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Textiles — Tests for colour fastness

Part B04:
Colour fastness to artificial weathering: Xenon arc fading lamp test

Textiles — Essais de solidite solidité des teintures — Panic coloris —

Partie B04: Solidite Solidité des teintures coloris aux intemperies anificielles intempéries artificielles: Lampe à arc au xenon xénon

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 1, *Tests for coloured textiles and colorants*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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

The main changes are as follows:

— ~~—~~the Scope has been refined to differentiate this document from ISO 105-B10;

— ~~—~~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;

— ~~—~~Type I and Type II daylight filters for xenon-arc lamps have been introduced.

A list of all parts in the ISO 105 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Field Code Changed

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.

Textiles — Tests for colour fastness

Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test

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.

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

NOTE 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.

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

ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 105-A05, *Textiles — Tests for colour fastness — Part A05: Instrumental assessment of change in colour for determination of grey scale rating*

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

ISO 105-B02:2014, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

ISO 105-B08, *Textiles — Tests for colour fastness — Part B08: Quality control of blue wool reference materials 1 to 7*

ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance*

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.

ISO and IEC maintain ~~terminological~~terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at ~~https://www.iso.org/obp~~https://www.iso.org/obp

— IEC Electropedia: available at ~~https://www.electropedia.org/~~https://www.electropedia.org/

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),~~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.

5 Materials

5.1 Blue wool references

The reference materials used in this test shall be those blue wool references specified in ISO 105-A01 and ISO 105-B01. The blue wool references 1 to 8 used in this test shall meet the quality requirements specified in ISO 105-B08.

5.2 Glass case for blue wool references

The blue wool references shall be protected from water spray by a shield of glass. The transmission of the glass used shall be at least 90 % in the wavelength range from 380 nm and 750 nm, falling to 0 % between 310 nm and 320 nm. The glass case shall be well ventilated, i.e. there shall be an opening at the top and another at the bottom to allow good circulation of air.

5.3 Specimen mounting cards

For mounting the blue wool references, mounting cards from cardboard free of optical or fluorescent brightening agent shall be used.

For exposure cycles with specimen wetting, specimen mounting cards shall be water resistant. Mounting cards shall be made from material resistant to the exposure conditions, such as stainless steel or inert plastic.

5.4 Specimen covers

Specimen covers to partly cover the front of the test specimens shall be made from opaque cardboard, or other thin opaque material, for example stainless steel or thin sheet aluminium. The cover material shall be inert to the test conditions and not react with the test specimen.

If specimen covers are used for the test specimen, these shall be water resistant.

5.5 Specimen holders

Specimen holders shall be used to hold the test specimen on the specimen mounting card and the specimen covers, if used, during the exposure. Specimen holders shall be made of inert materials that will not affect the test results. They are preferably made in the form of an open frame. If required, a metal plate can be used to close the specimen holders from the rear.

5.6 Grey scale for assessing change in colour

Grey scale for assessing change in colour shall be in accordance with ISO 105-A02.