half-level grading used for evaluating discoloration and staining shall meet the requirements of GB/T 250 and GB/T 251.

4.1.4 The artificial light source used in the evaluation box shall meet the requirements of GB/T 6151. If daylight is used, use daylight from the north.

4.1.5 Distilled water or deionized water shall meet the requirements of grade 3 water in GB/T 6682-2008.

4.1.6 Alkaline sweat solution, containing the following per liter.

4.2.1 Test equipment, including the components specified in 4.2.1.1 ~ 4.2.1.5.

4.2.1.1 Rigid platform (preferably metal) capable of holding the specimen.

4.2.1.2 Vertically rotating shaft, capable of fixing the circular felt block.

4.2.1.3 Capable of rotating the felt block at a speed of (149.0 ± 4.8) r/min ± 1 .

4.2.1.4 Capable of applying a force of (24.5 ± 0.5) N or (7.1 ± 0.2) N to the rotating felt block.

4.2.1.5 Counter for recording the number of rotations of the felt block.

4.2.2 Circular fine-combed pure wool felt block with a hole in the middle, meeting the following requirements.

4.2.3 Grey scale card for evaluating discoloration and staining, which meets the requirements of GB/T 250 and GB/T 251, respectively.

4.2.4 Metal plate, which has a size of approximately 75 mm x 65 mm, a thickness of 5 mm, a diameter of 25 mm for the middle hole, is used for the test of wetting the back with organic solvent as described in 6.2.2.6.

4.2.9 Alkaline sweat, used for the alkaline sweat rubbing test described in 6.2.2.4, each liter of solution contains.

4.3.3 Gray scale card for evaluating staining level, in accordance with GB/T 251.

4.3.4 Artificial light source used in the evaluation box complies with the requirements

of GB/T 6151. If daylight source is used, use daylight from the north.

4.3.5 Distilled water or deionized water, in accordance with the requirements of grade

3 water in GB/T 6682-2008.

4.4.1 Glass container, large enough to accommodate the glass plate of each combined

specimen (4.4.2).

4.4.10 Acidic sweat solution, each liter of solution contains.

5.1 Method A

5.1.1

The rectangular specimen is required to be large enough to be firmly clamped on the test platform (4.1.1.1). The specimen can be taken in any direction of the material.

In general, the minimum size of the specimen shall be 100 mm x 25 mm. If it is a tensile material, it should take sample from the direction with less elasticity.

5.2 Method B

5.2.1

The specimen size shall be large enough to be firmly fixed on the test platform (4.2.1.1). In general, the specimen shall be a 60 mm x 60 mm square, or a 60 mm diameter circle; or a 60 mm wide strip specimen can be used for multiple tests.

5.2.2

Before the test, place the specimen in the standard environment specified in GB/T 22049 for at least 24 hours.

5.4 Method D

5.4.1

The specimens may be taken from the raw materials used for uppers, linings, insoles, from formed uppers, linings, insoles, or from finished shoes.