INTERNATIONAL STANDARD

ISO 105-G04

Second edition
2016-06-01

Textiles — Tests for colour fastness —

Part G04: Colour fastness to nitrogen oxides in the atmosphere at high humidities

Textiles — Essais de solidité des coloris —

Partie G04: Solidité des coloris aux oxydes d'azote en atmosphère à taux d'humidité élevés

Reference number
ISO 105-G04:2016(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.

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 documents 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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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 38, *Textiles*, Subcommittee SC 1, *Tests for coloured textiles and colorants*.

This second edition cancels and replaces the first edition (ISO 105-G04:1989), which has been technically revised. The main technical changes are the following:

a) delete the test-control fabric dyed with Disperse Blue 3;

b) add the test-control fabric dyed with Disperse Violet 1 and the test-control fabric dyed with Disperse Blue 56.

ISO 105 consists of the many parts designated by a part letter and a two-digit serial number (e.g. A01), under the general title *Textiles — Tests for colour fastness*. A complete list of these is given in ISO 105-A01.

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Introduction

This method is based on a test (AATCC 164-1987), developed by AATCC in response to a specific need in the USA for the determination of fading in the presence of nitrogen oxide at high relative humidities. Such conditions are prevalent along the Gulf of Mexico coast of the USA and in Southern California. Fading of some dyes on certain man-made fibres, particularly on carpets, was observed to be quite severe under such conditions. The development of this test method enabled dye manufacturers, fibre producers and textile manufacturers to select dye/fibre combinations which were resistant to fading in the presence of nitrogen oxide at high relative humidities. The same fabrics, when tested at low humidities, showed little or no fading.

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Textiles — Tests for colour fastness —

Part G04:
Colour fastness to nitrogen oxides in the atmosphere at high humidities

1 Scope

This part of ISO 105 specifies a method for determining the resistance of the colour of textiles to the action of nitrogen oxide in the atmosphere at elevated temperatures and high relative humidities.

For testing at lower humidities, see ISO 105-G01.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 105-C10, *Textiles — Tests for colour fastness — Part C10: Colour fastness to washing with soap or soap and soda*

ISO 105-D01, *Textiles — Tests for colour fastness — Part D01: Colour fastness to drycleaning using perchloroethylene solvent*

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

3 Principle

A test specimen and a piece of test-control fabric are simultaneously exposed to nitrogen oxide in an atmosphere which is maintained at 87,5 % ± 2,5 % relative humidity and a temperature of 40 °C ± 1 °C until the test-control fabric shows a colour change-corresponding to that of a standard of fading.

The exposure/measurement cycle is repeated until the test specimen shows a definite colour change or for a prescribed number of cycles.

4 Apparatus and reagents

4.1 **Exposure chamber**, see Annex A.

4.2 Test-control fabric

4.2.1 Test-control fabric dyed with Disperse Violet 1

A woven filament acetate is uniformly dyed in an open-width dyeing machine with 0,4 % (on mass of fabric) Cl Disperse Violet 1 (Colour Index, Third Edition) in a dye-bath containing 1 g/l of a dispersing agent at a liquor ratio of 10:1.

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