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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

SN/T 5239-2020

**Import and export textiles, quantitative fiber analysis,
microprojector method, kapok/cotton blended products**

进出口纺织品 纤维定量分析 显微投影仪法 木棉棉混纺产品

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

1 Scope

This standard specifies test methods for the quantitative analysis of kapok and cotton blended products by using a microscope projector or a digital image analyzer.

This standard applies to the quantitative analysis of kapok and cotton blended products.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 2910.1 Textile Quantitative Chemical Analysis Part 1: General Test Rules GB/T 8170

Numerical rounding rules and the expression and determination of limit values FZ/T
01057.3 Textile fiber identification test method Part 3: Microscopic method

3 Principle

This method uses a micro-projector or digital image analyzer to distinguish and count a certain number of fibers, and a micro-projector or digital image analyzer the font image analyzer measures the diameter of the fiber and calculates the mass percentage of various fibers.

4 Reagents

Unless otherwise specified, all reagents are chemically pure.

4.1

Distilled water or deionized water.

4.2

Anhydrous glycerin or liquid paraffin.

5 Apparatus and equipment

5.1

Micro projector; magnification 500 times and above.

5.2

Digital image analyzer.

5.3

Fiber slicer.

5.4

Slide, cover glass, watch glass.

5.5

Oven. It can keep the temperature at $105\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$.

5.6

Wedge ruler. printed with 500 times magnification scale.

6.1 Qualitative analysis of the test

The cotton fiber shall be implemented in accordance with FZ/T 01057.3, and the kapok fiber morphological characteristics are shown in Appendix A.

6.2.1 Yarn

At least 10 bobbins or 5 bobbins (skeins) are randomly selected from laboratory samples to form a sample, and then from each bobbin or take a 15 cm length of yarn sample from the tube (skein) yarn and combine it into a bunch.

6.2.2 Fabric

At least one piece of 10 cmx10 cm fabric is randomly selected from the laboratory samples and disassembled into yarns (the samples with sizing need to be pre-processed first) After processing, disassemble into yarn), 10 cm long section, a total of 30 sections are randomly taken out and combined into one bundle. Woven fabrics are used as warp and weft fibers when the dimension content is different, the disassembled warp and weft should be dried and weighed in an oven (5.5) respectively, and the fiber weight of each component of the warp and weft should be measured separately Percentage content, and then calculate the mass percentage content of each component fiber in the entire fabric. The sample should be cut more than 10 cm away from the edge of the sample cloth, and the cloth is required the surface is flat, and there must be no defects that affect the test results.

6.3 Pretreatment

The fabrics that should be pretreated shall be pretreated in accordance with the provisions of GB/T 2910.1.

6.4 Preparation of fiber longitudinal glass slide

Use the fiber slicer (5.3) to cut the above sample (6.2) evenly to cut off the 0.2 mm~0.36 mm long fiber bundle, and move it to the surface glass in the dish, add a certain amount of anhydrous glycerin (4.2) or liquid paraffin (4.2) and mix well to form a dense suspension. Use a straw to draw Put a small amount of the evenly mixed suspension on the glass slide, spread it out evenly, cover the cover glass to fix the sample, take care not to let the fibers flow out Cover the outside of the cover glass to avoid fiber loss, otherwise the glass slide needs to be re-prepared.

6.5 Counting the number of fibers

Use a microscope projector (5.1) to observe the fibers. The slides prepared according to 6.4 are placed on the stage of the microscope projector.

Observe the various types of fibers that enter the field of view through the eyepieces, and identify their types according to the morphological and structural characteristics of the fibers (see Appendix A). From approaching Start counting at the top or bottom corner of the field of view. When the slide moves slowly across the field of view in the horizontal direction, recognition and counting pass the target Mirror all fibers in the center of the reticle. After

each stroke across the field of view, move the slide vertically 1 mm~2 mm and then Slowly move across the field of view in the horizontal direction, identify and count the fibers, and repeat this procedure until all the slides have been read.

The total count should be more than 1,000. If the number of pieces on the slide is more than 1,000, it can't be interrupted.

The count within the range is completed; if there are less than 1,000 slides in the entire range, another slide must be made to make the total number of fibers reach More than 1,000 roots. Each batch of samples counts two groups of more than 1,000 fibers, and calculates the converted number of each fiber in the two groups of fibers (refer to See appendix B), the difference between the converted number of each fiber in the two tests is not more than 10.

6.6.1 Calibrate the fiber projector

Make it magnify up to 500 times on the projection plane, and then place the glass slide prepared according to 6.4 on the stage to make the measurement the fibers are all within the projection circle. Adjust the fine adjustment of the projector so that the edge of the fiber image is projected onto the wedge ruler (5.6) like a thin line.

Measure the projected width in the middle of the fiber length as the diameter. Avoid measuring those fibers whose measuring points are at the intersection of two fibers and those whose measuring points are shorter than 150 for μm fibers, more than 200 fibers must be measured for each type of fiber. Calculate the average diameter of each fiber after the measurement, the unit is μm Logo.

The projection of cotton fiber will have uneven thickness. If the average value of the fiber segment cannot be automatically measured, it must be within one twisting cycle of the cotton fiber.

Take the average value of the projection width at three points as the result of the diameter of this fiber. The three points are the widest, narrowest and two at the midpoint of the distance.

When the kapok fiber is twisted and deformed, the width of the parallel straight section of the fiber should be taken as the fiber diameter.

6.6.2 Digital image analyzer (5.2)

The same applies to this method, and the test is carried out in accordance with the instrument manual when using.