INTERNATIONAL STANDARD

ISO 105-E13

Third edition
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Textiles — Tests for colour fastness —

Part E13:
Colour fastness to acid-felting: Severe

Textiles — Essais de solidité des teintures —
Partie E13: Solidité des teintures au foulon acide: Essai fort

Reference number
ISO 105-E13:1994(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-E13 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 1, *Tests for coloured textiles and colorants*.

This third edition cancels and replaces the second edition (ISO 105-E13:1987), 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 E13:
Colour fastness to acid-felting: Severe

1 Scope

This part of ISO 105 specifies a method for determining the resistance of the colour of textiles of all forms to the action of acids, as used under severe conditions in the acid-felting process.

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 in contact with adjacent fabrics is milled in solutions of acetic acid and/or sulfuric acid, 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 Suitable open container and **glass rod**, flattened at one end, or appropriate mechanical device (see 6.2).

4.2 Sulfuric acid, aqueous solution containing 1 ml of concentrated sulfuric acid (ϱ 1,84 g/ml) per litre.

4.3 Acetic acid, aqueous solution containing 5 ml of acetic acid (300 g/ml) per litre.

4.4 Two adjacent fabrics, in accordance with the appropriate section F01 to F08 of ISO 105-F:1985, each measuring 40 mm × 100 mm, one piece made of wool and the other made of wool or of another fibre, as desired, to be assessed for staining.

4.5 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 specimen

5.1 If the textile to be tested is fabric, attach a specimen measuring 40 mm × 100 mm between the two adjacent fabrics (4.4), also measuring 40 mm × 100 mm, by sewing along one of the shorter sides.

5.2 If the textile to be tested is yarn, knit it into fabric and treat it as in 5.1, or form a layer of parallel lengths of it between the two adjacent fabrics (4.4),

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.

5.3 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 (4.4) into a sheet 40 mm × 100 mm. Place the sheet between the two adjacent fabrics and sew along all four sides to hold the fibres in place and to form a composite specimen.

6 Procedure

6.1 Test the composite specimen in accordance with 6.2 to 6.4 inclusive, using sulfuric acid solution (4.2) and acetic acid solution (4.3) in separate tests, or using only one of these reagents, as required. The liquor ratio in both cases shall be 40:1.

6.2 If possible, use a mechanical milling device set to give results identical with those obtained in a manual milling test.

NOTE 1 Other mechanical devices may be used for the test provided that equivalent results are obtained.

6.3 Bring the test solution to 90 °C ± 2 °C in the container, and immerse the composite specimen in the solution for 30 min, maintaining this temperature.

6.4 When milling by hand, move the composite specimen about continuously with the glass rod while it is in the milling-bath, and press it with the rod every 2 min, without removing it from the bath.

6.5 Rinse the milled composite specimen for 10 min in cold, running tap-water and drain it. Open out the composite specimen (by breaking the stitching on all sides except one of the shorter sides if necessary) and dry it by hanging it in air at a temperature not exceeding 60 °C, with the parts in contact only at the line of stitching.

6.6 Assess the change in colour of the specimen and the staining of the adjacent fabrics by comparison with the grey scales (4.5).

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-E13:1994;

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

c) for each reagent used, the numerical grey scale rating for change in colour of the test specimen;

d) for each reagent used, the numerical grey scale rating for staining of the adjacent fabrics, and the type of adjacent fabric used.

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Descriptors: textiles, dyes, tests, chemical tests, acid resistance tests, determination, colour fastness.

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