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Continuous spinning of viscose filament yarns

连续纺粘胶长丝

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Continuous spinning of viscose filament yarns

1 Scope

This standard specifies the classification and labeling, technical requirements, test methods, inspection rules and labeling, packaging, transportation, storage requirements of continuous spinning of viscous filament yarn.

This standard applies to natural color viscous filament yarn which is produced by the raw materials of cotton pulp, wood pulp or mixture of cotton pulp and wood pulp, using the continuous spinning process, which has a linear density range of 55.0 dtex ~ 335.0 dtex and the monofilament linear density of 2.0 dtex ~ 7.0 dtex. Other continuous spinning of viscous filament yarns can use it as a reference.

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) are applicable to this standard.

GB/T 2828.1-2012 Sampling procedures for inspection by attributes - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 3291.1 Textiles - Terms of textile material properties and test - Part 1: Fiber and yarn

GB/T 3291.3 Textiles - Terms of textile material properties and test - Part 3: General

GB/T 4146 Textile terms and terminology (parts of chemical fibers)

GB/T 4146.1 Textiles - Man-made fibers - Part 1: Generic names

GB/T 4146.3 Textiles - Man-made fibers - Part 3: Terms of inspection

GB/T 6502 Sampling method of man-made filament yarns

GB/T 6503 Testing method for moisture regain of man-made fibers

GB/T 6504 Testing method for oil content of man-made fibers

GB/T 6505 Testing method for thermal shrinkage of man-made filament yarns

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 14343 Testing method for linear density of man-made filament yarns

GB/T 14344 Testing method for tensile of man-made filament yarns

FZ/T 50014 Method for the determination of residual sulfur in viscose fibers-direct iodimetry

FZ/T 50015 Test and assessment for dyeing uniformity of viscose filament yarn

3 Terms and definitions

The terms and definitions as defined in GB/T 3291.1, GB/T 3291.3, GB/T 4146, GB/T 4146.1, GB/T 4146.3 apply to this document.

4 Classification and identification

4.1 According to the different matting agents during production, continuous spinning of viscose filament yarn products are divided into shiny yarn and matting yarn.

4.2 Product specifications are expressed by linear density (dtex) and the number of monofilaments (f).

Example: For a filament with a linear density of 133.3 dtex and a monofilament number of 30f, the specification is expressed as 133.3 dtex/30 f.

4.3 Product identification shall be based on product specifications, raw material pulp used in production, gloss, production process.

Example: 133.3 dtex/30 f cotton pulp (bright) continuous spinning of viscose filament yarn.

5 Technical requirements

5.1 Product grading

6.1.2.1 When the moisture regain of the specimen exceeds the predetermined moisture regain, pre-conditioning is required. The pre-conditioning conditions are as follows:

- The temperature is less than or equal to 50 °C;
- Humidity 5% ~ 25%;
- The time is greater than 30 min.

6.1.2.2 The standard atmosphere for humidity conditioning and test of laboratory samples shall be in accordance with GB/T 6529.

6.1.2.3 Random inspection of the manufacturer can refer to Appendix B for quick humidity conditioning.

6.2 Linear density

Take the specified length of sample according to GB/T 14343. Perform de-sizing (washing), rinsing and drying according to the method B of GB/T 6504 before testing; then test the linear density according to GB/T 14343.

6.3 Breaking strength and elongation at break

It is performed according to the provisions of GB/T 14344.

6.4 Number of monofilaments

It is performed according to the provisions of GB/T 14343.

6.5 Residual sulfur

It is performed according to the provisions of FZ/T 50014. Among them, take the laboratory samples according to the provisions of GB/T 6502. After removing tens of meters from the surface of the laboratory samples, cut the filament yarns into pieces of about 2 cm. Mix them evenly. Put it into a ground-mouth bottle to keep moisture and save for testing purpose.

6.6 Dyeing uniformity

It is performed according to the provisions of FZ/T 50015.

Among them, the evaluation rules for blue pattern stripes, bands, patterns and light pattern stripes, bands and patterns are as follows:

- a) The samples with blue pattern stripes, bands and patterns are regarded as qualified products;
- b) The samples with light pattern stripes, bands and patterns are regarded

R - Measured moisture regain rate, %;

A - The deviation rate of the average net mass of the package and the official mass, %.

7 Inspection rules

7.1 Inspection type

The inspection types are divided into type inspection and exit-factory inspection.

