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# TEXTILE INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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# Corduroy wear

灯芯绒服装

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#### FZ/T 81019-2014

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# Corduroy wear

# 1 Scope

This Standard specifies the requirements, test methods, inspection classification rules, as well as all technical features such as marking, packaging, transportation and storage, for corduroy wear.

This Standard applies to garments produced with woven corduroy as the main fabric; it applies as a reference to the implementation of velveteen fabrics.

This Standard does not apply to clothes for infants and young children aged 36 months and below.

# 2 Normative references

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

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 1335 (all parts), Standard sizing systems for garments

GB/T 3917.2, Textile - Tear properties of fabrics - Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method)

GB/T 3920, Textiles - Tests for colour fastness - Colour fastness to rubbing

GB/T 3921-2008, Textiles - Tests for colour fastness - Colour fastness to washing with soap or soap and soda

GB/T 4841.3, Colour cards of standard depths for dyeing with dyestuffs 2/1, 1/3, 1/6, 1/12, 1/25

GB 5296.4, Instructions for use of products of consumer interest - Part 4: Textiles and apparel

GB/T 6529, Textiles - Standard atmospheres for conditioning and testing

GB/T 8629-2001, Textiles - Domestic washing and drying procedures for textile testing

GB/T 8630, Textiles - Determination of dimensional change in washing and drying

GB/T 15557, Standard terminology relating to apparel

GB 18401, National general safety technical code for textile products

GB/T 21294, Testing methods of physical and chemical performance of garments

GB/T 21295, Requirements of physical and chemical performance of garments

GB/T 29862, Textiles - Identification of fiber content

GB/T 31907, Method of garment measurement

FZ/T 80002, Marking, packaging, transportation and storage for garments

FZ/T 80004, Rule for garments delivery inspection

FZ/T 80007.3, Dry wash resistance test method for garments used adhesive interlining

# 3 Terms and definitions

Terms and definitions determined by GB/T 15557, as well as the following, are applicable to this document.

### 3.1

#### barring

Striped defects with dark or light shade, which are continually or intermittently distributed on the whole garment (including cut pile barring).

## 3.2

#### brush rail

Uneven fabric surface caused by over or under brushing.

#### 3.3

# crinkled finishing

Unrecoverable creases caused during production of fabrics.

# 4 Requirements

#### 4.1 Instructions for use

The instructions for use of finished products shall be in accordance with GB 5296.4.

### 4.2 Size specifications

The size setting shall be selected according to the provisions of GB/T 1335.

#### 4.3 Raw material

#### 4.3.1 Shell fabric

Shell fabrics that meet the quality requirements of this Standard shall be selected according to the relevant national textile fabric standards.

#### **4.3.2** Lining

Linings that are suitable for the shell fabric used and meet the quality requirements of this Standard shall be used.

#### 4.3.3 Accessories

## 4.3.3.1 Interlining, shoulder pad

Interlinings and shoulder pads that are suitable for the dimensional change rate, performance, and shade of the shell fabric used shall be selected, and the quality shall meet the requirements of this Standard.

#### 4.3.3.2 Suture

Sutures that are suitable for the performance and shade of the shell fabrics and accessories used shall be selected, and the shrinkage of the embroidery thread shall be compatible with the shell fabric.

### 4.3.3.3 Button, zipper and accessories

Buttons, zippers and other accessories suitable for the shell fabric used shall be selected; buttons shall be smooth and free of defects on the surface; accessories shall be free from blemishes, sharp points and sharp edges, and shall not deform, discolor, stain, or rust after washing and/or ironing. Zippers shall engage well and run smoothly.

#### 4.4 Bars and grids

**4.4.1** Shell fabric which has obvious bars and grids of 1.0 cm or above shall be in accordance with the provisions in Table 1.

