INTERNATIONAL STANDARD

ISO 105-X01

Third edition
1987-12-15

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Textiles — Tests for colour fastness —

Part X01:
Colour fastness to carbonizing : Aluminium chloride

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Textiles — Essais de solidité des teintures —

Partie X01: Solidité des teintures au carbonisage : Chlorure d'aluminium

ISO 105-X01:1987
https://standards.iteh.ai/catalog/standards/sist/6b84a04d-cd27-4cfe-ae34-796527dc026d/iso-105-x01-1987

Reference number
ISO 105-X01 : 1987 (E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

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International Standard ISO 105-X01 was prepared by Technical Committee ISO/TC 38, *Textiles.*

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This third edition cancels and replaces the second edition (included in ISO 105-X: 1984), of which it constitutes a minor revision.

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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. A complete list of these parts is given in ISO 105-A01.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Printed in Switzerland

Textiles — Tests for colour fastness —

Part X01:
Colour fastness to carbonizing : Aluminium chloride

1 Scope and field of application

This part of ISO 105 specifies a method for determining the resistance of the colour of textiles in all forms to the manufacturing operation designed to remove vegetable impurities by a treatment with aluminium chloride at high temperatures. The method is mainly applicable to wool and textiles containing wool, particularly those containing also acetate or polyamide fibres.

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2 References

ISO 105, *Textiles — Tests for colour fastness —*

Part A01 : General principles of testing.

Part A02 : Grey scale for assessing change in colour.

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3 Principle

A specimen impregnated with aluminium chloride solution is dried, baked, rinsed and neutralized. The changes in colour after rinsing, neutralizing and drying are assessed with the grey scale.

4 Apparatus and reagents

4.1 Oven, for drying specimens in air at 60 ± 2 °C and baking in air at 115 ± 2 °C.

4.2 Aluminium chloride, solution (ϱ 1,037 g/ml) containing 51,4 g of $AlCl_3.6H_2O$ per litre.

4.3 Ammonium hydroxide, solution containing 2 ml of 20 % NH_4OH per litre.

4.4 Test control : A dyeing of CI Mordant Red 3 (Colour Index, 3rd Edition) treated with potassium dichromate (see clause 8).

4.5 Grey scale for assessing change in colour (see clause 2).

5 Test specimen

5.1 If the textile to be tested is fabric, use a specimen 10 cm × 4 cm.

5.2 If the textile to be tested is yarn, knit it into fabric and use a specimen 10 cm × 4 cm, or make a wick of parallel lengths 10 cm long and about 0,5 cm in diameter, tied near both ends.

5.3 If the textile to be tested is loose fibre, comb and compress enough of it to form a sheet 10 cm × 4 cm.

6 Procedure

6.1 Carry out the operations described below in 6.2 to 6.5 with the test specimen and the test-control specimen in parallel, in separate baths.

6.2 Immerse the specimen in the aluminium chloride solution (4.2) for 15 min at room temperature (liquor ratio 20 : 1). Squeeze it to leave in 80 % of its own mass of solution.

6.3 Dry the specimen by hanging it in an oven for 30 min, or longer if necessary, at 60 ± 2 °C. Then bake it by heating for 15 min at 115 ± 2 °C.

6.4 Rinse the specimen for 5 min in cold, running tap-water and then divide it into two equal parts. Dry one half by hanging it in air at a temperature not exceeding 60 °C.

6.5 Agitate the other half for 30 min at room temperature in the ammonium hydroxide solution (4.3) (liquor ratio 40 : 1). Then rinse it for 5 min in cold, running tap-water and dry it by hanging it in air at a temperature not exceeding 60 °C.

6.6 Assess the effect on the unneutralized test-control specimen (see clause 8) with the grey scale. If the change in colour is not equal to the rating "4-5 yellower" on the appropriate scale, the test has not been carried out correctly, and the operations described in 6.1 to 6.5 inclusive should be repeated with a fresh test specimen and a fresh test-control specimen.

6.7 Assess the change in colour of each half of the test specimen with the grey scale.

7 Test report

Report the numerical ratings for change in colour for both the rinsed and the neutralized portions of the test specimen.

8 Note

Test control. A well wetted-out pattern of wool cloth is entered at 40 °C into a dye-bath containing 1 % CI Mordant Red 3 (Colour Index, 3rd Edition), 10 % sodium sulfate decahydrate ($Na_2SO_4.10H_2O$) and 3 % acetic acid (300 g/l), all percentages being calculated on the mass of the pattern, at a liquor ratio of 40 : 1.

The dye-bath is raised to the boil in 30 min and boiled for a further 30 min. If necessary, the dye-bath is exhausted by careful addition of 1 to 3 % acetic acid (300 g/l) or 1 % sulfuric acid (ϱ 1,84 g/ml), well diluted with water. The bath is boiled for a further 15 min after addition of the acid. The dye-bath is cooled down by addition of cold water, and 0,5 % potassium dichromate dissolved in water is added. The dye-bath is raised to the boil again and boiled for 30 min. The pattern is then removed, rinsed in cold, running tap-water and dried.

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UDC 677.016.473.4 : 535.684.34 : 546.623'13

Descriptors : textiles, dyes, tests, carbonizing tests, determination, colour fastness, aluminium chloride.

Price based on 2 pages