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

GB/T 21196.2-2007

**Textiles - Determination of the abrasion resistance of fabrics by
the Martindale method - Part 2: Determination of specimen
breakdown**

(English Translation)

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1 Scope

This Part of GB/T 21196 specifies the test method for abrasion resistance with specimen breakdown as the test endpoint.

This part applies to all textile fabrics, including nonwovens and coated fabrics.

This part does not apply to fabrics with a short abrasion life.

Note: Part 1 of this standard gives a more detailed introduction.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Part of GB/T 21196. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Part; however, parties who reach an agreement based on this Part are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB 250 Gray scale for assessing change in colour (GB 250-1995, idt ISO105-A02:1993)

GB/T 2828.1 Sampling procedures - Part 1. retrieval by acceptance quality limit (AQL) for

lot-by-lot inspection sampling plan (GB/T 2828.1-2003, idt ISO 2859-1.1999)

GB 6529 Standard atmospheres for textiles conditioning and testing (GB 6529-1986, neq ISO 139.1973)

GB/T 21196.1 Textiles - Determination of the abrasion resistance of fabrics by the Martindale method - Part 1. Martindale abrasion testing apparatus (GB/T 21196.1-2007, ISO 12947-1.1998, MOD) loading block) is.

a) (795 ± 7) g (nominal pressure is 12 kPa). Applicable to work clothes, furniture decorative fabrics, bedding linens, industrial fabrics.

b) (595 ± 7) g (nominal pressure is 9 kPa). Applicable to clothing and household textiles (excluding furniture decoration fabrics and bed linens), and also to non-clothing coated fabrics.

c) (198 ± 2) g (nominal pressure is 3 kPa). Applicable to clothing coated fabrics.

Continue the abrasion test until the specimen is breakdown (see Chapter 8).

Determine the total number of frictions based on the breakdown of the specimen.

Record the accumulated number of abrasions before the specimen is breakdown, that is, the number of abrasions.

5 Instruments and auxiliary materials

5.1

Test instruments and auxiliary materials shall comply with the provisions of GB/T 21196.1; for coated fabrics, No.600 abrasion sandpaper shall be used as the standard abrasive.

5.2

Magnifying glass or microscope, such as an 8x magnifying glass.

6 Humidification and test atmosphere

The humidity and test atmosphere adopts the third-level standard atmosphere specified in GB 6529, that is, temperature (20 ± 2) °C, relative humidity $(65 \pm 5)\%$.

7.1 General provisions

The number of batch samples shall be taken in accordance with the provisions of the corresponding product standards or as agreed by the relevant parties, or in accordance

with the provisions of GB/T 2828.1.

The tensile stress during the entire sampling and specimen preparation process shall be as small as possible, to prevent the fabric from being stretched inappropriately.

7.2 Selection of laboratory samples

Select representative samples from the batch samples; take the full width of the fabric as laboratory samples.

7.3 Cutting specimens from laboratory samples

Before sampling, place the laboratory samples in a relaxed state on a smooth, air-circulating surface and place them in the standard atmosphere specified in Chapter 6 for at least 18 hours.

At least 100 mm away from the edge of the fabric, cut a sufficient number of specimens from the entire laboratory sample, generally at least 3 pieces.

For woven fabrics, each specimen taken shall contain different warp or weft yarns.

For jacquard fabrics or fancy fabrics, it shall be noted that the specimen contains all the features of each part of the pattern, to ensure that the specimen includes the pattern parts that may be sensitive to abrasion. Each part is sampled separately.

7.4.1 Dimensions of specimens

The diameter of the specimen shall be mm.

7.4.2 Dimensions of abrasives

The diameter or side length of the abrasive shall be at least 140 mm.

7.4.3 Dimensions of abrasive felt backing

The diameter of the woven wool felt backing shall be mm.

7.4.4 Dimensions of foam pads for specimen fixtures

The diameter of the foam pads for specimen fixtures shall be mm.

7.5.1 Elastic fabrics

See Chapter A.1 of Appendix A.

7.5.2 Corduroy fabrics and pile fabrics

See Chapter A.2 of Appendix A.

7.6.1 Preparation

Mold or cut the specimens from laboratory samples. Pay special attention to the neatness of the cut edges, to avoid unnecessary material loss during the next step of processing.

Prepare abrasive fabric, felt and foam plastic auxiliary materials in the same way.

Note: In some cases, auxiliary materials are available in ready-made sizes.

7.6.2 Installation of specimens

Place the specimen fixture nut on the mounting device of the instrument table; place the specimen with the friction surface facing down in the center of the clamping nut.

When the unit area mass of the specimen is less than 500 g/m², place the foam plastic pad on the specimen. Place the specimen fixture insert in the clamping nut; then put the specimen fixture socket on it and tighten it.

Note: When installing the specimen, avoid distorting the fabric.

7.6.3 Installation of abrasive

Remove the specimen fixture guide; place the felt on the grinding table; place the abrasive on the felt. When placing the abrasive, make sure that the warp and weft yarns of the abrasive fabric are parallel to the edge of the instrument table.

Press a weight with a mass of (2.5 ± 0.5) kg and a diameter of (120 ± 10) mm onto the felt and abrasive on the grinding table; tighten the clamping ring; fix the felt and abrasive; remove the pressure weight.

7.7 Effective life of auxiliary materials

New abrasives need to be replaced for each test. If the wool standard abrasive is rubbed more than 50000 times in an abrasion test, the abrasive shall be replaced every 50000 times; if the water sandpaper standard abrasive is rubbed more than 6000 times, the abrasive shall be replaced every 6000 times.

After each abrasion test, check the stains and abrasion on the felt. If there are stains or visible abrasion, replace the felt. Both sides of the felt can be used.

For abrasion tests using foam plastics, use a new piece of foam plastic for each test.