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Textiles — Tests for colour fastness — **Part X12:** Colour fastness to rubbing

Textiles — Essais de solidité des teintures —
Partie X12: Solidité des teintures au frottement



Reference number
ISO 105-X12:1993(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-X12 was prepared by Technical Committee ISO/TC 38, *Textiles*, Sub-Committee SC 1, *Tests for coloured textiles and colorants*.

This fourth edition cancels and replaces the third edition (ISO 105-X12:1987), 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 X12: Colour fastness to rubbing

1 Scope

1.1 This part of ISO 105 specifies a method for determining the resistance of the colour of textiles of all kinds, including textile floor coverings and other pile fabrics, to rubbing off and staining other materials.

1.2 The method is applicable to a laid textile floor covering or to a detached sample or yarns.

1.3 Two tests are made, one with a dry rubbing cloth and one with a wet rubbing cloth.

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-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

Specimens of the textile are rubbed with a dry rubbing cloth and with a wet rubbing cloth. Two alternative sizes of rubbing finger are specified, one for pile fab-

rics (see 4.1.1) and one for other textiles. The staining of the rubbing cloths is assessed with the grey scale.

4 Apparatus

4.1 Suitable testing device, for determining the colour fastness to rubbing. Such a device has one of two alternative sizes of rubbing finger, dependent on the type of textile to be tested, as follows:

4.1.1 For pile fabrics, including textile floor coverings:

A rubbing finger with a rectangular rubbing surface measuring 19 mm × 25 mm.

The rubbing finger shall exert a downward force of 9 N, moving to and fro in a straight line along a 100 mm track.

An elongated crock block may be used on pile fabrics, including floor coverings, in lieu of the rubbing finger.

NOTE 1 Difficulty may be experienced in making assessments of the degree of staining on the rubbing cloth when pile fabrics are tested using the 16 mm diameter rubbing finger due to heavier staining occurring on the circumference of the stained area, i.e. haloing. The use of an apparatus described in the *Technical Manual of the American Association of Textile Chemists and Colorists*, Test Method 165-1988 (Vol. 64, 1989, p. 305), will eliminate the haloing on pile fabrics.

4.1.2 For all other textiles:

A rubbing finger comprising a cylinder of 16 mm diameter moving to and fro in a straight line along a 100 mm track on the specimen and exerting a downward force of 9 N.

NOTE 2 A suitable apparatus is described in the *Technical Manual of the American Association of Textile Chemists and Colorists*, Test Method 8-1972 (Vol. 50, 1974, p. 112).

or Test Method 165-1988 (Vol. 64, 1989, p. 305). Other devices can be used, provided that the same results are obtained as with the apparatus described in 4.1.

4.2 Cotton rubbing fabric, complying with ISO 105-F, Section F09, desized, bleached, without finish, cut into squares measuring 50 mm × 50 mm.

4.3 Grating, of stainless steel wire 1 mm in diameter and mesh width about 20 mm.

4.4 Grey scale for assessing staining, complying with ISO 105-A03.

5 Test specimens

5.1 If the textile to be tested is a fabric or textile floor covering, two pieces measuring not less than 50 mm × 140 mm are required for dry rubbing and two for wet rubbing. One specimen of each pair shall have the long direction parallel to the warp yarns (or in the direction of manufacture), the other parallel to the weft or filling yarns (or at right angles to the direction of manufacture).

5.2 If the textile to be tested is yarn or thread, knit it into fabric to provide specimens measuring at least 50 mm × 140 mm, or form a layer of parallel strands by wrapping it lengthways on a cardboard rectangle of suitable dimensions.

6 Procedure

6.1 Fasten each test specimen by means of clamps to the baseboard of the testing device so that the long direction of the specimen follows the track of the device. Test the specimens prepared as in clause 5 according to the procedures in 6.2 and 6.3.

When testing multi-coloured textiles, take care to position the specimens in such a way that all colours

of the design are rubbed in the test. Alternatively, if the areas of colour are sufficiently large, more test specimens may be taken and the individual colours assessed separately.

It is necessary to eliminate dyed fibres pulled out during rubbing and retained on the surface of the cotton rubbing cloth; consider only the coloration due to staining by the dyestuff.

6.2 Dry rubbing. With the dry rubbing cloth (4.2) flat in place over the end of the finger of the testing device (4.1), rub to and fro in a straight line along a track 100 mm long on the dry specimen, 10 times to and fro in 10 s, with a downward force of 9 N (see 4.1.1 and 4.1.2).

6.3 Wet rubbing. Repeat the test described in 6.2 with a fresh dry specimen and with a rubbing cloth that has been wetted with water by placing it on the grating (4.3) and dropping evenly on to it its own mass of water, or use any method to ensure a take-up of about 100 %. After rubbing, dry the cloth at room temperature.

6.4 Assess the staining of the cotton rubbing cloths with the grey scale (4.4).

7 Test report

The test report shall include the following particulars:

- the number and date of publication of this part of ISO 105, i.e. ISO 105-X12:1993;
- all details necessary for the identification of the sample tested;
- the numerical rating for dry staining and for wet staining for each direction of manufacture.

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