NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 39369-2020

Leather - Physical and mechanical tests - Determination of water vapour permeability

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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 modify and adopt ISO 14268:2012 "Leather - Physical and mechanical tests - Determination of water vapour permeability".

The technical differences between this Standard and ISO 14268:2012 and the reasons are as follows:

-- Modify the statement of the standardization object in Chapter 1 "Scope"; add the description of the applicability of the standard;

-- With regard to the normative references, this Standard makes technical adjustments to adapt to the technical conditions of China. The adjustments are concentrated in Chapter 2 "Normative references". The specific adjustments are as follows:

* Use GB/T 39364 which modifies and adopts international standards to replace ISO 2418 (see 5.1 and Chapter 8);

* Use QB/T 2707 which modifies and adopts international standards to replace ISO 2419 (see 4.7 and 5.3);

* Use QB/T 2709 which modifies and adopts international standards to replace ISO 2589 (see 5.2);

* Use QB/T 2714 which modifies and adopts international standards to replace ISO 5402-1 (see 4.10 and 5.2);

-- Add related labels to Figure 1 (see Figure 1);

-- Modify accuracy requirements for "analytical balance" (see 4.4);

-- Add the provision that other equivalents can be used instead of beeswax (see 4.8);

-- Add titles to the first-level articles in Chapter 5 (see Chapter 5);

-- Adjust the second paragraph of 5.1 to 5.2 (see 5.2);

-- Add the requirement that "it can be polished with a suitable instrument" (see 5.2);

-- Adjust the last paragraph of 5.2 to a note of 5.2 (see 5.2);

Leather - Physical and mechanical tests -
Determination of water vapour permeability

1 Scope

This Standard specifies the determination method of water vapour permeability of leather.

This Standard applies to the determination of water vapour permeability of various types of leather.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

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);

QB/T 2709, Leather - Physical and mechanical tests - Determination of thickness (QB/T 2709-2005, ISO 2589:2002, MOD)

QB/T 2714, Leather - Physical and mechanical tests - Determination of flex resistance (QB/T 2714-2018, ISO 5402-1:2011, MOD)

3 Principle

Fix the sample in an open container bottle that contains a solid desiccant; then, place it in a standard atmosphere with strong fluidity. The air in the container bottle is continuously absorbed by the solid desiccant that rotates with the container bottle. By weighing the mass of the container bottle before and after the test, calculate the water vapour permeability of the sample.

4.1 Container bottle: the inner diameter of the bottleneck is (30+/-3) mm; it has a swiveling cover that has a round hole; the diameter of the round hole is equal to the inner diameter of the bottleneck; the bottle height is about 70 mm ~ 90 mm.

4.2 Tester, which includes the following parts:

a) Turntable: it is installed vertically; the speed is (75+/-5) r/min; it can support the container bottle (4.1); the circular axis of the container bottle is parallel to the axis of the turntable; the distance between the two axes is (67+/-2) mm.

b) Fan: it is installed on the bottle mouth opposite to the container; it contains

3 fan blades that are 120° each other; the fan blade plane passes through

the extension line of the axis of the vertically-installed turntable. The size of the fan blade is 90 mm x 75 mm; the distance BETWEEN the 90 mm end that is closest to the container bottle mouth AND the container bottle, when it passes the container bottle, is (10+/-5) mm. The fan speed is (1

400+/-100) r/min; the direction of rotation is opposite to the direction of the turntable. See Figure 1 for the installation of the turntable and fan.

4.3 Dry allochroic silica gel: the particle size is 2 mm ~ 5 mm; sift out smaller particles and dust. Before the test, dry it in a ventilated oven at (125+/-5) °C for about 16 h; then, cool to the test temperature in a closed container bottle. The particle size of silica gel shall be such that it cannot pass through a 2-mm screen; the desiccant that has not been cooled to the test temperature shall not be used.

Note 1: It is recommended to use silica gel beads, because compared with silica gel particles, silica gel beads generate less dust.

Note 2: When a large amount of silica gel is placed in a closed container bottle, the cooling rate is slow; the cooling time can be appropriately extended, so as to cool all silica gel to the test temperature.

4.6 Caliper: the accuracy is 0.1 mm; it can measure the inner diameter of the bottleneck of the container bottle.

4.7 Die cutter: in line with the provisions of QB/T 2707. It can cut a round sample that matches the container bottle mouth, so that it has a better airtightness at the container bottle mouth.

the leather during the sanding process is about 2 N (It can also be polished with a suitable instrument). Then, use the die cutter (4.7) to cut a round specimen in the area of the leather after sanding.

b) According to the provisions of QB/T 2714, bend the specimen 20 000 times; use the die cutter (4.7) to cut a round specimen within the bent area.

c) Use the die cutter (4.7) to directly cut a round specimen.

Note 2: The coating of leather grain can affect the penetration of water vapour into the leather; this effect will be reduced after a slight sanding or bending test. The treatment methods which are specified in a) and b) are intended to imitate the wear of leather in use. If the specimen does