INTERNATIONAL STANDARD

ISO 105-X07

Fourth edition
1994-09-01

Textiles — Tests for colour fastness —

Part X07:
Colour fastness to cross-dyeing: Wool

Textiles — Essais de solidité des teintures —

Partie X07: Solidité des teintures à la surteinture: Laine

Reference number
ISO 105-X07:1994(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. 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-X07 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-X07:1987), of which it constitutes a technical revision.

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.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Textiles — Tests for colour fastness —

Part X07:
Colour fastness to cross-dyeing: Wool

1 Scope

This part of ISO 105 specifies a method for determining the resistance of the colour of textiles to the action of processes used for dyeing wool.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions 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 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 fastness — Part A02: Grey scale for assessing change in colour.*

ISO 105-A03:1993, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining.*

ISO 105-F:1985, *Textiles — Tests for colour fastness — Part F: Standard adjacent fabrics.*

3 Principle

Specimens of the textile in contact with adjacent fabrics are treated in different types of wool dye-bath, but without any dyestuff. The specimens are then rinsed and dried. The change in colour of the specimen and the staining of the adjacent fabrics are assessed by comparison with the grey scales.

4 Apparatus and reagents

4.1 Dye vessel equipped with reflux condenser.

4.2 Acetic acid, aqueous solution (300 g/l).

4.3 Sulfuric acid, (ϱ 1,84 g/ml).

4.4 Sodium sulfate, decahydrate ($Na_2SO_4.10H_2O$).

4.5 Potassium dichromate ($K_2Cr_2O_7$).

4.6 Ten single-fibre adjacent fabrics, complying with the relevant sections of F01 to F08 of ISO 105-F:1985, each measuring 40 mm × 100 mm, five pieces made of the same kind of fibre as that of the textile to be tested, or that predominating in the case of blends, and five made of the fibre indicated in table 1, or, in the case of blends, of the kind of fibre second in order of predominance, or as otherwise specified.

4.7 Grey scale for assessing change in colour, complying with ISO 105-A02, and **grey scale for assessing staining**, complying with ISO 105-A03.

Table 1 — Single-fibre adjacent fabrics

If first piece is:	Second piece to be:
cotton	wool
wool	cotton
silk	wool
linen	wool
viscose	wool
acetate	wool
polyamide	wool
polyester	wool
acrylic	wool

5 Test specimen

5.1 Prepare five composite specimens in the manner described below.

5.2 If the textile to be tested is fabric, place a specimen between two adjacent fabrics (4.6), one of each kind, each measuring 40 mm × 100 mm, and sew along one of the short sides to form a composite specimen.

5.3 If the textile to be tested is yarn, knit it into fabric and treat it as in 5.2 or form a layer of parallel lengths of it between two adjacent fabrics (4.6), one of each kind, the amount of yarn taken being approximately equal to half the combined mass of the adjacent fabrics. Sew along all four sides to hold the yarn in place and to form a composite specimen.

5.4 If the textile to be tested is loose fibre, comb and compress an amount approximately equal to half the combined mass of two adjacent fabrics (4.6), one of each kind, into a sheet 40 mm × 100 mm. Place the sheet between the two adjacent fabrics and sew along all four sides to hold the fibre in place and to form a composite specimen.

6 Procedure

6.1 General

Carry out the operations described in 6.2 to 6.7 inclusive, using a liquor ratio of 50:1. The liquor ratio and the percentages of reagents in the baths are based upon the mass of the composite specimen. If no condenser is used, replace the evaporated water.

6.2 Neutral cross-dyeing

Place one composite specimen in a bath containing 20 % sodium sulfate decahydrate (4.4). Raise the temperature to 98 °C ± 2 °C in 30 min, and maintain this temperature for 90 min.

6.3 Acetic acid cross-dyeing

Place one composite specimen in a bath containing 5 % of the acetic acid solution (4.2) and 20 % sodium sulfate decahydrate (4.4). Raise the temperature to 98 ± 2 °C in 30 min, and maintain this temperature for 90 min.

6.4 Sulfuric acid cross-dyeing

Place one composite specimen in a bath containing 20 % sodium sulfate decahydrate (4.4) and 4 % sulfuric acid (4.3). Raise the temperature to 98 °C ± 2 °C in 30 min, and maintain this temperature for 90 min.

6.5 Acetic acid/chrome cross-dyeing

Place one composite specimen in a bath containing 20 % sodium sulfate decahydrate (4.4) and 5 % of the acetic acid solution (4.2). Raise the temperature to 98 °C ± 2 °C in 30 min, and maintain this temperature for 30 min. Add 2 % potassium dichromate (4.5), and maintain the bath at 98 °C ± 2 °C for an additional 60 min.

6.6 Sulfuric acid/chrome cross-dyeing

Place one composite specimen in a bath containing 20 % sodium sulfate decahydrate (4.4) and 5 % of the acetic acid solution (4.2). Raise the temperature to 98 °C ± 2 °C in 30 min, and maintain this temperature for 30 min. Add 2 % sulfuric acid (4.3), and maintain the bath at 98 °C ± 2 °C for an additional 15 min. Add 2 % potassium dichromate (4.5), and maintain at 98 °C ± 2 °C for an additional 60 min.

6.7 Drying

Open out the composite specimens (by breaking the stitching on all sides except one of the shorter sides, if necessary) and dry them by hanging them in air at a temperature not exceeding 60 °C, with the parts in contact only at the remaining line of stitching.

6.8 Assessment

Assess the change in colour of each specimen and the staining of the adjacent fabrics by comparison with the grey scales.

7 Test report

The test report shall include the following information:

a) the number and year of publication of this part of ISO 105, i.e. ISO 105-X07:1994;

b) all details necessary for the identification of the sample tested;

c) the method of cross-dyeing used;

d) the numerical grey scale rating for the change in colour of the specimen;

e) the numerical grey scale rating for staining of each kind of adjacent fabric used.

This page intentionally left blank

This page intentionally left blank

ICS 59.080.10

Descriptors: textiles, wool, dyes, tests, dyeing tests, determination, colour fastness.

Price based on 3 pages