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Polyamide 66 draw textured yarn

锦纶 66 弹力丝

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Polyamide 66 draw textured yarn

1 Scope

This standard specifies the terms and definitions, classification and identification, technical requirements, test methods, inspection rules, marking, packaging, transportation, storage requirements of polyamide 66 draw textured yarn products.

This standard applies to elastic yarn made of polyhexamethylene adipamide as raw material, as well as round cross-section glossy, semi-dull and full-dull yarns, which have a nominal linear density range of 7 dtex ~ 150 dtex (plied yarn refers to the nominal linear density before plying) and a single yarn linear density of 0.8 dtex ~ 5.0 dtex.

2 Normative references

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

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

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 (all parts) Textiles - Man-made fibres

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

GB/T 6503 Man-made fibres - Test method of moisture regain

GB/T 6504 Man-made fiber - Test method for oil content

GB/T 6506 Synthetic fiber - Test method for crimp contraction properties of textured filament yarns

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

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

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

GB/T 14344 Man-made fiber - Test method for tensile properties of filament yarns

FZ/T 50008 Test method for dyeing uniformity of polyamide filament yarns

FZ/T 50001 Test method for interlacing degree of synthetic filament yarns

FZ/T 51011 Fiber grade polyhexamethylene adipamide (PA66) chip

3 Terms and definitions

The terms and definitions as defined in GB/T 3291.1, GB/T 3291.3, GB/T 4146 (all parts), FZ/T 51011, apply to this document.

4 Classification and identification

4.1 According to the different TiO_2 content, it can be divided into glossy yarn, semi-matte yarn, full-matte yarn.

4.2 Product specifications are identified by fiber thickness (TEX system, in dtex) and number of roots (number of spinneret holes, represented by f).

Example 1: 78 dtex/52f.

Example 2: Ply yarn representation: 78 dtex/52f×2.

5 Technical requirements

5.1 Product classification

Polyamide 66 draw textured yarn product are divided into three grades: superior, first-grade, qualified. Products lower than qualified are substandard.

5.2 Performance items and indicators

Physical and mechanical properties and dyeing performance items and indicators are as shown in Table 1.

5.4 Appearance items and index values

Negotiation between the supplier and the purchaser or implemented in accordance with the requirements of Appendix A.

6 Test methods

6.1 General

6.1.1 Pre-humidification, humidity conditioning standard atmosphere for testing

6.1.1.1 Pre-humidification

6.1.1.1.1 Pre-humidification is required when the sample meets one of the following conditions:

- When the moisture regain of the specimen exceeds the official moisture regain;
- The sample is in an atmosphere with a relative humidity higher than the upper limit of the relative humidity in the laboratory;
- The sample temperature is 5 °C lower than the laboratory temperature.

6.1.1.1.2 The conditions for pre-humidification are:

- Temperature not exceeding 50 °C;
- Relative humidity 5% ~ 25%;
- Time greater than 30 min.

6.1.1.2 Humidity conditioning and standard atmosphere for testing

6.1.1.2.1 The conditions for humidity conditioning are:

- Temperature (20 ± 2) °C;
- Relative humidity (65 ± 3)%;
- Recommended humidity adjustment time 16 h.

6.1.1.2.2 Test conditions are:

- Temperature (20 ± 2) °C;
- Relative humidity (65 ± 3)%.

6.1.1.3 Others

supplier and the buyer or according to the requirements specified in Appendix A.

7.1.2 Group-batching rules

Periodic sampling is used to form inspection lots within a certain range. A production lot can be composed of one inspection lot or several inspection lots.

7.1.3 Sampling requirements

7.1.3.1 All appearance items and dyeing uniformity items are inspected.

7.1.3.2 Laboratory samples of physical performance items are subject to sampling inspection according to GB/T 6502. The appearance, tube weight, dyeing uniformity of the sampled laboratory samples shall meet the corresponding grades.

7.1.4 Judgment rules

7.1.4.1 The calculated values of each performance item are compared with the limit values of the performance item indicators in Table 1 according to GB/T 8170, to determine the grade of each item. The dyeing uniformity item is evaluated roll by roll and graded according to the grayscale sample for color change evaluation in GB/T 250.

7.1.4.2 The appearance inspection items are evaluated, graded, recorded for each roll according to the provisions of Appendix A or agreed upon by the supplier and purchaser.

