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105-X07

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## Textiles — Tests for colour fastness —

### Part X07:

Colour fastness to cross-dyeing : Wool

iTeh STANDARD PREVIEW

*Textiles — Essais de solidité des teintures*

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*Partie X07: Solidité des teintures à la surteinture : Laine*

ISO 105-X07:1987

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Reference number  
ISO 105-X07:1987 (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.

International Standard ISO 105-X07 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.

# Textiles — Tests for colour fastness —

## Part X07:

### Colour fastness to cross-dyeing : Wool

#### 1 Scope and field of application

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 References

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

*Part A01 : General principles of testing.*

*Part A02 : Grey scale for assessing change in colour.*

*Part A03 : Grey scale for assessing staining.*

#### 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 with the grey scales.

#### 4 Apparatus and reagents

**4.1 Dye vessel equipped with reflux condenser.**

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

**4.3 Sulfuric acid** ( $\rho$  1,84 g/ml).

**4.4 Sodium sulfate**, decahydrate ( $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ ).

**4.5 Potassium dichromate** ( $\text{K}_2\text{Cr}_2\text{O}_7$ ).

**4.6 Ten adjacent fabrics**, each measuring 10 cm × 4 cm, 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 the following table, or as otherwise specified.

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

**4.7 Grey scales for assessing change in colour and staining** (see clause 2).

#### 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 10 cm × 4 cm between two adjacent fabrics (4.6), one of each kind, and sew along all four 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 10 cm × 4 cm. 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** Carry out the operations described below 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. Raise the temperature to  $98 \pm 2$  °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 (300 g/l) solution and 20 % sodium sulfate decahydrate. Raise the temperature to  $98 \pm 2$  °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 and 4 % sulfuric acid ( $\rho$  1,84 g/ml). Raise the temperature to  $98 \pm 2$  °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 and 5 % of the acetic acid (300 g/l) solution. Raise the temperature to  $98 \pm 2$  °C in 30 min, and maintain this

temperature for 30 min. Add 2 % potassium dichromate ( $K_2Cr_2O_7$ ), and maintain the bath at  $98 \pm 2$  °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 and 5 % of the acetic acid (300 g/l) solution. Raise the temperature to  $98 \pm 2$  °C in 30 min, and maintain this temperature for 30 min. Add 2 % sulfuric acid ( $\rho$  1,84 g/ml), and maintain the bath at  $98 \pm 2$  °C for an additional 15 min. Add 2 % potassium dichromate ( $K_2Cr_2O_7$ ), and maintain at  $98 \pm 2$  °C for an additional 60 min.

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

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

## 7 Test report

Report the method of cross-dyeing used, the numerical ratings for change in colour of the specimen and the numerical ratings for staining of each kind of adjacent fabric used.

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