GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 59.060.10

CCS W 10

GB/T 6097-2023

Replacing GB/T 6097-2012

Sampling Method for Testing of Cotton Fibers

棉纤维试验取样方法

Issued on: September 7, 2023 **Implemented on: April 1, 2024**

Issued by: State Administration for Market Regulation;

Standardization Administration of the People's Republic of China.

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Sampling Method for Testing of Cotton Fibers

1 Scope

This document describes the methods for the extraction and preparation of lot samples, laboratory samples, test samples and test specimens for the testing of cotton fibers.

This document is applicable to the sampling for the testing of cotton fibers.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB 1103.1 Cotton - Part 1: Saw Ginned Upland Cotton

GB 1103.2 Cotton - Part 2: Roller Ginned Upland Cotton

GB/T 1103.3 Cotton - Natural Color Uplands Cotton

GB/T 19635 Cotton - Sea Island Cotton

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 lot sample

In accordance with the stipulations, take one or more cotton samples from a batch of cotton as the representative of the sampled batch of cotton.

3.2 laboratory sample

The cotton sample taken from the lot sample in accordance with the stipulations, which is used as the representative of the lot sample.

3.3 test sample

The cotton sample taken from the laboratory sample in accordance with the stipulations, which is used as the representative of the laboratory sample.

3.4 test specimen

6 Sampling

6.1 Principle of Sampling

Be representative.

6.2 Lot Sample

6.2.1 Sampling shall be carried out in accordance with GB 1103.1, GB 1103.2, GB/T 1103.3 and GB/T 19635.

6.2.2 Sampling of other types of bales of cotton fiber shall be carried out in accordance with the corresponding product standards. If there is no such product standard, the quantity of sampling bales shall be determined based on the batch size. For a batch size of 50 bales and below, the quantity of sampling bales shall be no less than 15 (when the quantity of sampling bales is less than the prescribed number, conduct sampling bale-by-bale); for a batch size of above 50 bales and below 100 bales (including 100 bales), the quantity of sampling bales shall be no less than 18; for a batch size of above 100 bales and below 200 bales (including 200 bales), the quantity of sampling bales shall be no less than 20; for a batch size of above 200 bales, for every additional 50 bales (less than 50 bales are counted as 50 bales), the sampling bale shall be increased by no less than 1 bale. The sampling quantity of each bale shall comply with the corresponding standards in 6.2.1.

6.3 Laboratory Sample

6.3.1 Test by batch

6.3.1.1 Sampling quantity

6.3.1.1.1 Each portion of the laboratory sample is 200 g ~ 250 g.

6.3.1.1.2 The number of portions of laboratory samples taken from bales of lint cotton (including pre-baling inspection) shall be determined in accordance with the quantity of bales sampled from the lot sample (i.e., the quantity of block samples). For 10 bales and below, take no less than 1 portion; for 11 bales ~ 30 bales, take no less than 2 portions; for 31 bales ~ 50 bales, take no less than 3 portions; for above 50 portions, take no less than 4 portions.

6.3.1.2 Sampling method

6.3.1.2.1 In accordance with the number of portions of laboratory samples that shall be taken from each batch of cotton, evenly divide the extracted lot samples into corresponding portion groups based on the quantity of cotton samples.

6.3.1.2.2 In each portion group, randomly take at least 100 clusters from multiple parts of each constituent cotton sample. The number of clusters selected from each cotton sample shall be consistent, with each cluster being 2.0 g ~ 2.5 g, forming a laboratory sample.

6.3.1.2.3 When the lot sample contains samples cut from cotton bales, the cut fibers shall not be extracted.

6.3.2 Test by sample

6.3.2.1 Sampling quantity

6.3.2.1.1 The quantity of cotton samples taken from different cotton bales of the same batch of cotton is the number of portions of laboratory samples of that batch of cotton. Each cotton sample is the corresponding laboratory sample, and its mass is the mass of the corresponding laboratory sample.

6.3.2.1.2 All samples taken from different cotton bales of the same batch of cotton have been combined into one lot sample, which is the laboratory sample of that batch of cotton, and the mass of the lot sample is the mass of the corresponding laboratory sample.

6.3.2.2 Sampling method

The laboratory sample is naturally formed from the corresponding cotton samples in 6.3.2.1.1 or the lot samples in 6.3.2.1.2. When it contains samples cut from cotton bales, the cut fibers shall be removed. The methods of removal include directly pulling out and discarding or avoiding during the subsequent sampling of test samples and test specimens.

6.3.3 Scientific test and other special demands

In accordance with the purpose and requirements of the test, and considering the characteristics of the representative samples, determine the sampling quantity and method.

6.4 Test Sample

6.4.1 Sampling quantity

6.4.1.1 In accordance with the stipulations on the quantity and mass of test samples in the test standards of the inspection items, conduct sampling.

6.4.1.2 From the laboratory sample, evenly extract about 7 g and use the fiber mixer to prepare the test sample.

6.4.1.3 From the laboratory sample, evenly extract 2.0 g ~ 2.5 g and use the fiber extender to prepare the test sample (test sliver).

6.4.2 Sampling method

6.4.2.1 Slightly tear the obtained laboratory sample and evenly mix it, lay it flat on the workbench to prepare a cotton layer with a uniform thickness and an area of about 0.25 m^2. From 16 roughly evenly distributed parts on the upper and lower sides, respectively and randomly take test samples for the inspection of each item.

In accordance with the stipulations on the quantity and mass of test specimens in the test standards of the inspection items, conduct sampling.

6.5.2 Sampling methods

6.5.2.1 Direct adoption method: directly use the entire laboratory sample as the test specimen sample.

6.5.2.2 Quarter sampling method: evenly mix the laboratory sample and spread it into a square, then, divide it into four equal parts with cross lines, take two diagonal parts and discard the other two parts. Repeat the above-mentioned steps, until the required test specimen sample is obtained.

6.5.2.3 Multi-point sampling method: adopt the method of 6.4.2.1 or 6.4.2.2 to directly obtain the required test specimen sample from the laboratory sample.

6.5.2.4 Automatic sampling method: utilize an automatic sampling device to directly obtain the required test specimen sample from the evenly mixed laboratory sample or test sample.

6.5.2.5 Horizontal flattening sampling method: use both hands to hold and pull off the test sample prepared in accordance with the method of 6.4.3.1 or 6.4.3.2 close to the free end at 2 cm ~ 3 cm apart, discard the shorter section, and clamp the end of the remaining section into one hand between the thumb and index finger, place the head end on the side of the back of the hand. Use the other hand to pinch a small amount of fiber extending in the front, pull it out and throw it away. After arranging it many times, make the head end flush, then, pull several times to obtain the required quantity of test specimen samples. When pulling out the fibers, no other fibers shall be brought out.

6.5.2.6 Longitudinal sampling method: use one hand or pressing plate to press the test sample prepared in accordance with the method of 6.4.3.2, use tweezers with the other hand to firstly pull out the edge of the test cotton sliver along the longitudinal direction of the unpeeled layer, then, take out a thin strip of the required quantity of test specimen samples.

NOTE 1: in accordance with the characteristics and requirements of the inspection items, select the corresponding sampling method.

NOTE 2: when both the horizontal flattening sampling method and longitudinal sampling method can be selected, the horizontal flattening sampling method should be selected.

6.5.3 Specimen preparation

The extracted test specimen samples are prepared into test specimens in accordance with the requirements of the test standards of inspection items.

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