

Textiles — Tests for colour fastness —

Part B02: Colour fastness to artificial light: Xenon arc fading lamp test

The European Standard EN ISO 105-B02:1999, with the incorporation of amendment A1:2002 has the status of a British Standard

ICS 59.080.01

National foreword

This British Standard is the official English language version of EN ISO 105-B02:1999, including amendment A1:2002. It is identical with ISO 105-B02:1994, including amendment 1:1998, and amendment 2:2000. It partially supersedes BS 1006:1990. BS EN 20105-B02:1993 is also superseded and is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TCI/81, Colour fastness testing and colour measurement, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, page ii, pages 1 to 17, the Annex ZA page, an inside back cover and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments
10855 Corr.No.1	March 2000	
13140 Corr.No.2	April 2001	Inserted Figure 2
13049	15 October 2003	Correction to 4.2.1.1c) and replacing Annex A and Annex B

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English version

Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test

(includes amendment A1:2002)

(ISO 105-B02:1994 + A1:1998 + A2:2000)

Textiles — Essais de solidité des teintures —
Partie B02: Solidité des teintures à la lumière
artificielle: Lampe à arc au xénon
(inclut l'amendement A1:2002)
(ISO 105-B02:1994 + A1:1998 + A2:2000)

Textilien — Farbechtheitsprüfungen —
Teil B02: Farbechtheit gegen künstliches Licht:
Xenonbogenlicht
(enthält Änderung A1:2002)
(ISO 105-B02:1994 + A1:1998 + A2:2000)

This European Standard was approved by CEN on 25 June 1999.
Amendment A1 was approved by CEN on 22 February 2002.

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This European Standard exists 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

The text of the International Standard from Technical Committee ISO/TC 38 "Textiles" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI.

This European Standard replaces EN 20105-B02:1992.

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 January 2000, and conflicting national standards shall be withdrawn at the latest by January 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 105-B02:1994, including amendment 1:1998, has been approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

Foreword to amendment 1

The text of this Amendment EN ISO 105-B02:1999/A1:2002 to the EN ISO 105-B02:1999, including Amendment 1:1998, from Technical Committee ISO/TC 38 "Textiles" of the International Organization for Standardization (ISO) has been taken over as an Amendment to the European Standard by 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 September 2002, and conflicting national standards shall be withdrawn at the latest by September 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the Amendment to the International Standard ISO 105-B02:1994/Amd. 2:2000 has been approved by CEN as an Amendment to the European Standard without any modifications.

INTERNATIONAL STANDARD

ISO 105-B02

Fourth edition
1994-09-15

Textiles — Tests for colour fastness —

Part B02:

Colour fastness to artificial light: Xenon arc
fading lamp test

Textiles — Essais de solidité des teintures —

*Partie B02: Solidité des teintures à la lumière artificielle: Lampe à arc au
xénon*



Reference number
ISO 105-B02:1994(E)

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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 105-B02 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 1, *Tests for coloured textiles and colorants*.

This fourth edition cancels and replaces the third edition (ISO 105-B02:1988), of which it constitutes a technical revision.

ISO 105 was previously published in 13 "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.

Annexes A and B form an integral part of this part of ISO 105. Annex C is for information only.

Textiles — Tests for colour fastness —

Part B02:

Colour fastness to artificial light: Xenon arc fading lamp test

1 Scope

This part of ISO 105 specifies a method intended for determining the resistance of the colour of textiles of all kinds and in all forms to the action of an artificial light source representative of natural daylight (D₆₅). The method is also applicable to white (bleached or optically brightened) textiles.

This method allows the use of two different sets of blue wool references. The results from the two different sets of references may not be identical.

NOTE 1 General information on colour fastness to light is given in annex C.

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 105-A01:1994, *Textiles — Tests for colour fastness — Part A01: General principles of testing*.

ISO 105-A02:1993, *Textiles — Tests for colour fast-*

ness — Part A02: Grey scale for assessing change in colour.

ISO 105-A05:—¹⁾, *Textiles — Tests for colour fastness — Part A05: Method for the instrumental assessment of the change in colour of a test specimen*.

ISO 105-B01:—²⁾, *Textiles — Tests for colour fastness — Part B01: Colour fastness to light: Daylight*.

ISO 105-B05:1993, *Textiles — Tests for colour fastness — Part B05: Detection and assessment of photochromism*.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

CIE Publication No. 51, *Method for assessing the quality of daylight simulators for colorimetry*.

3 Principle

A specimen of the textile to be tested is exposed to artificial light under prescribed conditions, along with a set of blue wool references. The colour fastness is assessed by comparing the change in colour of the test specimen with that of the references used.

For white (bleached or optically brightened) textiles, the colour fastness is assessed by comparing the change in whiteness of the specimens with that of the reference used.

1) To be published.

2) To be published. (Revision of ISO 105-B01:1989)

4 Reference materials and apparatus

4.1 Reference materials

Either of two sets of blue wool reference may be used. The relationship between references 1 to 8 and L2 to L9 as shown with the method are approximate. Results from testing which use reference standards from both sources should be compared only with the knowledge that fading characteristics may differ. The results from the two sets of references are not interchangeable.

The colour fastness ratings mentioned in this part of ISO 105 are obtained by comparison with either blue wool references 1 to 8 (preferable in Europe) or blue wool references L2 to L9 (preferable in America).

4.1.1 References 1 to 8

Blue wool references developed and produced in Europe are identified by the numerical designation 1 to 8. These references are blue wool cloths dyed with the dyes listed in table 1. They range from 1 (very low colour fastness) to 8 (very high fastness) so that each higher-numbered reference is approximately twice as fast as the preceding one.

4.1.2 References L2 to L9

Blue wool references developed and produced in the United States are identified by the letter L followed by the numerical designation 2 to 9. These eight references are specially prepared by blending varying

proportions of wool dyed with CI Mordant Blue 1 (Colour Index, third edition, 43830) and wool dyed with CI Solubilized Vat Blue 8 (Colour Index, third edition, 73801), so that each higher-numbered reference is approximately twice as fast as the preceding reference.¹

Data in annex D are presented to illustrate the relationship of each of the blue wool references on exposure to fixed amounts of radiant energy. A detailed summary of these test results is found in document reference number ISO/TC38/SC1/N 993.

4.1.3 Humidity test control

Effective humidity is defined as the combination of air and surface temperatures and air relative humidity which governs the moisture content of the surface of the test specimen during exposure. The effective humidity can be measured only by determining the colour fastness of a specific humidity test control.

For the purposes of this part of ISO 105, the humidity test control is a red azoic dyed cotton cloth.

This control has been calibrated by exposing it facing south in several Western European locations at different times of the year, the exposures being made together with the references in sealed vessels containing air maintained at constant humidities between 0 and 100 %; the results did not vary greatly and the mean values are shown in figure 1.

When this control was exposed under the conditions specified in ISO 105-B01 in temperate zones, its colour fastness was found to be, on average, 5.

Table 1 — Dyes for blue wool references 1 to 8

Reference	Dye (Colour Index designation) ¹⁾
1	CI Acid Blue 104
2	CI Acid Blue 109
3	CI Acid Blue 83
4	CI Acid Blue 121
5	CI Acid Blue 47
6	CI Acid Blue 23
7	CI Solubilized Vat Blue 5
8	CI Solubilized Vat Blue 8

¹⁾ The Colour Index (third edition) is published by the Society of Dyers and Colourists, P.O. Box 244, Perkin House, 82 Grattan Road, Bradford BD1 2JB, West Yorks, UK, and by the American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709-2215, USA.