

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

QB/T 5155-2017

**Test method of artificial leather and synthetic leather -
Determination of softness**

人造革合成革试验方法 柔软度的测定

(English Translation)

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1 Scope

This Standard specifies 3 test methods for determining the softness of artificial leather and synthetic leather; i.e., load needle method (Method-A), flat push method (Method-B) and draping method (Method-C).

This Standard is applicable to the softness test of artificial leather and synthetic leather.

2 Normative References

The following documents are essential to the application of this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this

Document.

GB/T 2918-1998 Plastics - Standard atmospheres for conditioning and testing

3.1 Principle

At a certain speed, a load needle of a certain mass is released to the surface of the specimen fixed in the holder, and the softness of the specimen is expressed by the amount of deformation of the specimen.

3.2 Test instrument

3.2.1

The test device is shown in Figure 1, including the following parts:

a) Round-hole A: The diameter can be adjusted by a metal ring in three positions:

(35.0±0.1) mm, (25.0±0.1) mm, (20.0±0.1) mm;

b) Holder B: Fix the specimen;

c) Loading needle C: diameter (4.9±0.1) mm, length (11.5±0.1) mm, fixed on the cylinder

B - end-point mark;

C - platen;

D - specimen;

E - test platform;

L - moving distance of specimen.

Figure 3 - Schematic Diagram of Test of Flat Push Method

4.3 Preparation of specimen

The size of the specimen shall be 200mmx25mm; take 3 pieces in the vertical and horizontal directions, respectively; ensure that the surface of the specimen is free from wrinkles, scars and other defects that affect the test results.

NOTE: This method is not suitable for specimens with severe curling phenomenon.

4.4 Specimen conditioning and test environment

The specimen conditioning shall be carried out in an environment of temperature (23±2) °C and relative humidity (50±10) % according to the provisions of GB/T 2918-1998; and the time shall be no less than 4h; and the test shall be carried out in this environment.

4.5 Test procedure

4.5.1

Put the specimen on the test platform with the use side upward, align the short side of the specimen with the short side of the test platform; and mark the position of the front edge as the starting-point A.

4.5.2

Put a platen on the specimen; apply force on the platen to push the specimen to move horizontally to the slope side at a certain speed.

4.5.3

After the specimen stretches out from the platform, it bends and sags under its own weight; and stops pushing when the drooping end of the specimen touches the surface of the slope.

4.5.4

Mark the position of the short side of the specimen on the test platform as the end-point B.

4.5.5

Remove the platen and specimen; measure the linear distance L between point A and point B with a steel ruler; and record the test data.

4.5.6

For the test results, take the arithmetic mean of the test data in the two directions respectively, and retain 1 digit after the decimal point.

B - upper fixed clamping device;

C - base;

D - test platform.

Figure 4 - Schematic Diagram of Testing Device of Draping Method

5.4 Preparation of specimen

The size of the specimen shall be 270 mm x 100 mm; take 3 pieces in the longitudinal and transverse directions, respectively; ensure that the surface of the specimen is free from defects such as wrinkles and scars that may affect the test results.

5.5 Specimen conditioning and test environment

The specimen conditioning shall be carried out in an environment of temperature $(23 \pm 2) ^\circ \text{C}$ and relative humidity $(50 \pm 10) \%$ according to the provisions of GB/T 2918-1998; and the time shall be no less than 4 h; and the test shall be carried out in this environment.

5.6 Test procedure

5.6.1

As shown in Figure 5, put the use side of the specimen opposite to the test platform; fix the short side of the specimen horizontally with the lower fixed clamping device A; and adjust the specimen so that it is in the middle of the test platforms and droops naturally.

5.6.2

Turn the short side of the lower end of the specimen upwards; fix it horizontally with the upper fixed clamping device B; make the sample form a ring; and start timing.

5.6.3

Droop and stand for 60 s.

5.6.4

Use an altimeter to measure the straight-line distance L1 between two horizontal planes parallel to the base and tangent to the ring specimen; and measure the straight-line distance L2 between two vertical planes perpendicular to the base and tangent to the ring specimen.

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