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Down garments

羽绒服装

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Down garments

1 Scope

This document specifies the terms and definitions, requirements, inspection methods, inspection rules, marking, packaging, transportation and storage of down garments.

This document is applicable to clothing, which is produced with woven fabric as the main fabric AND down as filler. Small parts such as placket, flap, hood, collar, etc. can use other fillers.

This document does not apply to garments, which are filled with down and fiber blends, layered or zoned with fiber filling.

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 standard.

GB/T 250 Textiles - Tests for color fastness - Grey scale for assessing change in color

GB/T 1335 (all parts) Clothing size

GB/T 3921-2008 Textiles - Tests for color fastness - Color fastness to washing with soap or soap and soda

GB/T 5296.4 Instructions for use of consumer products - Part 4: Textiles and clothing

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

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 8427-2019 Textiles - Tests for color fastness - Color fastness to artificial light: Xenon arc

GB/T 8629-2017 Textiles - Domestic washing and drying procedures for textile testing

Down garments

Garments which use down as the filler AND have an express value of the down content not less than 50%.

3.2**Filling shell**

Fabric or non-woven fabric, which wraps down between the fabric and the lining.

3.3**Baby and infant**

Children aged 36 months and below.

Note: Generally, it refers to children, who has a height of 100 cm and below.

4 Requirements**4.1 Instructions for use**

Instructions for use are in accordance with GB/T 5296.4 and GB 31701. Down filler shall be marked with down type, down content, filling amount. Among them, down content shall be labeled and graded in accordance with the requirements of Table A.1 in Appendix A.

4.2 Model specifications

4.2.1 The model setting is in accordance with GB/T 1335 (all parts).

4.2.2 The specifications of the main parts are designed by themselves, according to the relevant requirements of GB/T 1335 (all parts).

4.3 Raw materials**4.3.1 Fabrics**

It should use the fabrics that meet the requirements of this document. The fabrics, which are directly quilted with down, shall have down sprouting resistance.

4.3.2 Lining and filling shell

4.3.2.1 It should use lining and filling shell materials, that are suitable for the fabric used AND meet the requirements of this document.

4.3.2.2 It shall not use airtight fabrics and films.

4.3.2.3 Lining and filling shell materials, which are directly quilted with down, shall have down sprouting resistance.

4.3.3 Filler

4.3.3.1 The express value of down content of down shall not be less than 50%.

4.3.3.2 The deviation between the filling amount of the finished product and the indicated value shall not be less than -5.0%.

4.3.3.3 The down quality requirements shall be in accordance with Appendix A.

Note: The other indicators of down fillers, which are not assessed in this document, shall be determined by the supplier and the buyer, according to the product requirements.

4.3.4 Accessories

4.3.4.1 Lining cloth, shoulder pads, decorative lace, bag cloth

It should use the lining cloths, shoulder pads, decorative laces, bag cloths, which are suitable for the properties of the fabrics and linings used. Their quality shall comply with the relevant requirements of this document.

4.3.4.2 Sutures, cords, elastic bands

It should use sutures, cords and elastics (except decorative threads and decorative belts), that are suitable for the properties of the fabrics, linings, accessories used.

4.3.4.3 Buttons, zippers, other accessories

It should use buttons (except for decoration), zippers, other accessories, which are suitable for the fabric used. Buttons, decorative buckles, zippers, other accessories shall have a smooth surface AND be free from burrs, damages, defects, touchable sharp tips, sharp edges. The zipper meshes well and smoothly.

Note: Touchable sharp tips and sharp edges refer to sharp tips and edges on the finished product, that may cause personal injury to human skin, under normal wearing conditions.

4.4 Warp and weft direction

4.4.1 The front warp shall not be inclined, according to the placket line.

for testing.

5.4 Determination of down quality

5.4.1 Take out all the down of the whole sample. Mix it evenly before test.

5.4.2 Down quality is measured according to the method, which is described in GB/T 10288-2016, of which:

- a) In the identification of goose and duck down types, the specimen preparation is uniformly performed according to the steps of completing the composition analysis test.
- b) Turbidity is determined, according to the method described in Method A in GB/T 10288-2016.
- c) The bulkiness is measured, according to the method described in Appendix C.

