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

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**Leather - Tests for colour fastness - Colour fastness to
rotational abrasion**

皮革 色牢度试验 旋转摩擦色牢度

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1 Scope

China's national test method for the colour fastness of leather to rotational abrasion. The test rubs a felt pad against the leather in a rotating motion under a defined load, and assesses both the colour transferred to the pad and the damage to the leather surface. Rotational rather than linear abrasion is the point: it reproduces what a seat, a steering wheel, a bag handle or a shoe upper actually experiences, where the contact rotates and shifts rather than tracking back and forth along one line, and where the finish is worked in every direction. Leather's colour is a surface finish rather than a dye through the substance for most modern leathers, which is why abrasion removes it rather than merely fading it, and why the test assesses the substrate's appearance as well as the transfer. For automotive interior leather, which is the most demanding application, this is a specification requirement rather than a quality check.

This document describes a test method for the colour fastness to rotational rubbing of leather. This document is applicable to the determination of colour fastness to rotational rubbing of various types of leather and leather products.

2 Normative references

The following documents contain the provisions which, through normative reference in this document, constitute the essential provisions of this document. For the dated referenced documents, only the versions with the indicated dates are applicable to this document; for

the undated referenced documents, only the latest versions (including all the amendments) are applicable to this document.

GB/T 250 Textiles - Tests for colour fastness - Grey scale for assessing change in colour

GB/T 251 Textiles - Tests for colour fastness - Grey scale for assessing staining

GB/T 6151 Textiles - Tests for colour fastness - General principles of testing

GB/T 6682 Water for analytical laboratory use - Specification and test methods

GB/T 42165 Leather - Tests for colour fastness - Colour fastness to perspiration QB/T 2707

Leather - Physical and mechanical tests - Sample preparation and conditioning

3 Terms and definitions

There are no terms or definitions that need to be defined in this document.

4 Principles

Under the specified pressure, a felt is used to rotate and rub on the surface of the leather specimen for the specified number of times, and then a grey scale is used to assess the

5.8 Specimen fixing piece: The minimum size is a square of 60 mmx60 mm (or a circle with a diameter of 60 mm). A 30 mmx30 mm square or a circular specimen with a diameter of 30 mm can be directly adhered to the center of the fixing piece. The minimum thickness of the fixing piece is

1.0 mm. It can act as an adhesive when necessary to maintain the flatness of the specimen.

6 Preparation and conditioning of specimens

6.1 Specimen preparation When the sample can be fixed flatly on the test platform, the sample can be tested directly. When the sample cannot be fixed flatly on the test platform, cut a 30 mmx30 mm square or a circle with a diameter of 30 mm from the sample and fix the specimen with the specimen fixing piece (5.8); a strip specimen with a width of 30 mm can also be used for the experiment. The surface of the specimen shall be smooth and without stitching, piercing, punching, or weaving. Only one specimen needs to be tested for each test condition. If there is any dispute, specimens shall be taken from different parts and tested separately, and the result with the worst rating shall be used as the final result.

6.2 Conditioning of specimen and felt The specimen and dry felt shall be conditioned according to the provisions of QB/T 2707, and the test shall be conducted in the standard atmosphere under the same conditions.

7.1 Dry friction test

7.1.1 Fix the specimen on the test platform and load the weight block to make the test head pressure be (24.5 ± 0.5) N.

7.1.2 Fix the felt on the rotating shaft of the testing machine.

7.1.3 Lower the rotating shaft of the testing machine until the felt and the specimen are in horizontal contact, start the machine, and rub the specimen a specified number of times.

7.1.4 After the test is completed, raise the rotating shaft of the testing machine and remove the specimen and felt.

7.2 Wet friction test

7.2.1 Put the felt into deionized water (5.6), slowly heat it to boiling, and keep boiling for 60 seconds; then, pour off the hot water, add cold deionized water, and let it stand to cool the wet felt to room temperature. Before use, take the felt out of the water, adjust the moisture in the felt by gently squeezing it, and make the water absorption capacity of each felt about 1 g. The soaking time of the felt in water shall not exceed 24 hours.

7.2.2 Fix the specimen on the test platform and load the weight block to make the test head pressure (7.1 ± 0.2) N.

7.2.3 Fix the wet felt on the rotating shaft of the testing machine.

7.2.4 Lower the rotating shaft of the testing machine until the wet felt and the specimen are in horizontal contact, start the machine, and rub the specimen a specified number of times.

7.2.5 After the test is completed, raise the rotating shaft of the testing machine, remove the specimen and wet felt, and dry them at room temperature.

7.3 Sweat friction test

7.3.1 Put the felt into deionized water (5.6), slowly heat it to boiling, and keep boiling for 60 seconds; then, pour out the hot water, add cold deionized water, and let it stand to cool the wet felt to room temperature. Take out the felt and place it in the middle of four layers of filter paper (two layers each on top and bottom, with the test surface in horizontal contact with the filter paper). Place a weight of (900 ± 10) g on the filter paper for about 10 minutes to remove excess water from the felt, and then immediately soak it in artificial sweat (5.7); take it out after about 5 minutes, adjust the artificial sweat in the felt by gently squeezing, and make the adsorption capacity of each felt to artificial sweat is about 1 g. The soaking time of the felt in artificial sweat shall not exceed 24 hours. NOTE: When operating step 7.3.1, wear suitable gloves to avoid the direct contact of wet felt with the skin.

7.3.2 Fix the specimen on the test platform and load the weight block to make the test head pressure (7.1 ± 0.2) N.

7.3.3 Fix the felt soaked by artificial sweat on the rotating shaft of the testing machine.

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