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Cotton - Test method for differential dyeing behaviour

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. Please note that some of the contents of this document may involve patents. The issuing agency of this document does not assume responsibility for identifying these patents. This standard is proposed and managed by the National Fiber Standardization Technical Committee (SAC/TC513). This standard was drafted by: Hubei Provincial Fiber Inspection Bureau, China Textile Standard Inspection & Certification Co., Ltd., Wuhan Textile University, and Jingzhou City Jiahe Printing and Dyeing Limited company. The main drafters of this standard are. Yonghui Yong, He Li, Dai Zhifang, Chen Chunmei, Song Congshan, Wu Jianchun, Chen Yiren, Li Juan, and Wang Feng.

Raw cotton is affected by factors such as origin, season, and environment in its production process. It will produce differences in fiber quality such as maturity and other indicators. The instability of the dyeing performance leads to problems such as uneven color brightness, poor color yield, uneven dyeing, and the like. This standard is based on cotton The correlation between fiber maturation and dyeing color difference establishes the grade grade of dyeing color difference, which is suitable for cotton dyeing and color difference analysis in the textile industry. Textile companies have important guiding significance in purchasing cotton raw materials. Cotton color difference test method

1 Scope

China's national test method for the differential dyeing behaviour of cotton. Cotton fibres from the same field do not dye alike, and the reason is maturity. A mature fibre has a thick secondary cell wall of cellulose; an immature one, from a boll that developed late or under stress, has a thin wall and collapses to a flat ribbon. The immature fibre takes up less dye, so it appears lighter, and in a dyed fabric those fibres show as pale flecks and streaks that no amount of care in the dyehouse removes. The defect appears only after dyeing, by which time the fabric has been through spinning, weaving and finishing, and it is one of the classic

ways a batch of cloth is lost. The test dyes a sample with a mixture of dyes that the mature and immature fractions take up differently, so the proportion of immature fibre becomes visible and measurable before the cotton is bought rather than after it has been made into something.

This standard specifies the test methods for the dyeing properties of cotton. This standard applies to all types of cotton fibers (except colored cotton), as well as the use of cotton fibers as the material of natural yarns and grey fabrics.

2 Normative references

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

GB/T 3979 Object Color Measurement Method

GB/T 4668 Determination of Density of Woven Fabrics

GB/T 6099 Cotton Fiber Maturation Coefficient Test Method

GB/T 6682 Analysis Laboratory Water Specifications and Test Methods

GB/T 6688 Determination of relative intensity and chromatic aberration of dyes GB/T 29887 dyed cotton

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Color difference differential dyeing behavior Due to different conditions such as place of production, variety, maturity, etc., cotton fibers have different surface colors and changes after dyeing.

3.2 Maturity coefficient The index indicating the maturity of cotton fiber refers to the ratio of the thickness of the middle section of the cotton fiber to the ratio of the outer diameter to the outer diameter of the middle section of the cotton fiber. The larger the maturity coefficient, the more accurate the fiber is.

3.3 D65 light source artificial daylight 6500K The most commonly used artificial sunlight in standard light sources has a color temperature of 6500K. The D65 light source in the standard light source box simulates artificial daylight. In order to observe the color effect of an object indoors or on a rainy day, there is an illumination effect similar to that observed under sunlight.

4 Principle

The sample is placed in a certain bath ratio of red and green mixed dye solution, under the specified conditions for dyeing, after washing and drying to observe the cotton fiber. The color distribution of the dimension is compared with that of a cotton sample with known dyeing properties, and the color difference of cotton dyeing is evaluated.

5.1 CI Direct Red 81 (CAS number. 2610-11-9), red dye stock solution (
0.5 g/100 mL).