5.5 Determination of appearance

5.5.1 The appearance inspection generally adopts light illumination. The illuminance is not less than 600 lx. It may also use the northern sky light, when conditions permit.

5.5.2 When assessing the degree of color difference, the yarn direction of the assessed part shall be the same. The incident light is at an angle of about 45° with the surface of the fabric. The observation direction shall be perpendicular to the surface of the fabric. It is visually inspected at a distance of 60 cm. It is compared with the sample scale of GB/T 250.

5.5.3 When determining the allowable degree of existence of surface defects, visually inspect it at a distance of 60 cm. When appropriate, use a steel tape or ruler for measurement. The defects in each part of the finished product are compared with the "Five-level sample photos of appearance defects and sewing wrinkles of down garment" and "Samples photos of appearance defects of men's and women's singles, cotton garments, and men's and children's single garments".

5.5.4 The stitch pitch density is measured, at any 3 cm on the finished sewing stitches (except for thick and thin parts). Compare the seam shrinkage of the main parts of the finished product with the "Five-level sample photos of appearance defects and sewing wrinkles of down garment".

5.5.5 The skew degree of warp and weft yarn is measured according to the method described in GB/T 14801. The result is calculated according to formula (1).

$$S = \frac{100d}{W} \dots\dots\dots (1)$$

Where:

S - Skew degree of warp or weft yarn, %;

d - The maximum vertical distance BETWEEN the warp or weft AND the ruler, in millimeters (mm);

W - The width of the measuring part, in millimeters (mm).

5.5.6 The sharpness of the tip and edge of the attachment is measured, according to the method described in GB/T 31702.

5.6 Determination of physical and chemical properties

5.6.1 The safety performance of garments for baby and infants, as well as children, shall be determined according to the method described in GB 31701.

5.6.2 Alkylphenol (AP) and alkylphenol polyoxyethylene ether (AP_nEO) are determined, according to the liquid chromatography-mass spectrometry (LC-MS), which is described in 6.2 of GB/T 23322-2018. Take a representative specimen and mix well. Weigh 0.5 g of specimen, from the mixed sample, accurate to 0.01 g. Place it in a 250 mL conical flask with stopper. Add 80 mL of methanol. Ultrasonically extract it for (60 ± 5) min at (70 ± 2) °C.

5.6.3 The color fastness to soap washing shall be determined, according to the method described in Method A(1) of GB/T 3921-2008.

5.6.4 The color fastness to light is determined, according to the method described in GB/T 8427-2019, in which the exposure is carried out according to Method 3, meanwhile the exposure is carried out to the first stage.

5.6.5 The color fastness to staining after splicing shall be determined, according to the method described in Method A of GB/T 31127-2014.

5.6.6 The sampling location for the cracking degree of seam shall be as specified in Table 9. The degree of seam cracking shall be determined, according to the method described in GB/T 21294. Among them, for the fabrics and lining, which have a fabric mass per unit area of 52 g/m² and below, the specified load shall be (45 ± 1) N. The sample, whose fabric and lining are quilted together, is tested as a whole; the load is applied according to the combined quality of the fabric and lining. The inspection results of batch products shall be averaged, according to the provisions of GB/T 21294; the actual measured value shall be taken for a single product.

Appendix C

(Normative)

Determination of down fluffy degree - Steam reduction method

C.1 Instruments and tools

C.1.1 Fluffy meter: anti-static organic glass cylinder, which has a height of not less than 600 mm, AND an inner diameter of (288 ± 1) mm. The platen material is polymethyl methacrylate, which has a diameter of (284 ± 1) mm, a mass of (94.25 ± 0.5) g, a number of holes of 128, AND a hole diameter of 3 mm.