7.1.4.3 The lowest grade of the performance items and appearance items in the inspection lot is finally determined as the grade of the batch of products.

7.2 Re-inspection rules

7.2.1 General rules

Within 3 months after a batch of products arrives at the consignee, a re-inspection may be requested as acceptance or if there is any objection to the quality. If more than one-third of the batch of products has been used, re-inspection shall not be requested. If the quality of the batch of products affects the quality of the post-processing products and causes serious losses, the supplier and purchaser shall analyze the reasons, clarify the responsibilities, negotiate to deal with it.

7.2.2 Inspection items

Same as 7.1.1.

7.2.3 Group-batching rules

Group-batch it according to the original production lot.

7.2.4 Sampling requirements

7.2.4.1 Laboratory samples of performance inspection items shall be subject to sampling inspection according to 7.1.3.2.

7.2.4.2 Appearance and quality differences shall be subject to sampling inspection. Determine the sample size (code) according to the batch size according to the general inspection level II in Table 1 of GB/T 2828.1-2012.

7.2.5 Judgment rules

7.2.5.1 Each performance inspection item shall be graded according to 7.1.4.1.

7.2.5.2 Appearance: According to the sample size in 7.2.4.2 and according to the normal inspection sampling scheme (main table) in Table 2-A of GB/T 2828.1-2012, at an acceptance quality limit (AQL) of 4.0, determine the acceptance number Ac and the rejection number Re. Make evaluation according to the requirements of 7.1.4.2. When the number of unqualified packages is ≤ Ac, it is judged as the original grade; when the number of unqualified packages is ≥ Re, it is judged as not meeting the original grade.

7.2.5.3 The comprehensive grade of the product is assessed according to 7.1.4.3. If it is higher than or equal to the original grade, it is judged as conforming; if it is lower than the original grade, it is judged as non-conforming.

7.2.6 Standard mass acceptance

The measured moisture regain is measured according to the provisions of GB/T 6503. During acceptance, the standard mass shall be calculated according to formula (1):

$$m = m_1 \times \frac{1 + R_0}{1 + R} \qquad \cdots\cdots (1)$$

Where:

m - The standard mass of the batch product packaging, in kilograms (kg);

m_1 - The net mass of the batch product packaging, in kilograms (kg);

R_0 - The standard moisture regain of polyamide 66 draw textured yarn, which is 4.5%;

R - The measured moisture regain, %.

The difference in the standard mass shall not exceed ±0.5%. If it exceeds, it shall be determined by negotiation between the supplier and the purchaser.

8 Marking, packaging, transportation, storage

8.1 Marking

A.2.2.1 Illuminance meter.

A.2.2.2 Grading bench (car).

A.2.2.3 Scales, with appropriate weighing range and accuracy.

A.2.3 Inspection steps

A.2.3.1 Use an illuminance meter to measure the illumination at the working point.

A.2.3.2 Turn the tube on the grading device for one circle, to observe the two end faces and one cylindrical surface of the tube.

A.2.3.3 Inspect each package according to the items required in A.1.2.

A.2.3.4 Inspect the hairy yarns by the fluffy phenomenon of the yarn or the broken ends of the single yarn protruding from the surface of the multi-filament yarn, which can be seen against the light; calculate and record the number of yarns.

A.2.3.5 Inspect the stiff yarns and tight spot yarns.

A.2.3.6 Inspect the stains by visually observing the oily yarns, rusty yarns and spots that are difficult to clean with water; calculate and record the area.

A.2.3.7 Inspect the tripped yarns (spider web yarns) by the quantity and length of the yarns that are separated from the normal winding track at both ends of the tube; calculate and record the number of yarns starting from the length ≥ 2 cm.

A.2.3.8 Weigh the weight of the tube; deduct the known skin weight; the net weight is the tube weight, accurate to 0.5%.

A.2.3.9 Check the color difference based on the color difference within the package and between the packages; then compare with the grayscale for judgment and record.

A.2.3.10 Check the package forming. The tube shall not be too hard, too soft, uneven on the three sides, or improperly positioned.

A.2.3.11 Record the results.

A.2.4 Comprehensive grading

The appearance grade of the package is determined by the lowest grade of the appearance items.

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