

**BUREAU OF INDIAN STANDARDS**

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Last date for comments – 24 July, 2024

*Draft Indian Standard*

**Textiles — Tests for colour fastness — Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test (first revision of IS/ISO 105-B04)**

Chemical Methods of Test Sectional Committee, TXD 05

**NATIONAL FOREWORD**

This Indian Standard (Part B04) (First Revision) intended to be adopted is identical with ISO 105-B04:2024 ‘Textiles — Tests for colour fastness — Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test’ issued by the International Organization for Standardization (ISO).

This standard supersedes IS 6152 : 1985 ‘Methods for determination of colour fastness of textile materials to weathering by xenon arc lamp (first revision)’.

This Indian standard was originally published in 1994. The first revision of this standard has been undertaken to harmonize it with the latest version of ISO 105-B04 : 2024.

Colour fastness of dyed/printed textile materials to various agencies during their further treatment or actual use is an important performance requirement from the viewpoint of the user or consumer. The various agencies to which textile materials may be subsequently subjected may include water, acids, alkalis, organic solvents, washing, laundering, dry-cleaning, perspiration, light, gaseous fumes, bleaching, rubbing, carbonizing, felting, etc, and the colour of textile materials should be fast to these agencies and should not change considerably. The colour should also not bleed and stain the adjacent fabric which is subjected to these agencies along with coloured fabric. The colour fastness property of coloured textiles is, therefore, measured in terms of colour fastness ratings with respect to change in colour and/or staining of adjacent fabric.

Since colour fastness is one of the most important requirements for export of textiles, it is considered essential that Indian Standards related to colour fastness are completely harmonized with International Standards. The various Indian Standards on colour fastness testing, are, therefore, being published/ revised to align them with the corresponding International Standards published in Parts A to Z.

This standard finds application in measurement of colour fastness of textile materials to the action of weather as determined by exposure to simulated weathering conditions in a cabinet equipped with a

xenon arc lamp.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words ‘International Standard’ appear referring to this standard, they should be read as ‘Indian Standard’.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In the standard intended to be adopted, reference appears to certain International Standard for which Indian Standard also exist. The corresponding Indian Standards which are to be substituted in their respective places are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 105-A01, Textiles — Tests for colour fastness — Part A01: General principles of testing	IS/ISO 105-A01 : 2010 Textiles – Tests for colour fastness Part A01 General principles of testing ( <i>first revision</i> )	Identical with ISO 105-A01 : 2010.
ISO 105-A02, Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour	IS/ISO 105-A02 :1993 Textiles — Tests for colour fastness Part A02 Grey scale for assessing change in colour	Identical with ISO 105-A02:1993.
ISO 105-A05, Textiles — Tests for colour fastness — Part A05: Instrumental assessment of change in colour for determination of grey scale rating	IS/ISO 105-A05 :1996 Textiles — Tests for colour fastness Part A05 Instrumental assessment of change in determination of grey scale rating	Identical with ISO 105-A05:1996.
ISO 105-B01, Textiles — Tests for colour fastness — Part B01: Colour fastness to light: Daylight	IS/ISO 105-B01 : 2014 Textiles — Tests for colour fastness Part B01 Colour fastness to light : daylight	Identical with ISO 105-B01:2014.
ISO 105-B02: 2014, Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test	IS/ISO 105-B02 : 2014 Textiles — Tests for colour fastness Part B02 Colour fastness to artificial light : Xenon arc fading lamp test	Identical with ISO 105-B02:2014.

ISO 4892-1, Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance	IS 17863 (Part 1) : 2022/ ISO 4892-1 : 2016 Plastics — Methods of exposure to laboratory light sources Part 1 General guidance	Identical with ISO 4892-1: 2016.
ISO 9370, Plastics — Instrumental determination of radiant exposure in weathering tests — General guidance and basic test method	IS 17864 : 2022/ ISO 9370 : 2017 Plastics — Instrumental determination of radiant exposure in weathering tests — General guidance and basic test method	Identical With ISO 9370 : 2017.

The technical committee has reviewed the provisions of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

<i>International/Other Standard</i>	<i>Title</i>
ISO 105-B08:1995	Textiles — Tests for colour fastness Part B08: Quality control of blue wool reference materials 1 to 7

In reporting the result of a test or analysis made in accordance with this standard, if the final value; observed or calculated, is to be rounded off, it shall be done in accordance with IS 2: 2022 ‘Rules for rounding off numerical values (*second revision*).

**Extract of ISO 105-B04:2024 ‘Textiles — Tests for colour fastness — Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test’.**

## Introduction

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.

## Foreword

This fifth edition cancels and replaces the fourth edition (ISO 105-B04:1994), which has been technically revised.

The main changes are as follows:

- i) the Scope has been refined to differentiate this document from ISO 105-B10;
- ii) the description of the test apparatus has been harmonized with ISO 105-B10. This takes into account current technology, but does not discredit the test procedure described in this document;
- iii) Type I and Type II daylight filters for xenon-arc lamps have been introduced

## 1 Scope

This document specifies a method intended for determining the effect on the colour of textiles of all kinds, except loose fibres, to the action of weather as determined by exposure to simulated weathering conditions in a test chamber equipped with a xenon arc lamp. This document focuses on textiles (such as apparel) where the main evaluation criterium is the colour fastness.

This method can be used to determine if a textile is sensitive to the combined effect of light and water.

### NOTES

1 General information on colour fastness to light is given in Annex A.

2 ISO 105-B10 provides guidance on testing textiles or technical textiles, which are permanently exposed to an outdoor environment and/or require mechanical testing (such as tensile strength determination).

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- i) ISO 105-A01, Textiles — Tests for colour fastness — Part A01: General principles of testing
- ii) ISO 105-A02, Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour
- iii) ISO 105-A05, Textiles — Tests for colour fastness — Part A05: Instrumental assessment of change in colour for determination of grey scale rating
- iv) ISO 105-B01, Textiles — Tests for colour fastness — Part B01: Colour fastness to light: Daylight
- v) ISO 105-B02: 2014, Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test
- vi) ISO 105-B08, Textiles — Tests for colour fastness — Part B08: Quality control of blue wool reference materials 1 to 7
- vii) ISO 4892-1, Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance
- viii) ISO 9370, Plastics — Instrumental determination of radiant exposure in weathering tests — General guidance and basic test method

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 105-B02 apply.

#### 4 Principle

Test specimens of the textile are exposed under specified conditions to light from a xenon arc lamp and to water spray. At the same time, eight dyed blue wool references are exposed to light but are protected from water spray by a sheet of window glass. The fastness is assessed by comparing the change in colour of the test specimen with that of the references.

If the method is used to determine if a textile is sensitive to the combined effect of light and water (see 7.2), the simultaneous exposure of references is unnecessary. In this case, the assessment shall be performed by comparison with the grey scale in accordance with ISO 105-A02 or by colour measurement in accordance with ISO 105-A05.

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