INTERNATIONAL STANDARD

ISO 105-N02

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Textiles — Tests for colour fastness —

Part N02:
Colour fastness to bleaching: Peroxide

Textiles — Essais de solidité des teintures —
Partie N02: Solidité des teintures au blanchiment: Peroxyde

Reference number
ISO 105-N02:1993(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-N02 was prepared by Technical Committee ISO/TC 38, *Textiles*, Sub-Committee SC 1, *Tests for coloured textiles and colorants*.

This second edition cancels and replaces the first edition (included in ISO 105-N:1978), of which it constitutes a minor 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 N02:
Colour fastness to bleaching: Peroxide

1 Scope

This part of ISO 105 specifies a method for determining the resistance of the colour of textiles of all kinds, and in all forms, to the action of bleaching baths containing peroxide in concentrations commonly used in textile processing.

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-A01:1989, *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.*

ISO 105-F10:1989, *Textiles — Tests for colour fastness — Part F10: Specification for adjacent fabric: Multifibre.*

3 Principle

A specimen of the textile in contact with one or two specified adjacent fabrics is immersed in the bleaching solution, rinsed and dried. The change in colour of the specimen and the staining of the adjacent fabric(s) are assessed with the grey scales.

4 Apparatus and reagents

4.1 Test tube, of diameter and length such that the composite specimen roll will have a reasonably snug fit in the tube and be covered by the bleaching solution (4.3).

4.2 Reflux condenser, fitting the test tube (4.1), to reduce evaporation from the bleaching bath during the test.

4.3 Bleaching bath, of the composition given in table 1.

Prepare the bleaching bath as follows: Place cold grade 3 water (4.7) in the bath. Add sodium silicate (or sodium pyrophosphate for bath 3). Add magnesium chloride. Adjust the pH. Add hydrogen peroxide. Heat to the appropriate temperature specified in table 1.

Table 1 — Bleaching bath

Starting bath per litre of grade 3 water (4.7)	Bath 1 for natural and regenerated cellulose	Bath 2 for natural and regenerated cellulose	Bath 3 for wool and acetate	Bath 4 for silk
Hydrogen peroxide solution,[1] ml	5	—	20	20
Sodium peroxide,[2] g	—	3	—	—
Sodium silicate solution,[3] ml	5	5	—	5
Sodium pyrophosphate,[4] g	—	—	5	—
Magnesium chloride,[5] g	0,1	0,1	—	0,1
pH, initial value ± 0,2[6]	10,5	11,5	9,3[7]	10,0
Temperature, °C ± 2 °C	90	80	50	70
Duration of treatment, h	1	1	2	2
Liquor ratio	30:1	30:1	30:1	30:1

1) Containing 304 g/l H_2O_2 (≙ 275 g/kg H_2O_2). If the concentration differs from this value, the appropriate volume shall be taken.

2) 100 % Na_2O_2.

3) Relative density at 20 °C = 1,32; SiO_2/Na_2O ratio ≈ 2,7:1.

4) $Na_4P_2O_7.10H_2O$.

5) $MgCl_2.6H_2O$.

6) Adjust by addition of NaOH solution, if necessary.

7) The pH of the bath at the end of the test shall not be less than 9,0.

4.4 Adjacent fabrics, each measuring 40 mm × 100 mm (see ISO 105-A01:1989, subclause 8.3).

Either:

4.4.1 A multifibre adjacent fabric complying with ISO 105-F10.

Or:

4.4.2 Two single-fibre adjacent fabrics, complying with the relevant sections of F01 to F08 of ISO 105-F:1985, one piece being made of the same kind of fibre as that of the textile to be tested, or that predominating in the case of blends, and the second piece being made of the fibre as indicated in table 2, or, in the case of blends, of the kind of fibre second in order or predominance, or as otherwise specified.

Table 2 — Single-fibre adjacent fabrics

If first adjacent fabric is	Second piece to be
Wool, silk, linen, viscose, polyester, acrylic	Cotton
Cotton, acetate	Viscose

4.5 If required, a **non-dyeable fabric** (for example polypropylene).

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

4.7 Grade 3 water (see ISO 105-A01:1989, clause 8.2).

5 Test specimen

5.1 If the textile to be tested is fabric,

a) attach a specimen measuring 40 mm × 100 mm to a piece of the multifibre adjacent fabric (4.4.1), also measuring 40 mm × 100 mm, by sewing along one of the shorter sides, with the multifibre fabric next to the face of the specimen;

or

b) attach a specimen measuring 40 mm × 100 mm between the two single-fibre adjacent fabrics (4.4.2), also measuring 40 mm × 100 mm, by sewing along one of the shorter sides.

5.2 Where yarn or loose fibre is to be tested, take a mass of the yarn or loose fibre approximately equal to one-half of the combined mass of the adjacent fabrics and

a) place it between a 40 mm × 100 mm piece of the multifibre adjacent fabric and a 40 mm × 100 mm piece of the non-dyeable fabric (4.5) and sew them along all four sides (see ISO 105-A01:1989, subclause 9.6);

or

b) place it between a 40 mm × 100 mm piece of each of the two specified single-fibre fabrics and sew along all four sides.

6 Procedure

6.1 Loosely roll the composite specimen in the direction of the long edge, place the 40 mm roll into the test tube containing the appropriate bleaching solution (see table 1) and keep it well covered by the bleaching solution for the time and at the temperature indicated in table 1.

6.2 Remove the composite specimen, rinse it for 10 min in cold, running tap-water and squeeze it. Open out the composite specimen by breaking the stitching on all sides except one of the shorter sides and dry by hanging it in air at a temperature not exceeding 60 °C with the parts in contact only at the remaining line of stitching.

6.3 Assess the change in colour of the specimen and the staining of the adjacent fabric(s) with the grey scales (4.6).

7 Test report

The test report shall include the following particulars:

a) the number and date of publication of this part of ISO 105, i.e. ISO 105-N02:1993;

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

c) the number of the bleaching bath used;

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

e) if single-fibre adjacent fabrics were used, the numerical rating for staining of each kind of adjacent fabric used;

f) if a multifibre adjacent was used, the type of multifibre adjacent fabric used and the staining of each type of fibre in the multifibre adjacent fabric.

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