EESTI STANDARD EVS-EN ISO 105-J03:2000

Tekstiil. Värvipüsivuse katsetamine. Osa J03: Värvuse erinevuse arvutamine

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

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 105-J03:2000 sisaldab Euroopa standardi EN ISO 105-J03:1997 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 105-J03:2000 consists of the English text of the European standard EN ISO 105-J03:1997.
Käesolev dokument on jõustatud 10.05.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.	This document is endorsed on 10.05.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

Käsitlusala: See standard näeb ette meetodi värvuse erinevuse arvutamiseks kahe samast materjalist näidise vahel, mis on mõõdetud samades tingimustes nii, et kogu värvitoonivahe arvuline väärtus iseloomustab seda suurust, mille võrra kaks näidist erinevad. See võimaldab määrata maksimaalset väärtust (lubatud piirhälvet), mis sõltub ainult erinevuse suurusest ja ei sõltu ei asjassepuutuvast värvusest ega värvuse erinevuse olemusest. Standard näeb ette ka vahendid varjundi erinevuste määramiseks nii värvuse sügavuse kui ka värvitooni osas.	**Scope:**

ICS 59.080.01

Võtmesõnad: arvutusreeglid, katsed, määramine, tekstiil, värvid, värvipüsivus, värvitoonivahed

EUROPEAN STANDARD
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Descriptors: Testing, colour fastness, textiles, colour differences.

English version

Textiles

Tests for colour fastness

Part J03: Calculation of colour differences

(ISO 105-J03:1995, including Technical Corrigendum 1:1996)

Textiles – Essais de solidité des teintures – Partie J03: Calcul des différences de couleur (ISO 105-J03:1995, Rectificatif Technique 1:1996 inclus)

Textilien – Farbechtheitsprüfungen – Teil J03: Berechnung von Farbdifferenzen (ISO 105-J03:1995, einschließlich Technische Korrektur 1:1996)

This European Standard was approved by CEN on 1997-03-28.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Ref. No. EN ISO 105-J03:1997 E

Foreword

International Standard

ISO 105-J03:1995 Textiles – Tests for colour fastness – Part J03: Calculation of colour differences,

which was prepared by ISO/TC 38 'Textiles' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 248 'Textiles and textile products', the Secretariat of which is held by BSI, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by October 1997 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 105-J03:1995, including Technical Corrigendum 1:1996, was approved by CEN as a European Standard without any modification.

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 1 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:

a) a **lightness** component that is weighted by the 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}.

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