INTERNATIONAL STANDARD

ISO 105-C01

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Textiles — Tests for colour fastness —

Part C01 :
Colour fastness to washing: Test 1

Textiles — Essais de solidité des teintures —

Partie C01 : Solidité des teintures au lavage: Essai 1

Reference number
ISO 105-C01:1989(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 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-C01 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This fourth edition cancels and replaces the third edition (ISO 105-C01:1987), of which it constitutes a technical revision.

ISO 105 was previously published in 13 "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 C01 :
Colour fastness to washing: Test 1

1 Scope

This part of ISO 105 specifies Test No. 1 of a series of five washing tests that have been established to investigate the fastness to washing of coloured textiles and which between them cover the range of washing procedures from mild to severe.

NOTE 1 This method is designed to determine the effect of washing only on the colour fastness of the textile. It is not intended to reflect the result of the comprehensive laundering procedure.

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-A02:1987, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour.*

ISO 105-A03:1987, *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 mechanically agitated under specified conditions of time and temperature in a soap solution, then 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 Suitable mechanical device (see clause 8), consisting of a water bath containing a rotatable shaft which supports, radially, glass or stainless-steel containers 75 mm ± 5 mm in diameter × 125 mm ± 10 mm high of 550 ml ± 50 ml capacity, the bottom of the containers being 45 mm ± 10 mm from the centre of the shaft. The shaft/container assembly is rotated at a frequency of 40 min^{-1} ± 2 min^{-1}. The temperature of the water bath is thermostatically controlled to maintain the test solution at the prescribed temperature of 40 °C ± 2 °C .

4.2 Soap, containing not more than 5 % moisture and complying with the following requirements based upon dry mass:

— free alkali, calculated as Na_2CO_3: 0,3 % maximum;

— free alkali, calculated as NaOH: 0,1 % maximum;

— total fatty matter: 850 g/kg minimum;

— titre of mixed fatty acids prepared from soap: 30 °C maximum;

— iodine value: 50 maximum.

The soap shall be free from fluorescent brightening agents.

4.3 Soap solution, containing 5 g of soap (4.2) per litre of water (4.6).

4.4 Adjacent fabrics (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 of the adjacent fabrics shall be 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 made of the fibre as indicated in table 1 or, in the case of blends, of the kind of fibre second in order of predominance, or as otherwise specified.

Table 1 — Single-fibre adjacent fabrics

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

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

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.

4.6 Grade 3 water (see ISO 105-A01:1989, subclause 8.2).

5 Test specimen

5.1 If the textile to be tested is fabric, either

a) attach a specimen measuring 40 mm × 100 mm to a piece of the multifibre adjacent fabric, 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, 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 (see below), and either

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 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 Place the composite specimen in the container and add the necessary amount of soap solution (4.3), previously heated to 40 °C ± 2 °C , to give a liquor ratio of 50 : 1.

6.2 Treat the composite specimen at 40 °C ± 2 °C for 30 min.

6.3 Remove the composite specimen, rinse it twice in cold grade 3 water (4.6) and then in cold, running tap water for 10 min, and squeeze it. Open out the composite specimen (by breaking the stitching except on one of the shorter sides, if necessary) and dry it by hanging it in air at a temperature not exceeding 60 °C, with the two or three parts in contact only at the line of stitching.

6.4 Assess the change in colour of the specimen and the staining of the adjacent fabric(s) with the grey scales (4.5).

7 Test report

The test report shall include the following particulars:

a) the number and date of this part of ISO 105, i.e. ISO 105-C01:1989;

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

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

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

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

8 Notes

Other mechanical devices may be used for this test, provided that the results are identical with those obtained by the apparatus described in 4.1.

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