International Standard 105/J

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Textiles — Tests for colour fastness — Part J : Measurement of colour and colour differences

Textiles — Essais de solidité des teintures — Partie J : Mesurage de la couleur et des différences de couleur

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

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.

International Standard ISO 105/J was developed by Technical Committee ISO/TC 38, *Textiles*, and was circulated to the member bodies in July 1979.

NOTE — International Standard ISO 105 is presented in the form of parts. Each of these parts corresponds to a group and is split up into its different component sections. This form facilitates the replacement of existing sections by successive editions as necessary.

This edition of part J is composed of section J01-1982.

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Textiles — Tests for colour fastness —

J01 Method for the measurement of colour and colour differences

1 Scope and field of application

This method is intended for use in measuring the colour of a textile specimen or in measuring the colour difference between two specimens of textile in any form.

2 Principle

This International Standard 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 colour of a textile specimen or the magnitude of the colour difference between two specimens has to be quantified.

3 References

CIE Publication No. 15 (E-1.3.1) 1971, *Colorimetry, Official C.I.E. Recommendations.*[1)]

Supplement No. 2 to CIE Publication No. 15, *Recommendations on uniform color spaces — color difference equations — psychometric color terms.*[1)]

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 spectrophotometers, the specular component shall be included.

4.1.2 The reflectance values shall be converted into X, Y and 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 standard 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 XYZ tristimulus values of a specimen representing the standard and of a specimen representing a sample shall be determined using either a spectrophotometer or a tristimulus colorimeter.

4.2.2 These values shall then be converted into L^* a^* b^* values using the equations given in Recommendation 2 of Supplement No. 2 to CIE Publication No. 15. 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 the appendix to Recommendation 2 shall be used.

4.2.3 The L^* a^* b^* values of standard and sample shall then be used to calculate the colour difference in CIELAB units using the equation given in Recommendation 2 of Supplement No. 2 to CIE Publication No. 15.

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-difference using the equations in Recommendation 3 of Supplement No. 2 to CIE Publication No. 15.

4.2.5 Whenever the colorimetric data xyY of a master standard are established, tolerances for working standards shall be given in CIELAB units.

1) Both publications are available from
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52, boulevard Malesherbes
F-75008 Paris
France.

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Descriptors : textiles, colour fastness, tests, colorimetry, spectrophotometry.

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