FZ

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 59.060.20

W 52

FZ/T 54044-2011

Nylon 6 filament yarns for industry

锦纶 6 工业长丝

Issued on: December 20, 2011 **Implemented on: July 1, 2012**

Issued by: Ministry of Industry and Information Technology of PRC

Table of Contents

Nylon 6 filament yarns for industry

1 Scope

This standard specifies the terms and definitions, product identification, technical requirements, test methods, inspection rules, marking, packaging, transportation and storage requirements for nylon 6 filament yarn for industry.

This standard applies to filament yarns for industry use, which are made from nylon 6 chips. This product is mainly used for rubber tires, conveyor belts, canvas, ropes, fishing nets, etc. after post-processing. Its linear density range is 930 dtex~2100 dtex. For other specifications of products, this standard can be used for reference.

2 Normative references

The following documents are essential for the application of this document. For referenced documents with dates, only the versions corresponding to the dates are applicable to this document; for referenced documents without dates, the latest versions (including all amendments) are applicable to this document.

GB/T 2828.1-2003 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: Fibre and yarn

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

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

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

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

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

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

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

S_i -- dry heat shrinkage of each sample, %;

n -- the total number of tests.

6.4.5 Rounding of data

The test results are rounded to one decimal place in accordance with the provisions of GB/T 8170.

6.5 Test for strength retention rate at high temperature

It is determined by negotiation between the supply and demand parties, or implemented in accordance with Appendix B.

6.6 Moisture regain

The test shall be implemented in accordance with the provisions of GB/T 6503.

6.7 Appearance inspection

The inspection shall be implemented as agreed upon by the supply and demand parties or in accordance with the provisions of Appendix A.

7 Inspection rules

7.1 Inspection types

All items in Table 1 are factory inspection items.

7.2 Inspection items

7.2.1 Appearance inspection items shall be inspected according to the requirements of the supplier and the buyer or according to the requirements specified in Table A.1.

7.2.2 The physical properties shall be in accordance with the requirements of Table 1 and tested according to the test methods specified in this standard.

7.2.3 The strength retention rate at high temperature shall comply with the requirements of 5.3 and be tested according to the test methods specified in this standard.

7.3 Batching rules

Periodic sampling is adopted within a certain range to form a test lot. A product lot can be composed of one test lot or several test lots.

7.4 Sampling regulations

7.4.1 All appearance items shall be inspected.

7.4.2 The laboratory samples for physical property tests shall be in accordance with GB/T 6502. The appearance and roll weight of the laboratory samples shall conform to the corresponding grades.

7.4.3 Damaged rolls shall not be sampled.

7.5 Comprehensive assessment

7.5.1 The appearance inspection items shall be evaluated roll by roll according to the requirements of the supplier and the buyer or as specified in Table A.1.

7.5.2 Under the condition of qualified appearance quality, the test values or calculated values of the physical property items shall be compared with the index limit values in Table 1 according to the rounded value comparison method in GB/T 8170, and the lowest grade in the property items in the test lot shall be determined as the grade of the product lot.

7.5.3 If the user has special requirements for property indicators, the classification regulations shall be implemented in accordance with the contract standards.

8 Re-inspection rules

8.1 General

Within three months after a batch of products arrives at the consignee, a re-inspection may be requested for 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 may not be requested. If the quality of the batch of products affects the quality of the subsequently processed products and causes serious losses, the supply and demand parties shall analyze the reasons, clarify the responsibilities, and negotiate a solution.

8.2 Inspection items

Same as 7.2.

8.3 Batching rules

Batches are grouped according to product lots.

8.4 Sampling regulations

8.4.1 Appearance is inspected by sampling. The sample size (code) is determined according to the batch size and the general inspection level II in Table 1 of GB/T 2828.1-2003.

8.4.2 Laboratory samples for physical property test items shall be sampled and tested in accordance with the provisions of 7.4.2.

8.5 Evaluation of test results

8.5.1 For appearance, according to the sample size in 8.4.1, and the acceptable quality level AQL value of 4.0 for "normal inspection single sampling plan" in Table 2-A of GB/T 2828.1-2003, determine the qualified acceptance number Ac and the unqualified rejection number Re. Evaluate according to the provisions of 5.4; when the number of unqualified rolls is ≤Ac, it is judged as the original grade; when the number of unqualified rolls is ≥Re, it is judged as not meeting the original grade.