Type inspection shall be carried out in the following cases:

- a) During the specified periodic inspection;
- b) When there are changes in production design, process, and raw materials that may affect product quality;
- c) When the results of the exit-factory inspection are significantly different from the previous type inspection;
- d) When the national inspection agency requires type inspection.

7.2 Inspection items

7.2.1 All items in Table 1 are type inspection items, wherein serial numbers 1 to 8 are exit-factory inspection items; the tests shall be carried out according to the corresponding test methods as specified in Chapter 6.

7.2.2 The visual inspection items shall be inspected according to the requirements of 5.4 and the test methods specified in this standard.

7.2.3 The mass difference shall comply with the requirements of 5.5 and shall be implemented in accordance with the provisions of this standard.

7.3 Group-batching rules

Use periodic sampling to form an inspection lot within a certain range. A production batch can consist of one inspection lot or several inspection lots.

7.4 Sampling requirements

7.4.1 In the performance items, the dyeing uniformity is fully inspected, whilst the other items are sampling inspection. Laboratory samples shall be taken according to the provisions of GB/T 6502.

7.4.2 All appearance items are inspected.

7.6.5 Evaluation rules

7.6.5.1 Appearance is according to the sample size of 7.6.4.1, to determine the acceptance number A_c and the rejection number R_e according to the acceptance quality limit AQL value of 4.0 in the Table 2-A "normal inspection one sampling plan" in GB/T 2828.1-2012. When the number of unqualified packages is $\leq A_c$, it is judged as the original grade; when the number of unqualified packages is $\geq R_e$, it is judged as not meeting the original grade.

7.6.5.2 The mass difference is in accordance with the requirements of 5.5. If it exceeds the requirements, it will be dealt with through negotiation between the supplier and the buyer.

7.6.5.3 The calculated value and test value of each performance test item are compared with the limit value of the performance item index in Table 1 according to the rounding-off value comparison method in GB/T 8170. The performance item grade of the batch of products is judged at the item of lowest grade.

7.6.5.4 Comprehensive evaluation is based on 7.5.4. Conformity is judged as the original grade, whilst non-conformity is judged as not meeting the original grade.

8 Marking, packaging, transportation and storage

8.1 Marking

The packaging box shall be marked with product name, specification, grade, batch number, net weight, gross weight, production date, product standard number, trademark, manufacturer name, detailed address and other relevant information and warning signs such as moisture-proof, handle with care.

8.2 Packaging

8.2.1 Pack each package properly and put it into the packing box, to ensure that the package is not damaged.

8.2.2 The size of the package in each box shall be as uniform as possible. Different varieties, specifications, batch numbers and grades must be packed separately; mixed packing is strictly prohibited.

8.2.3 Each batch of products shall be accompanied by a quality inspection form. If necessary, an instruction manual shall be attached.

8.3 Transportation

A.2.3.1 Use the illuminance meter to determine the illuminance at the working point.

A.2.3.2 Observe the two end faces of the tube and one column surface by rotating one round on the grading device.

A.2.3.3 Inspect each package to be inspected according to the required items of A.1.2.

A.2.3.4 Check the color of the package. Visually inspect the surface of a package and the gloss uniformity between the packages, including milky white yarn, white dotted yarn, white knotted yarn.

A.2.3.5 Check that the wool yarns are piled up or the monofilament breaks and the filament ends protrude from the surface of the multifilament, which can be seen against the light.

A.2.3.6 Check the contamination to visually inspect the oily yarn, rusty yarn and the stains that are difficult to clean with water, calculated by area.

A.2.3.7 Check the shaping; visually check the neatness of the two end faces of the bobbin and the surface of the column.

A.2.3.8 Check the skipping yarn based on the number of yarns at both ends of the bobbin that is out of the normal winding track; the lower end face is the tailed yarn end.

A.2.3.9 Weigh the mass of the package. Deduct the known skin mass. The net mass is the drum weight, accurate to 0.5%.

A.2.3.10 Record the results.

A.3 Judgment rules

A.3.1 Color

When the color of the surface layer is uniform, it is rated as grade 5. When the color is slightly uneven, it is rated as grade 3; the yarn with white spots is rated as out-of-grade. The uniformity of the color between the tubes is not less than grade 4 (grey scale), which can be rated as superior grade or first-grade.

A.3.2 Wool yarn

A.3.2.1 Fluff: There is fluff below 3 mm on the surface of the tube; if the arc forms a semicircle, it is rated as out-of-grade. If fluff is not formed into a circle, but when the surface distribution is wide or the density is high, it is rated as out-of-grade.

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