INTERNATIONAL STANDARD

**ISO 105-X13**

Fourth edition
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# Textiles — Tests for colour fastness —

# Part X13:
Colour fastness of wool dyes to processes using chemical means for creasing, pleating and setting

*Textiles — Essais de solidité des teintures —*

*Partie X13: Solidité des teintures sur laine aux traitements effectués avec des produits chimiques en vue du plissage et du fixage*

Reference number
ISO 105-X13:1994(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-X13 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-X13:1987), 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.



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# Textiles — Tests for colour fastness —

# Part X13:
Colour fastness of wool dyes to processes using chemical means for creasing, pleating and setting

## 1 Scope

This part of ISO specifies a method for determining the resistance of the colour of wool textiles of all kinds to processes using chemical means in conjunction with steam for creasing, pleating and setting purposes.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part 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 this part of 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

A specimen of the textile, treated with the chemical solution, is placed in contact with specified adjacent fabrics and subjected to steam pressing. A comparison specimen, not treated with the chemical solution, is steam-pressed simultaneously. The specimens are dried and any differences between the colour of the two specimens and the staining of the adjacent fabrics are assessed by comparison with the grey scales.

## 4 Apparatus and reagent

**4.1 Steam press,** flat bed, with steam supply at a pressure of not less than 415 kPa.

The press should be at its normal operating temperature to avoid anomalous results due to condensation. When starting from cold, the press should be run six times through the standard cycle (see 6.5) without test specimens.

**4.2 Apparatus capable of giving a fine, uniform spray,** constructed from chemically inert materials.

**4.3 Chemical solution,** at the recommended concentration.

This test procedure was established with an aqueous solution containing a volume fraction of 5 % monoethanolamine sesquisulfite to which was added a 0,3 % volume fraction of any suitable wetting agent. The method may be adapted to the use of other chemical products, provided that allowance is made for any recommendations as to working concen-

tration; 3 g of a wetting agent should be added per *litre of solution, irrespective of its composition.*

**4.4 Glass plate,** 100 mm × 150 mm, on which the specimen is laid for spraying.

**4.5 Eight single-fibre adjacent fabrics,** complying with the relevant sections of F01 to F08 of ISO 105-F:1985, each measuring 80 mm × 110 mm, four of wool and four normally of cotton. When staining of a fibre other than cotton is of greater interest, the cotton may be replaced by an alternative material having a smooth finish and made of this fibre.

**4.6 Backing material.**

Some dyes can even stain the press covers. The use of a protective plain backing material is therefore specified; thick cotton fabric or paper towelling has been found satisfactory.

**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.

## 5 Test specimens

**5.1** If the textile to be tested is fabric, use two specimens measuring 100 mm × 150 mm identically oriented.

**5.2** If the textile to be tested is yarn, either knit it into fabric and treat as in 5.1 or form a layer of parallel lengths of mass approximately half the combined mass of the four adjacent fabrics (4.5), two of each kind, in the composite specimen (see 5.3). If the textile to be tested is loose fibre, comb and compress an amount approximately equal to half the combined mass of the adjacent fabrics into a sheet 100 mm × 150 mm.

**5.3** Place each specimen between four adjacent fabrics, one of each kind on each side, to form a composite specimen. Two composite specimens are required for each test, one to contain the treated specimen (see 5.3.1), the other to contain the comparison specimen (see 5.3.2).

**5.3.1** Composite treated specimen. Cover one-half of each side of the treated specimen with the wool adjacent fabric, the cloth on top of the specimen being prewetted (see 6.2). Cover the other half of each side with the cotton adjacent fabric or alternative material (see 4.5). The composite specimen shall be backed on each side (see 4.6). The composite specimen with backing is illustrated in figure 1.

**5.3.2** Composite comparison specimen. This is identical with the composite treated specimen (5.3.1) except that the specimen is not treated and the upper wool adjacent fabric is not prewetted.

## 6 Procedure

**6.1** Assemble the composite comparison specimen (5.3.2).

**6.2** Wet out one only of the four wool adjacent fabrics for 1 min in boiling distilled water, hydroextract to approximately 50 % expression and store in a suitable container.