8.5.2 Physical property indicators shall be evaluated in accordance with 7.5.2; if they are higher than or equal to the original grade, they shall be judged as conforming; if they are lower than the original grade, they shall be judged as non-conforming.

9 Marking, packaging, transportation and storage

9.1 Marking

9.1.1 The product name, specification and grade as required by Chapter 4 shall be marked in eye-catching colors on both sides of the packaging box.

9.1.2 Producer identification marks, such as manufacturer name, batch number, net weight or gross weight, number of rolls inside, production date, implementation standard number, and detailed address.

9.1.3 The marks of the general distributor, such as product name, trademark, identification mark, and detailed address.

9.1.4 Warning signs such as "moisture-proof" and "handle with care" shall be marked.

9.1.5 Special labeling requirements proposed by customers shall be implemented in accordance with the contract standards.

9.2 Packaging

9.2.1 Each roll shall have a protective layer to ensure that it is not damaged. It shall be packaged in pallets or cartons. The packaging shall ensure that the product quality is not damaged and is suitable for storage and transportation.

9.2.2 Each roll shall have a protective layer. The supported rolls in the packaging unit shall be positioned and fixed, and the unsupported rolls shall be protected from damage.

9.2.3 The size of the rolls in each packaging box shall be as uniform as possible. Different varieties, specifications, batch numbers and grades shall be packed separately.

visual inspection distance is 0.30 m~0.40 m (0.20 m~0.25 m when inspecting the lousiness of the filament roll), and the observation angle is 40°~60° (parallel to the eyes when inspecting the lousiness of the filament roll).

A.3.2 Equipment

A.3.2.1 Grading platform (car).

A.3.2.2 Scale, with appropriate weighing range, accurate to 0.1 kg.

A.4 Inspection steps

A.4.1 Rotate the roll on the grading device for one circle and observe the two end faces and one cylindrical surface of the roll.

A.4.2 Inspect each roll according to the items required in Table A.1.

A.4.3 Check for lousiness by checking whether the filaments are fuzzy or the broken ends of single filaments protrude from the surface of the multi-filament and can be seen when facing the light.

A.4.4 Check for contamination based on visual inspection of visible oil, rust, and stains that are difficult to clean with water.

A.4.5 Check for leap filament, which is calculated by the length of the filament strand that deviates from the normal winding trajectory at both ends of the roll.

A.4.6 Weigh the roll and deduct the known tare, accurate to 0.5%.

A.4.7 Record the results.

A.5 Assessment rules

A.5.1 Weight of a roll

Excluding the bobbin weight, the weight of a roll is assessed according to Table A.1.

A.5.2 Lousiness

Inspect the entire surface of the roll and assess the cumulative number of lousiness on the surface of each roll according to Table A.1.

A.5.3 Stained filament

The stained filaments are evaluated according to Table A.1.

A.5.4 Leap filament

Appendix B

(Normative)

Test method for strength retention rate at high temperature of nylon 6 filament yarns for industry

B.1 Scope

This standard specifies the test method for strength retention rate at high temperature of nylon 6 filament yarns for industry.

This standard is applicable to the determination of strength retention rate at high temperature of nylon 6 filament yarns for industry; for other filaments, it can be used as a reference.

B.2 Principle

Under specified conditions, the percentage of the breaking strength of the sample after being treated with dry hot air to the original breaking strength is determined.

B.3 Instruments and equipment

According to the provisions of GB/T 14344, and the following equipment:

-- Constant temperature oven: the temperature can be controlled at (180±1) ℃;

-- Filament winding rack, etc.

B.4 Test conditions

B.4.1 The breaking strength test conditions are the same as those in 6.3.2.

B.4.2 The oven temperature is (180±1) ℃.

B.4.3 Processing time: 4 h.

B.4.4 Laboratory samples: Prepare the samples as in 6.1.2; test each sample twice.

B.5 Test steps

B.5.1 Prepare laboratory samples according to GB/T 6502. After conditioning, twist the samples according to 6.3.1 and the provisions of GB/T 14344, and then conduct a tensile test [the pre-tension of the sample's per unit linear density is (0.05±0.005) cN/dtex] to obtain the average breaking strength before high-temperature treatment.

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------