INTERNATIONAL STANDARD

ISO 105-J01

Third edition
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Textiles — Tests for colour fastness —

Part J01 :
Measurement of colour and colour differences

Textiles — Essais de solidité des teintures —

Partie J01 : Méthode de mesurage de la couleur et des différences de couleur

Reference number
ISO 105-J01:1989(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 105-J01 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This third edition cancels and replaces the second edition (ISO 105-J01:1987), of which it constitutes a technical revision.

ISO 105 was previously published in 13 "parts", each designated by a letter (e.g. "Part A"), with publication dates between 1978 and 1985. Each part contained a series of "sections", each designated by the respective part letter and by a two-digit serial number (e.g. "Section A01"). These sections are now being republished as separate documents, themselves designated "parts" but retaining their earlier alphanumeric designations. A complete list of these parts is given in ISO 105-A01.

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Textiles — Tests for colour fastness —

Part J01 :
Measurement of colour and colour differences

1 Scope

This part of ISO 105 specifies a method for measuring the colour difference between two specimens of textile in any form. The existence of a master reference is necessary when the test is carried out by comparing the master reference with the test specimen. The method is applicable to coloured specimens.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 105. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 105 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

CIE Publication No. 15.2:1986, *Colorimetry* (Second edition).[1)]

3 Principle

This part of ISO 105 selects from the several options published by the International Commission on Illumination (CIE) those best suited to the needs of the textile industry whenever the difference in colour between two specimens has to be quantified.

4 Methods of test

4.1 Determination of basic colorimetric data

4.1.1 Whenever it is desirable to minimize the variations in reflectance values obtained from different spectrometers, the specular component shall be included.

4.1.2 The reflectance values shall be converted into X, Y, Z tristimulus values using the colour matching functions (spectral tristimulus values) in the CIE 1964 supplementary standard colorimetric system (10° observer data) for illuminant D_{65}.

4.1.3 Whenever a master reference is established, the tristimulus values shall be converted into the x, y chromaticity co-ordinates and recorded together with the Y tristimulus value.

4.2 Calculation of colour differences

4.2.1 The X, Y, Z tristimulus values of a specimen representating the reference and of a specimen representing a sample shall be determined using either a spectrometer or a tristimulus colorimeter.

4.2.2 These values shall then be converted into L^*, a^*, b^* values using the equations given in CIE Publication 15.2. If any one of the ratios X/X_n, Y/Y_n or Z/Z_n is equal to or less than 0,008 856, the equations given in note 1 of sub-clause 4.2.3 of CIE Publication 15.2:1986 shall be used.

1) Available from the Central Bureau of the CIE, P.O. Box 169, A-1033 Vienna, Austria.

4.2.3 The L^*, a^*, b^* values of the reference and the sample shall then be used to calculate the colour difference in CIELAB units using the equation given in CIE Publication 15.2.

4.2.4 Any colour difference may be partitioned into three components:

— a lightness component,

— a chroma component and

— a hue component,

using the differences in CIE 1976 psychometric lightness (ΔL^*), in CIE 1976 a, b chroma and in CIE 1976 a, b hue using the equations in CIE Publication 15.2.

4.2.5 Whenever the colorimetric data x, y, Y of a master reference are established, the tolerances for working references shall be given in CIELAB units.

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Descriptors: textiles, dyes, tests, determination, colour fastness, colour, colour differences.

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