The use of prewetted wool adjacent fabric, only on the sprayed surface of the specimen, gives more uniformity of any staining. The wool adjacent fabric in the composite comparison specimen shall not be prewetted, since this specimen is intended to reproduce the effect of steam pressing only. It will be found convenient to wet out the number of wool adjacent fabrics required for a series of tests in the manner described in the preceding paragraph and to store these in a container such as a polyethylene bag to maintain the water content.

NOTE 1 See ISO 105-A01:1994, subclause 11.4, concerning wetting out of wool specimens.

**6.3** Weigh the remaining specimen, place it on the glass plate (4.4) with the surface to be assessed facing upwards and uniformly spray this surface with the chemical solution (4.3) to a mass increase of 100 %.

**6.4** Assemble the composite treated specimen (5.3.1), sprayed surface up, with the wetted wool adjacent fabric on the sprayed surface.

**6.5** Not more than 2 min after spraying, place both composite specimens side by side on backing material on the preheated press (4.1) and cover with backing material (4.6). Immediately close the press, steam for 30 s using top steam only, shut off the steam and hold in the press for 30 s with the press head closed. Open the press and apply vacuum for 10 s.

**6.6** Remove the composite specimens from the press, open them out, and dry them by hanging them in air at a temperature not exceeding 60 °C.

**6.7** Using the comparison specimen as the reference specimen, and not the original material as is normal, assess any difference in colour between the upper surfaces of the treated and comparison specimens which have been in contact with the smoother adjacent fabric (for example cotton) using the grey scale for assessing change in colour (4.7). Assess the staining of the adjacent fabrics which were in contact with the sprayed surface using the grey scale for assessing staining (4.7). Staining of the other adjacent fabrics in both specimens is not normally assessed but may provide useful information in certain cases.

## 7 Test report

The test report shall include the following information:

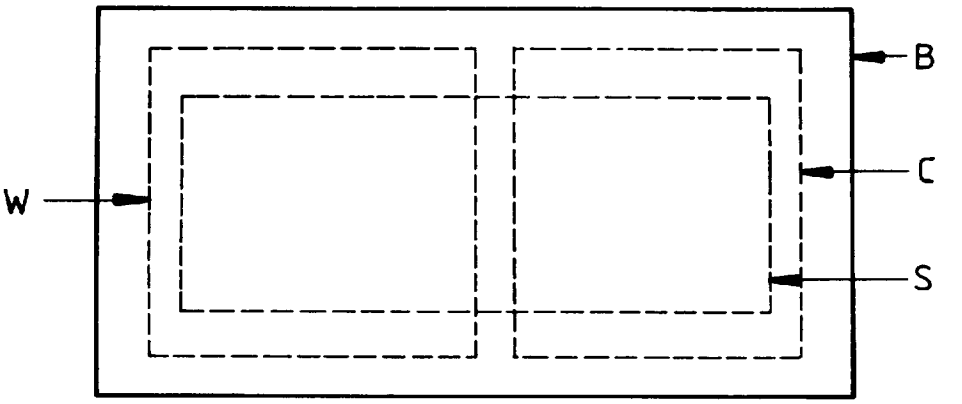
a) the number and year of publication of this part of ISO 105, i.e. ISO 105-X13:1994;

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

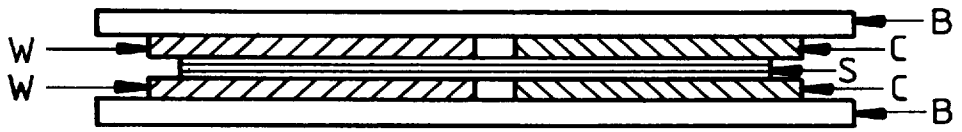
c) the chemical product and the concentration of the solution used for spraying (see 4.3);

d) the numerical grey scale rating for the change in colour between treated and comparison specimens;

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




**Composite specimen with backing**




**Cross-section**

S Specimen
W Wool adjacent fabric (see 4.5 and 5.3.1)
C Cotton (or alternative) adjacent fabric (4.5 and 5.3.1)
B Backing material (see 4.6)

**Figure 1 — Composite specimen**

**ICS 59.080.10**

**Descriptors:** textiles, wool, dyes, tests, chemical tests, determination, colour fastness.

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