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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 18147.5-2015

Replacing GB/T 18147.5-2000

Test method for hemp fiber - Part 5: Test method for breaking strength of hemp fiber

大麻纤维试验方法 第5部分：断裂强度试验方法

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Standardization Administration of China

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1 Scope

GB/T 18147.5-2015 is the Chinese national standard on test method for hemp fiber - part 5: test method for breaking strength of hemp fiber, in the field of textile and leather technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 3 July 2015 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 October 2015. Classification: ICS 59.060.10, CCS B32. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Part of GB/T 18147 specifies the test method for breaking strength of hemp fiber. This Part applies to raw white degummed hemp, raw white hemp sliver and cotton type hemp fiber.

2 Normative references

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

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

GB/T 9995, Determination of moisture content and moisture regain of textile - Oven- drying method

GB/T 18146.1, Hemp fibre - Part 1: Raw white degummed hemp

GB/T 18146.2, Hemp fiber - Part 2: Raw white hemp sliver

GB/T 18146.3, Hemp fiber - Part 3: Cotton type hemp fiber

3 Principle

Use a suitable device to stretch the sample under certain conditions until it breaks; calculate the breaking strength according to the breaking force and the length and mass of the sample.

4.1 Bundle fiber strength meter: division value

0.5 N.

8.2 Calibration cotton sample preparation

8.2.1 Randomly select a cotton sample (at least enough to prepare 6 test pieces) from the calibration cotton; make it a bundle; use a thin comb to fully comb the ends and the middle.

8.2.2 Divide each cotton bundle into 6 small bundles longitudinally; comb the ends and middle of each small bundle for 2 ~ 3 times to remove free fibers, short fibers, cotton neps and impurities. For the zero-gauge test and the 3.2mm-gauge test, comb out the cotton fibers of 15 mm and below AND 20 mm and below respectively. Pay attention to the depth and speed of combing to prevent damage to the fiber and to make the fiber straight; the width of the sample is about 6 mm.

8.2.3 Put the prepared small bundles of samples on the black clearer and carry out conditioning treatment for not less than 2 h.

8.2.4 Test 6 pieces each time.

8.3.1 Chuck vise (method) selection

8.3.1.1 Method 1: Use a chuck vise with a pre-tensioning device, which is shown as follows:

a) Lock the chuck in the vise and open the chuck.

b) Use the tension clamp to clamp the flush end of the conditioned sample, and clamp the other end to the fixed tension clamp on the vise. Then, pull the tension clamp forward until it snaps into the tension bar hook. Press the fixed tension clamp, and release the tension rod spring, to apply tension to the sample.

c) Close the upper chuck and apply a torque of 90 N·cm to tighten it.

d) Remove the lower chuck from the vise and use a cutter to cut off the protruding end of the test piece.

8.3.1.2 Method 2: Use a chuck vise without a pre-tensioning device, which is shown as follows:

a) Lock the chuck in the vise and open the chuck.

b) Hold both ends of the conditioned sample and place it in the middle of the chuck; keep the width of the sample and apply tension to make the fibers straight.

c) Close the upper chuck and apply a torque of 90 N·cm to tighten it; keep the tension.

d) Remove the lower chuck from the vise and use a cutter to cut off the protruding end of the sample. n - number of tests.

8.4.3 Calculate the breaking strength correction factor of the calibration cotton sample according to Formula (3), and keep the result to three decimal places. Where: K - breaking strength correction factor (calibration cotton sample); FB - breaking strength (standard value of calibration cotton sample), in centinewtons per decimeter tex (cN/dtex); F0 - average breaking strength (observed value of calibration cotton sample), in centinewtons per decimeter tex (cN/dtex).

8.4.4 When multiple calibration cotton samples are used, the breaking strength correction factor shall be the average value of the correction factors of various calibration cotton samples. The value is required to be 0.9 ~ 1.1.

8.4.5 The rounding off of the calculation results shall be carried out in accordance with GB/T 8170.

9 Test steps

9.1 Sample preparation Take 10 test samples and 2 spare samples from the laboratory samples of moisture equilibrium; arrange the samples by hand for 2 ~ 3 times respectively; remove short fibers below 20 mm, defects and impurities; make the fibers straight. The sample width is about 6 mm.

9.2 Testing

9.2.1 Use the Pressly clip zero-gauge test method for raw white degummed hemp; and the Pressly clip

3.2 mm-gauge test method for raw white hemp sliver and cotton type hemp fiber.

9.2.2 Carry out the test method according to 8.3.

9.3 Experimental calculation

9.3.1 Calculate the breaking strength of each bundle of fibers according to Formula (1).