C.1.2 Pouring bucket: funnel type; material is aluminum or other light materials; the cylinder's inner diameter is (40 ± 0.5) cm, the height is (45 ± 1) cm, the bottom's inner diameter is (16 ± 0.5) cm; there is a bottom cover that is attached to the bottom AND can be opened and closed.

C.1.3 Stirring rod: the length of the two rods protruding from the bifurcation is about (60 ± 1) cm; the diameter is (8 ± 1) mm; the angle is $(8 \pm 1)^\circ$; they are bundled together.

C.1.4 Pre-treatment box: The internal size is (40 ± 0.5) cm $\times$ (40 ± 0.5) cm $\times$ (40 ± 0.5) cm; the bottom of the box is a fixed bottom plate; the upper is a movable cover plate; it is surrounded by 14 mesh $\sim$ 16 mesh stainless steel mesh, which has an aperture size of 1.0 mm $\sim$ 1.19 mm; the mesh size is (35 ± 0.5) cm $\times$ (35 ± 0.5) cm.

C.1.5 Steam generator: the blowing pressure is 0.3 MPa $\sim$ 0.35 MPa; the heating power is 1400 W $\sim$ 1800 W.

C.1.6 Nozzle: single flow, spray type, diameter 2 mm.

C.1.7 Hair dryer: rated power 1500 W $\sim$ 1600 W.

C.1.8 Electronic scale: the weighing pan size is above 20 cm $\times$ 20 cm; the maximum weighing is above 3000 g; the division value is 0.1 g.

C.1.9 Stopwatch.

C.2 Specimen preparation

C.2.1 Prepare two independent samples; each has a mass of (35 ± 2) g.

C.2.2 Put the first sample into the pre-treatment box. Use a wooden stick to gently disperse it. There shall be no lumps and entanglements.

C.2.3 The nozzle of the steam generator is 10 cm $\sim$ 15 cm away from the mesh

of the pre-treatment box. Blow the steam into the pre-treatment box. Blow for 20 s on each side, totally 80 s for four sides. Use hands to touch the sample, to confirm that all down and feathers are damp. If it is not completely wet, continue to blow in steam, until the sample is completely wet.

C.2.4 Place the sample for (5 ± 2) min.

C.2.5 The hair dryer is 1 cm ~ 2 cm away from the mesh of the pre-treatment box. Blow the sample dry. Move the dryer continuously, to blow each side for at least 30 s, totally more than 2 min on four sides. Use hand to touch the sample, to confirm that the down and feathers are dry. If it is not completely dry, continue blowing until the sample is completely dry.

C.2.6 Steam-treat the second sample, according to C.2.2 ~ C.2.5 above.

C.2.7 Equilibrate the pre-treatment box, which contains the sample, in a standard atmosphere, for more than 48 hours.

C.3 Test procedures

C.3.1 Carry out antistatic treatment on the measuring cylinder.

- a) In order to reduce the generation of static electricity, scrub the measuring cylinder at least once a day, OR scrub the measuring cylinder at most once every 30 measurements.
- b) Dip a soft cotton cloth with anionic active detergent, which is diluted to an appropriate content, to scrub the cylinder; use cleaning water to rinse it twice. Dry it naturally and thoroughly.
- c) Use the same method to clean the platen.

C.3.2 Test procedures for fluffy degree, in C.3.3 ~ C.3.8, shall be performed in a constant temperature and humidity chamber.

C.3.3 Weighing: Use a funnel-type dumping bucket, to weigh (30 ± 0.1) g of the treated specimen.

C.3.4 Pouring: Open the bottom cover of the pouring bucket, to let all the samples slowly fall into the fluffy degree measuring bucket. Remove the dumping bucket.

C.3.5 Stirring: Hold the top of the stirring rod. Extend the stirring rod along the wall of the bucket, to the bottom of the cylinder. Make the stirring rod rise, whilst shaking it slightly and slowly, thereby loosening the down. Repeat this process 5 times from different areas of the cylinder wall. The mixing time is 10 s ~ 15 s each time.

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