INTERNATIONAL STANDARD

ISO 105-E16

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Textiles — Tests for colour fastness —

Part E16: Colour fastness to water spotting on upholstery fabrics

Textiles — Essais de solidité des teintures —
Partie E16: Solidité des teintures à la goutte d'eau sur les étoffes d'ameublement

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 105-E16 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 1, *Tests for coloured textiles and colorants*.

ISO 105 was previously published in 13 "parts", each designated by a letter (e.g. "Part A"), with publication date between 1978 and 1985. Each part contained a series of "sections", each designated by the respective past 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.

Introduction

The test method in this part of ISO 105 is intended to reflect the effect of water spotting on upholstery fabrics. This method differs from ISO 105-E07 in that a larger amount of water is used and the water is applied under pressure for a longer period of time.

The general principles of testing described in ISO 105-A01 should be understood before using this part of ISO 105.

Textiles — Tests for colour fastness —

Part E16:
Colour fastness to water spotting on upholstery fabrics

1 Scope

This part of ISO 105 describes a method for assessing the effect of water spotting on upholstery fabrics of all kinds, including natural, bleached, dyed and printed fabrics.

The method is suitable for determining the resistance of a furniture fabric's colour to water spotting or staining.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 105-A03, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining*

ISO 105-A04, *Textiles — Tests for colour fastness — Part A04: Method for the instrumental assessment of the degree of staining of adjacent fabrics*

ISO 105-A05, *Textiles — Tests for colour fastness — Part A05: Instrumental assessment of change in colour for determination of grey scale rating*

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

3 Principle

The surface of a limited area of a specimen is in contact with water under defined conditions. After drying the specimen, the change in colour and the staining onto white or lighter areas of the specimens are assessed using the grey scales.

4 Reagents

4.1 Deionized or distilled water, (50 ± 2) °C, Grade 3 water complying with ISO 3696.

5 Apparatus

5.1 Cylindrical tube, constructed of glass or transparent plastic; the base rim of the tube is smooth.

The tube has an inside diameter of (94 ± 2) mm, a wall thickness of (3 ± 0,5) mm and an approximate height of 50 mm (see Figure 1).

5.2 Load ring.

The load ring should be able to rest on top of the cylinder. The combined weight of the ring and the cylindrical tube shall be (1,9 ± 0,1) kg (see Figure 1).

5.3 Polyurethane pad, consisting of undyed polyurethane with open pores.

The pad has an approximate density of 30 kg/m^3, an approximate thickness of 30 mm, and a minimum size of 500 mm × 500 mm.

5.4 Plastic film, undyed, of polyethylene of a minimum size of 500 mm × 500 mm.

5.5 Drying rack, at least 500 mm × 500 mm in size.

The drying rack is made from a stainless steel or plastic coated metal grid with a mesh width of about 5 mm and positioned 20 mm above table surface. This position can, for example, be achieved by folding the grid ends downwards at a 90° angle.

5.6 Grey scales or **spectrophotometer**, for assessing changes in colour and staining.

Use ISO 105-A02 and ISO 105-A03 for the grey scales, or a spectrophotometer, complying with ISO 105-A04 and ISO 105-A05.

6 Test specimens

From the test sample, cut at least two test specimens, representative of all of the colours in the sample, each measuring at least 500 mm × 500 mm.

If all the colours of the sample do not appear within a circular area slightly smaller than the area covered by the cylindrical tube of the test apparatus, cut enough specimens to represent all the colours.

Cut each test specimen so that the colours under test appear in the centre of the test specimen.

Before testing, carefully brush or vacuum the test specimens to remove all foreign particles and fibres and condition in the standard alternative atmosphere according to ISO 139, temperature of (23 ± 2) °C and a relative humidity of (50 ± 4) %.

NOTE Undyed test specimens in their natural colours are treated in the same way as other coloured test specimens.

7 Test conditions

Carry out the test at a room temperature of (23 ± 2) °C and a relative humidity of (50 ± 4) %.

8 Procedure

8.1 Place a plastic film (5.4) on a flat surface, then place the polyurethane pad (5.3) on the film and then place a test specimen on the pad with the design face up.

8.2 Position the cylindrical tube (5.1) in the centre of the test specimen and then place the load ring (5.2) on the tube as shown in Figure 1.

8.3 During a period of 10 s to 20 s, pour (35 ± 2) ml water of (50 ± 2) °C onto the area of the test specimen enclosed by the cylindrical tube.

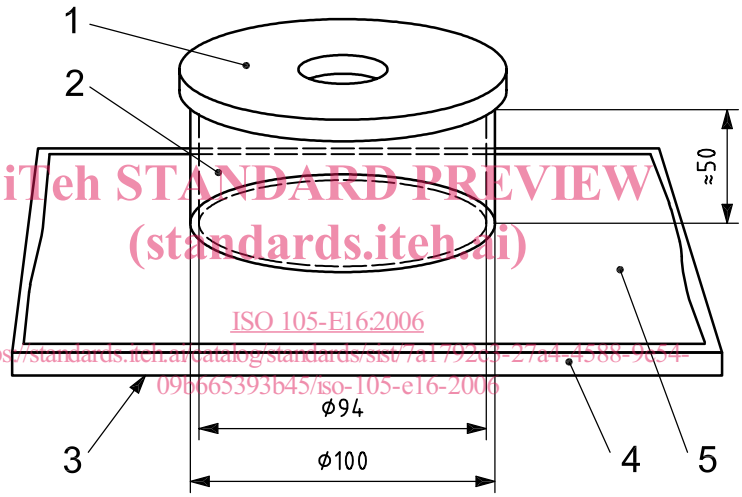
8.4 After the water has been absorbed, remove the load ring and cylinder. If the water is not absorbed after 30 min, carefully remove the water by means of a water suction appliance. Allow the test specimen to remain for further 5 min on the polyurethane pad on the plastic film. Removal of the water using the water suction appliance should take no longer than 5 min.

8.5 Place the specimen and the polyurethane pad without the plastic film on the drying rack. The surface of a pile material can be restored by carefully brushing the fabric surface while it is still damp.

Allow the items to dry at room temperature until the specimen is dry.

8.6 Carry out the test (8.1 through 8.5) on at least two test specimens.

Dimensions in millimetres



Key

1 load ring
2 cylinder
3 plastic film
4 polyurethane pad
5 test specimen

Figure 1 — Apparatus for determination of colour fastness to water spotting

9 Assessment

9.1 Assess the change in colour either visually, using ISO 105-A02, or instrumentally, using ISO 105-A05. Evaluate all visible differences between the areas treated by water and the untreated areas.

For plain-coloured test specimens, assess

a) each test specimen in the centre of the tested area, and

b) if required, each test specimen on the outer periphery of the tested area.