- **4.8.2** All parts shall be sewed flat and smooth; the threads shall be straight, neat and firm; the stitches shall be uniform; the upper and lower threads shall be of proper degree of tightness; there shall be no skipped threads or broken threads; the starting and ending stitches shall be returned to the stitches firmly.
- **4.8.3** The collar shall be flat, smooth, and shall not be warped; the open thread of the collar shall not have connected threads or skipped stitches.
- **4.8.4** The armholes shall be even, and the front and back of the two sleeves shall be basically the same.
- **4.8.5** The pocket and the pocket flap shall be appropriate in size, square, round and smooth, and of consistent height on the left and right; the two ends of the pocket opening shall be knotted.
- **4.8.6** The welt and the band shall be flat and uniform in width.
- **4.8.7** The exposed seam allowances shall be overlocked, and the seam allowances of each part shall not be less than 0.8 cm, except for special parts such as collars, pockets, closures, and front edges.
- **4.8.8** The lock holes shall be positioned accurately, of appropriate size, neat and firm. The hole position shall not be deviated; the lock hole stitch shall be beautiful, neat and flat.
- **4.8.9** The sewing button shall be firm, the height of the button foot shall be appropriate, and the thread knot shall not be exposed. The sewing buttons must not be sewed on a single layer of cloth (except for decorative buttons); the height of the winding line shall be suitable for the thickness of the lock hole; the knots shall be firm and complete.
- **4.8.10** Buttons and buttonholes must be aligned up and down. The snap fastener shall be firm, aligned up and down, fitted moderately, without deformation and of proper degree of tightness.
- **4.8.11** The closure zipper shall be flat, with the same height on the left and right.
- **4.8.12** Trademarks and durable labels shall be accurate, clear, and positioned correctly.
- **4.8.13** The symmetrical parts shall be basically the same.
- **4.8.14** Neither continuous skipped stitches nor two or more single skipped stitches are allowed within 30 cm; no skipped stiches are allowed for chain stitches.
- **4.8.15** Decorations (embroideries, inlays, etc.) shall be firm and smooth.
- **4.8.16** The side seams of trousers (skirts) shall be straight; the distortion after washing of trousers and tight skirts shall not be greater than 2%; shorts are not assessed.

interlining; falling-off and rust are
not allowed on the accessories

- **4.11.2** According to the provisions of GB/T 4841.3, the color darker than 1/12 standard dyeing depth is dark color, and the color lighter than or equal to 1/12 standard dyeing depth is light color.
- **4.11.3** The dimensional change rate and color fastness to soaping of finished products after washing are not assessed for products marked as non-washable in the instructions for use. The dimensional change rate and color fastness to dry cleaning of finished products after dry cleaning are not assessed for products marked as non-dry cleaning in the instructions for use. Color fastness to transfer in joints is only assessed for products that are marked as washable in the instructions for use and are joined with dark and light colors.
- **4.11.4** In the dimensional change rate, only the closed collar is assessed for collar size. Elastic waist circumference is not assessed for waist circumference, and transverse dimensional change rate is not assessed for pleated or weft elastic products.
- **4.11.5** The peeling strength of the adhesive interlining is only assessed on the collar and body parts of the tops, and the peeling of the composite fabric is not assessed. If the non-woven fabric adhesive interlining cannot be peeled off in the test, this item shall not be assessed.
- **4.11.6** The joint performance shall not be assessed for the part of the outer layer that is only used for decoration.

#### 5 Test methods

#### **5.1 Inspection tools**

- **5.1.1** Steel tape or steel ruler, of which the division value is 1 mm.
- **5.1.2** Grey scale for assessing change in colour in tests for colour fastness of textiles (GB/T 250).
- **5.1.3** Grey scale for assessing staining in tests for colour fastness of textiles (GB/T 251).
- **5.1.4** Colour cards of standard depths for dyeing with dyestuff 1/12 (GB/T 4841.3).
- **5.1.5** Sample photos of appearance defects of men's and women's single garments, cotton garments, and boys' and girls' single garments.

#### 5.2 Determination of finished product specifications

**5.2.1** The specifications of the main parts of the finished product shall be in accordance with 4.2.

**5.2.2** The measurement method of the main parts of the finished product shall be in accordance with GB/T 31907, and the allowable deviation of the specification shall be in accordance with 4.9.

### 5.3 Appearance measurement

- **5.3.1** For appearance inspection of finished products, generally use light inspection, of which the illuminance is not less than 600 lx; if it is available, northern sky lighting can also be used.
- **5.3.2** When evaluating the degree of color difference of the finished product, the pile of the evaluated part shall be in the same direction. The incident light forms an angle of about 45° with the fabric surface, and the observation direction shall be perpendicular to the fabric surface; visually inspect at a distance of 60 cm; compare with the sample card of GB/T 250.
- **5.3.3** The permissible degree of defects in the appearance of finished products shall be in accordance with the regulations in 4.7. Visually inspect at a distance of 60 cm, and use a steel tape for measurement if necessary; compare with the samples of defects in the appearance of men's and women's singles, cotton garments, and boys' and girls' single garments.
- **5.3.4** Take any 3 cm of the finished sewing stitch to measure the stitch density (except for the thick and thin parts).
- **5.3.5** Represent the degree of allowable inclination by the weft slope and calculate according to Formula (1) (the result is rounded to one decimal place).

$$k_{\text{ weft slope}} = \frac{a}{b} \times 100\%...(1)$$

Where:

k weft slope − weft slope, %;

- a the maximum inclination and horizontal distance of the weft yarn (strip), in centimeters (cm);
- b the width of the garment piece, in centimeters (cm).
- **5.3.6** Determination method of distortion:
- a) Determination method of trousers distortion:

The measurement method is shown in Figure 2, and the distortion is calculated according to Formula (2).

$$k_{\text{distortion}} = \frac{b-a}{c} \times 100\%...(2)$$

- **5.4.7** For other items of physical and chemical properties, test in accordance with GB/T 21294.
- **5.4.8** For the test items that are not mentioned at the sampling part, choose samples on the finished products according to the requirements.

