

**Tekstiil. Värvipüsivuse katsetamine.
Osa Z10: Lahuses olevate värvainete
suhtelise värvitugevuse määramine**

Textiles - Tests for colour fastness - Part Z10:
Determination of relative colour strength of dyes in
solution

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 105-Z10:2000 sisaldab Euroopa standardi EN ISO 105-Z10:1999 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 11.01.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 105-Z10:2000 consists of the English text of the European standard EN ISO 105-Z10:1999.</p> <p>This document is endorsed on 11.01.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>Käesolev meetod on mõeldud värvaine värvuse intensiivsuse määramiseks etalonvärvaine suhtes, kusjuures spektrofotomeetriliste mõõtmiste abil mõõdetakse valguse neeldumist värvaine lahustes.</p>	<p>Scope:</p>
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ICS 59.080.01

Võtmesõnad: colour fastness, colour-fastness tests, colouring power, determination, dyes, tests, textiles

English version

Textiles – Tests for colour fastness

Part Z10: Determination of relative colour strength of dyes in solution
(ISO 105-Z10 : 1997)

Textiles – Essais de solidité des teintures – Partie Z10: Détermination de l'intensité relative de la couleur des colorants en solution
(ISO 105-Z10 : 1997)

Textilien – Farbechtheitsprüfungen – Teil Z10: Bestimmung der relativen Farbstärke von Farbstoffen in Lösung
(ISO 105-Z10 : 1997)

This European Standard was approved by CEN on 1999-04-18.

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

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 105-Z10 : 1997 Textiles – Tests for colour fastness – Part Z10: Determination of relative colour strength of dyes in solution,

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 November 1999 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-Z10 : 1997 was approved by CEN as a European Standard without any modification.

INTRODUCTION

This part of ISO 105 describes a practicable method for determination of colour strength based on absorbance measurement of dye solutions. The relative colour strength is defined primarily by means of comparison of dyeings, which are prepared from the dye under test and the reference dye at the same depth. The relative colour strength is therefore the reciprocal ratio of the dye concentrations, expressed as a percentage, hence it is a value defined by means of an application technique and is associated with the conditions of preparation of the dyeings and their evaluation. Despite this general limitation, determination of colour strength in solution is useful because of the decisive advantage of higher accuracy (reproducibility) with little expenditure of effort. The validity of the result should be controlled by comparison with evaluation by means of an application method.

1 Scope

This method is intended for the determination of the colour strength of a dye in relation to that of a reference dye by means of spectrophotometric absorption measurements on solutions of dyes.

NOTES

- 1 Basic requirements for this method are that the dye solutions do not scatter light and obey the Bouguer-Lambert-Beer law as well as identical or similar absorption curves of the samples and the reference in the visible region of the spectrum.
- 2 Identical or similar absorption curves are usually obtained if the tests are carried out for the purpose of dye production control of batches/deliveries of the same dye. This method is not applicable for the evaluation of dyes with distinctly different adsorption curves.
- 3 The colour strength of a dye is not a physical constant, since it is dependent, for example, on the test medium and test method. The colour strength determined by this method therefore may differ from those found by other determinations, e.g. instrumental or visual assessments of dyeings.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 105. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 648:1977, *Laboratory glassware — One-mark pipettes*.

ISO 1042:1983, *Laboratory glassware — One-mark volumetric flasks*.

3 Definitions

For the purposes of this part of ISO 105 the following definitions apply :

3.1 colour strength: A measure of the ability of a dye to impart colour to other materials characterized by its absorption in the visible region of the spectrum and expressed as a colour strength value.

3.2 relative colour strength: The percentage ratio of the colour strength value of the sample to that of the reference dye, the colour strength of which is 100 %.

NOTE — As the relative colour strength is determined by a comparison with a reference dye, this is assumed to remain constant. It is essential therefore to ensure careful storage and control of the reference dye. Many dyes are hygroscopic and sensitive to oxidation. It is essential to protect the reference dye from exposure to light in firmly sealed containers that are impervious to moisture.

3.3 colour strength value: The extinction coefficient at the maximum absorption of the reference dye.

NOTE — Colour strength is traditionally a colouristic concept, being based essentially on a visual assessment. Therefore colour strength determined instrumentally should not contradict visual assessment. Such a contradiction would not be expected if the samples to be compared exhibit concentration-dependent differences in absorption only i.e. their absorption curves in the visible region are identical when the strength of the absorption curves is made equal, or show only insignificant differences.

If the absorption curves differ more markedly (shade differences), a better correlation with visual assessment may be obtained if the weighted total extinction in the visible region is used as the colour strength value.

4 Principle

Solutions of the dye under test and the reference dye are prepared and the absorptivity or colour strength values derived from them are determined.

The percentage relative colour strength F_s , is given by the following equation :

$$F_s = \frac{f_{k2}}{f_{k1}} \times 100$$