INTERNATIONAL STANDARD

**ISO
105-J02**

ISO

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

Textiles — Tests for colour fastness —

Part J02:
Method for the instrumental assessment of whiteness

Textiles — Essais de solidité des teintures —

Partie J02: Méthode instrumentale de détermination de la blancheur

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.

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-J02 was prepared by Technical Committee ISO/TC 38, *Textiles.*

ISO 105 was previously published in thirteen "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.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Textiles — Tests for colour fastness —

Part J02:
Method for the instrumental assessment of whiteness

1 Scope and field of application

This part of ISO 105 specifies a method intended for quantifying the whiteness of textiles, including fluorescent materials.

2 References

ISO 105-J01, *Textiles — Tests for colour fastness — Part J01: Method for the measurement of colour and colour differences.*

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

3 Principle

The chromaticity co-ordinates x_{10}, y_{10} and the Y_{10} tristimulus values are calculated from the spectral radiance factors of the specimen and converted into a whiteness value. If these cannot be calculated, the x, y, Y values may be used instead. The redness/greenness tint factor may also be determined.

4 Apparatus

Spectrophotometer, that irradiates the specimen with light resembling standard Illuminant D_{65}.

5 Test specimen

The specimen shall consist of a number of layers sufficient to ensure that the addition of another layer does not alter the spectral radiance factors.

6 Procedure

6.1 Measure the spectral radiance factors of the test specimen with a spectrophotometer (clause 4).

6.2 Calculate the x_{10}, y_{10} and Y_{10} values under Illuminant D_{65} using the colour matching functions defining the CIE 1964 supplementary standard colorimetric observer. If this is not possible, the x, y, Y values obtained from the colour matching functions defining the CIE 1931 colorimetric observer may be used.

6.3 Calculate the whiteness value W_{10} from the equation

$$W_{10} = Y_{10} + 800\,(0{,}313\,8 - x_{10}) + 1\,700\,(0{,}331\,0 - y_{10})$$

If required, calculate the tint factor $T_{W,10}$ from the equation

$$T_{W,10} = 900\,(0{,}313\,8 - x_{10}) - 650\,(0{,}331\,0 - y_{10})$$

If x, y, Y values have been obtained, the corresponding equations are:

$$W = Y + 800\,(0{,}312\,7 - x) + 1\,700\,(0{,}329\,0 - y)$$
$$T_W = 1\,000\,(0{,}312\,7 - x) + 650\,(0{,}329\,0 - y)$$