# 6 Inspection classification rules

### **6.1 Inspection classification**

- **6.1.1** Finished product inspection is divided into ex-factory inspection and type inspection.
- **6.1.2** Ex-factory inspection shall be in accordance with the regulations in Chapter 4, except 4.11. The ex-factory inspection rules for finished products shall be in accordance with FZ/T 80004.
- **6.1.3** Type inspection shall be in accordance with Chapter 4.

### 6.2 Quality grade and defect classification rules

#### 6.2.1 Quality classification

The quality classification of finished products is based on the existence and severity of defects. The single product in the sampling sample is graded according to the number of defects and their severity, and the batch grade is classified according to the quantity of the single product in the sampling sample.

#### 6.2.2 Defect classification

It is a defect if a single product does not meet the technical requirements specified in this Standard.

Defects are divided into three categories according to the degree to which the product does not comply with this Standard and the degree of impact on the performance and appearance of the product:

#### a) Serious defect

Defects that seriously reduce the performance of the product and seriously affect the appearance of the product are called serious defects.

### b) Major defect

It does not seriously reduce the performance of the product and does not seriously affect the appearance of the product. However, the defects that do not meet the standards seriously are called major defects.

If one or more of the physical and chemical properties are unqualified, determine the random inspection batch as unqualified.

Batch of superior products: the number of superior products in the appearance sample is  $\geq 90\%$ , and the number of first-grade products and qualified products is  $\leq 10\%$  (excluding unqualified products). The physical and chemical performance tests meet the indicator requirements for superior products.

Batch of first-grade products: the number of products above first-grade products in the appearance sample is  $\geq 90\%$ , and the number of qualified products is  $\leq 10\%$  (excluding unqualified products). The physical and chemical performance tests meet the indicator requirements for first-grade products.

Batch of qualified products: the number of products above qualified products in the appearance sample is  $\geq 90\%$ , and the number of unqualified products is  $\leq 10\%$  (excluding unqualified products with serious defects). The physical and chemical performance tests meet the indicator requirements for qualified products.

When the judgment of appearance sewing quality is inconsistent with the judgment of physical and chemical properties, it shall be judged as the lower grade.

### 6.4.3 Judgment number qualified

In the random inspection, if the judgment number of each batch meets the above regulations, the products shall leave the factory according to the corresponding grade.

### 6.4.4 Judgment number unqualified

If the number of appearance quality judgments of each batch in the random inspection does not meet the requirements of this Standard, a second random inspection shall be carried out, and the number of random inspections shall be doubled; if it still does not meet the requirements of this Standard, determine this batch of products as unqualified.

# 7 Marking, packaging, transportation and storage

The marking, packaging, transportation and storage of finished products shall be carried out according to FZ/T 80002.

# Appendix A

(Normative)

# Test method for pile retention performance of corduroy fabrics

### A.1 Principle

By rubbing the front and back of the corduroy fabric, under the condition of vertical transmitted light irradiation, evaluate the pile falling-off degree of the tested sample.

#### A.2 Instruments and tools

- **A.2.1** Taber abrasion tester: a horizontally rotatable sample platform with a rotational speed of  $(60\pm5)$  r/min, two support arms with grinding wheels, and a distance between the edge of the inner wall of the grinding wheel and the axis of the sample platform  $(26.20\pm0.25)$  mm. Each grinding wheel exerts a force of  $(250\pm10)$  g on the tested sample. A vacuum nozzle is installed above the sample to be tested. The instrument is equipped with a counter to display the number of rotations of the sample platform.
- **A.2.2** CS-10 standard grinding wheel, width (12.7±0.1) mm, maximum diameter 51.7 mm, minimum diameter 44.0 mm. The diameter of the grinding wheel shall be consistent in the test, and the diameter of the grinding wheel shall be recorded in the test report.
- **Note:** The grinding wheel will be gradually consumed during use. The maximum diameter of a new wheel is 51.7 mm, and when the diameter of the grinding wheel is less than 44.0 mm, stop using it.
- **A.2.3** Sampler, be capable of cutting samples with a diameter of (135±2) mm.
- **A.2.4** Circular detachable sample holder.
- A.2.5 Light source box (D65 light source, illuminance greater than or equal to 600 lx).
- **A.2.6** Steel tape (division value 1 mm).

#### A.3 Test environment

Standard atmosphere for humidity control and testing, temperature (20±2) °C, relative humidity (65±4)%.

#### A.4 Sample requirements and preparation

**A.4.1** Sample size: Use a sampler to respectively cut circular samples with a diameter of (135±2) mm on the sample to be tested; fold the circular sample twice; cut off the

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