Tekstiil. Värvipüsivuse katsetamine. Osa J03: Värvuse erinevuse arvutamine

Textiles - Tests for colour fastness - Part J03: Calculation of colour differences

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 105-J03:2009 sisaldab Euroopa standardi EN ISO 105-J03:2009 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 105-J03:2009 consists of the English text of the European standard EN ISO 105-J03:2009.
Standard on kinnitatud Eesti Standardikeskuse 31.12.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 18.08.2009.	Date of Availability of the European standard text 18.08.2009.
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Textiles - Tests for colour fastness - Part J03: Calculation of colour differences (ISO 105-J03:2009)

Textiles - Essais de solidité des teintures - Partie J03: Calcul des écarts de couleur (ISO 105-J03:2009)

Textilien - Farbechtheitsprüfungen - Teil J03: Berechnungen von Farbdifferenzen (ISO 105-J03:2009)

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 105-J03:2009) has been prepared by Technical Committee ISO/TC 38 "Textiles" in collaboration with Technical Committee CEN/TC 248 “Textiles and textile products” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2010, and conflicting national standards shall be withdrawn at the latest by April 2010.

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Endorsement notice

The text of ISO 105-J03:2009 has been approved by CEN as a EN ISO 105-J03:2009 without any modification.

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Calculation of colour differences

1 Scope

This part of ISO 105 provides a method of calculating the colour difference between two specimens of the same material, measured under the same conditions, such that the numerical value $\Delta E_{cmc}(l{:}c)$ for the total colour difference quantifies the extent to which the two specimens do not match. It permits the specification of a maximum value (tolerance) which depends only on the closeness of match required for a given end-use and not on the colour involved, nor on the nature of the colour difference. The method also provides a means for establishing the ratio of differences in lightness to chroma and to hue.

NOTE Annex A gives guidance on the interpretation of results. Annex B provides sample test data for use in checking computer programs. Annex C contains a sample computer program for calculating colour difference.

2 Principle

The CIE[1)] 1976 $L^*a^*b^*$ (CIELAB) colour space has been modified to enhance its visual uniformity when calculating the colour difference between two specimens. The modifications to CIELAB by the CMC equation provide a numerical value, ΔE_{cmc}, which describes the colour difference between a sample and a reference in a more nearly uniform colour space. This permits the use of a single-number tolerance ("acceptability tolerance" or "pass/fail tolerance") for judging the acceptability of a colour match in which the tolerance is independent of the colour of the reference. The ellipsoid semi-axes (lS_L, cS_C and S_H) used to derive ΔE_{cmc} provide a means to interpret the three separate components of colour difference (lightness, chroma and hue) in manners suitable for a wide range of uses.

The equation for ΔE_{cmc} describes an ellipsoidal boundary (with axes in the directions of lightness, chroma and hue) centred about a reference. The agreed-upon ΔE_{cmc} acceptability tolerance describes a volume within which all specimens are acceptable matches to the reference.

The colour difference is composed of three components that comprise the differences between the reference and the specimen. These are as follows.

a) A **lightness** component that is weighted by a lightness tolerance ($\Delta L^*/lS_L$). This is represented as ΔL_{cmc}.

If the ΔL_{cmc} is positive, the specimen is lighter than the reference. If the ΔL_{cmc} is negative, the specimen is darker than the reference;

b) A **chroma** component that is weighted by the chroma tolerance ($\Delta C^*_{ab}/cS_C$). This is represented as ΔC_{cmc}.

If the ΔC_{cmc} is positive, the specimen is more chromatic than the reference. If the ΔC_{cmc} is negative, the specimen is less chromatic than the reference;

1) Commission Internationale de l'Éclairage, Central Bureau, Kegelgasse 27, A-1030 Vienna, Austria.