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

GB/T 17644-2008

Replacing GB/T 17644-1998

Test method for whiteness and chromaticity of textile fibres

纺织纤维白度色度试验方法

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Foreword

This Standard replaces GB/T 17644-1998 Test method for whiteness and chromaticity of textile fibres. Compared with GB/T 17644-1998, the major changes in this Standard are as follows:

- a) CHANGE the "color difference meter" into the "spectrophotometric colorimeter";
- b) ADD the terms of "chromaticity" and "colour hue";
- c) EXPAND the standard's scope of application;
- d) MODIFY the contents of Annex A;
- e) MODIFY the calculation equations in the text as well as Annexes B and C in accordance with the latest release of CIE regulations; and
- f) ADD the corrected value of the color difference based on the L^* , a^* and b^* calculated according to the tristimulus values X, Y, Z. Annexes A, B and C of this Standard are normative annexes, while Annex D is informative annex. This Standard was proposed by and shall be under the jurisdiction of the China Fibre Inspection Bureau. Major drafting organizations of this Standard. Xi'an Polytechnic University, and China Fibre Inspection Bureau. Main drafters of this Standard. Sun Runjun, Chen Meiyu, Feng Ping, Lai Kan and Xu Jun. This Standard was first released in 1998. This is the first revision. Test method for whiteness and chromaticity of textile fibres

1 Scope

GB/T 17644-2008 is the Chinese national standard on test method for whiteness and chromaticity of textile fibres, 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 7 August 2008 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 December 2008. Classification: ICS 59.060, CCS W04. 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 Standard specifies the test methods for determining the whiteness and chromaticity of textile fibres by using a spectrophotometric colorimeter. This Standard is applicable to the determination of the whiteness and chromaticity of textile fibres.

2 Normative references

The provisions in the following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard. However, parties who reach an agreement based on this Standard are encouraged to study if the latest editions of these documents are applicable. For undated references, the latest editions apply to this Standard.

GB/T 3979 Methods of measuring the colour of materials

GB 6529 Standard atmospheres for textiles conditioning and testing

GB/T 8170 Rules of rounding off for numerical values

3 Terms and definitions

The following terms and definitions are applicable to this Standard.

3.1 Tristimulus values X, Y, Z It refers to the three reference stimuli or three matching stimuli required to match with the studied color stimulus in the D65 light source, 10° visual standard and tristimulus system in CIE 1994.

3.2 Index of lightness L^* It refers to the brightness coordinates in the 3D Cartesian coordinate system of L^* , a^* , b^* uniform chromaticity space.

3.3 Chromaticity coefficient a^* , b^* It refers to the values in the 3D Cartesian coordinate system of L^* , a^* , b^* uniform chromaticity space, among which a^* positive value is in red, a^*

negative value is in green, b^* positive value is in yellow, and b^* negative value is in blue.

3.4 Chromaticity It refers to the two-dimensional quantitative value of the color represented by the chromaticity coordinates, which can be a^* , b^* (Cartesian coordinates) or C^* , H^* (polar coordinates).

3.5 Whiteness W It refers to the one-dimensional evaluation on the white degree of the white substance surface.

3.6 Chroma saturation C^* Reflected chromatic light is a mixture of colored light and white light. Chroma saturation refers to the proportion of colored light in total reflectance, which is the value of the radius in the polar coordinate system.

3.7 Colour hue (angle) H^* It refers to the value of the direction angle of the colour hue in the polar coordinate system.

4 Principle

USE a spectrophotometric colorimeter to directly measure the tristimulus values X, Y, Z of the test sample with a certain compression density on the transmission surface of the test case, and thus OBTAIN the chromaticity and whiteness values by calculation.

5 Instruments

5.1 Colorimeter The spectrophotometric colorimeter used in this Standard shall meet the following technical conditions.

- a) Diameter () of the measurement window. 20mm to 30mm;
- b) Lighting source. D65 light source;
- c) 10° viewing angle;

9.2 Whiteness index of textile fibres

9.2.1 The whiteness value shall be calculated according to the Equation (7). Where. W - Whiteness, %. The calculation results shall be rounded off to four decimal places according to the provisions of GB/T 8170.

9.2.2 In the L^* , a^* , b^* index system, a^* , b^* represent the color cast direction of whiteness. a^* positive value indicates reddish, a^* negative value indicates greenish, b^* positive value indicates yellowish, and b^* negative value indicates bluish.

9.3 Color difference index of textile fibres During the calculation of color difference against the standard sample, the color difference shall be calculated in accordance with the Annex C. SEE Annex D for specific calculation examples.

10 Test report

The test report shall include the following contents.

- a) serial number of the executive standard;
- b) sample name, specifications, batch number, quantity and status, and sample delivery agency;
- c) test date and environmental conditions;
- d) model and major technical conditions of the test instrument;
- e) test results;