



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

GB/T 4802.4-2020

**Textiles--Determination of the fabric propensity to surface
pilling, fuzzing or matting - Part 4: Random tumble pilling
method**

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Foreword

GB/T 4802 "Textiles - Determination of the fabric propensity to surface pilling, fuzzing or matting" is divided into 4 parts;

- Part 1.Circular locus method;
- Part 2.Modified Martindale method;
- Part 3.Pilling box method;
- Part 4.Random tumble pilling method.

This Part is Part 4 of GB/T 4802.

This Part was drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 4802.4-2009 "Textiles - Determination of the fabric propensity

to surface pilling, fuzzing or matting - Part 4. Random tumble pilling method". The main technical changes, as compared to GB/T 4802.4-2009, are as follows.

- MODIFY the scope of application, adding the inapplicable categories (see Chapter 1; Chapter 1 of the 2009 edition);
- ADD "GB/T 6031-2017" to the normative reference (see Chapter 2; Chapter 2 of the 2009 edition);
- ADD two terms "jamming, wedging, or entanglement" and "matting" (see 3.4 and 3.5);
- MODIFY the lining material into "polychloroprene lining"; "cork lining" may be used with approval (see 5.1.2 and 5.2.4; 5.1.1 of the 2009 edition);
- MODIFY the "grey short cotton" engaged in testing into "short-staple cotton (optional)" (see 5.2.5; 5.4 of the 2009 edition);
- MODIFY the sampling method into sampling "at an angle of approximately 45° to the warp (longitudinal) or weft (transverse) direction of the fabric" (see 7.2; 7.2.2 of the 2009 edition);
- CHANGE the test procedure from "place one specimen in each test chamber" into that "place 3 specimens of the same sample in one test chamber" (see 9.3; 8.2 of the 2009 edition);
- CHANGE the test time from 30 minutes to three test stages of 5 minutes, 15 minutes, 30 minutes (see 9.4; 8.2 of the 2009 edition);

Textiles - Determination of the fabric propensity to surface pilling, fuzzing or matting - Part 4. Random tumble pilling method

1 Scope

This Part of GB/T 4802 specifies the method for determining the fuzzing, pilling, matting properties of fabrics using a random tumbling tester.

This Part applies to woven and knitted fabrics, including pile fabrics.

This Part does not apply to fabrics that do not tumble freely.

2 Normative references

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

GB/T 6031-2017 Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD) (ISO 48.2010, IDT)

GB/T 6529 Textiles - Standard atmospheres for conditioning and testing (GB/T 6529-2008, ISO 139.2005, MOD)

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

Fuzzing

A visible surface change on a fabric resulting from protruding fibers or fiber ends forming a fuzzy appearance.

Note. This change may occur during washing, dry cleaning, wear, or use.

3.2

Pills

Dense, light-impermeable balls that project from the fabric surface and form shadows due to the entanglement of fibers.

Note. Pilling may occur during washing, dry cleaning, wear, or use.

3.3

Pilling

The process by which pilling occurs on the fabric surface.

3.4

Jamming, wedging, or entanglement

The specimen is wrapped around the impeller or attached to the inner wall of the test chamber, preventing it from tumbling freely.

3.5

Matting

The visible surface change caused by the entanglement of fibers protruding from the surface of a pile fabric, forming a disordered arrangement.

4 Principle

Under specified conditions, the specimen is randomly tumbled in a cylindrical test chamber lined with a lining material. After a specified test time, the fabric is visually evaluated for fuzzing, pilling, matting.

Note 1. Any special treatment of the specimen (e.g., washing, cleaning) may be agreed upon by

the parties involved and noted in the test report.

Note 2. Appendix C explains the basic principles of different test methods for fabric pilling performance and the types of products they are applicable to.

5.1.1 Random tumble tester

The apparatus consists of one or more horizontally placed cylindrical test chambers, which have an internal depth of (152.4 ± 1.0) mm and a diameter of (146 ± 1) mm. Each chamber has a horizontal shaft with an impeller in the center, capable of rotating at 1200 r/min. The apparatus must be capable of continuously tumbling the specimens, to Used to cut square or circular specimens with a test area of (100 ± 2) cm².

Note. Studies have shown that specimen shape has no effect on test results.

5.2.3 Standard rating sample (optional)

Contains a photograph showing the pilling severity from grade 1 to grade 5. The sample size shall be consistent with the specimen.

5.2.4 Cork lining (optional)

With the consent of the relevant parties, a cork lining may be used to substitute the polychloroprene lining (see 5.1.2).

Note. The test time for testing with a cork lining is twice that specified in 9.4. The cork lining can be used on both sides and shall be replaced after 1 hour of use on each side.