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**Textile floor coverings — Determination  
of friability of attached foams**

*Revêtements de sols textiles — Détermination de la friabilité des  
sous-couches en mousse*

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ISO 11858:1999

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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 3.

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 11858 was prepared by Technical Committee ISO/TC 38, *Textiles*, subcommittee SC 12 *Textile floor coverings*.

International Standard ISO11858 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 12 *Textile floor coverings*.

Annex A forms a normative part of this International Standard.

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## Introduction

Textile floor coverings can be rolled with the use-surface towards the centre. As a result, any attached foam backing will be on the outside of the roll and can be subjected to various abrasive actions prior to and during installation. These actions can result in the ready crumbling of an attached foam backing if it is easily friable. Also, when textile floor coverings are displayed for sale in a waterfall or similar mode, customers frequently use strong thumb action to apply frictional stress to an attached foam backing, which will be considered unsatisfactory if it breaks down. Thus there is a need for a test to assess the friability of attached foam backings on the new, unaged carpet.

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# Textile floor coverings — Determination of friability of attached foams

## 1 Scope

1.1 This International Standard specifies a procedure for assessing the friability of foam backings attached to textile floor coverings.

1.2 This International Standard is not suitable for evaluating the propensity of a foam backing to break down after installation, since such break-down is invariably due to a combination of flexing fatigue and oxidation, factors which are not covered in this International Standard.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 105-A01:1994, *Textiles — Tests for colour fastness — Part A01: General principles of testing*

ISO 105-X12:1993, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing.*

ISO 139:1973, *Textiles — Standard atmospheres for conditioning and testing.*

ISO 1957:—<sup>1)</sup>, *Machine-made textile floor coverings — Sampling and cutting specimens for physical tests.*

ISO 2424:1992, *Textile floor coverings — Vocabulary.*

## 3 Term and definition

For the purposes of this International Standard, the following term and definition applies in addition to relevant definitions in ISO 2424.

### 3.1 friability

ease of breaking down or crumbling under an applied stress

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<sup>1)</sup> To be published. (Revision of ISO 1957:1986)

## 4 Principle

The attached foam backing of a textile floor covering is rubbed with a rod having a hemispherical end covered with a standard cotton fabric. The degree of break down of the foam-backing is assessed by means of photographic standards (see annex A).

## 5 Apparatus and materials

### 5.1 A suitable device for rubbing the test specimen.

**5.1.1 Apparatus capable of moving a rubbing finger to and fro in a straight line** along a 100 mm track on the specimen (a suitable piece of equipment is that used for testing fastness to wet and dry rubbing e.g in ISO 105-X12:1993).

**5.1.2 Rubbing finger**, comprising a cylinder of  $(16 \pm 1)$  mm diameter with a hemispherical end that rubs the specimen; the downward force exerted by the finger shall be  $(9,0 \pm 0,1)$  N (see Figure 1).

**5.2 A sheet metal frame**, suitable for holding a test specimen on the base of the apparatus (see Figure 2). The frame shall be  $(200 \pm 5)$  mm long and have a U cross-section with the bottom of the U  $(50 \pm 3)$  mm wide (the width of the tester base) and each leg  $(25 \pm 2)$  mm. The  $(200 \times 50)$  mm face of the frame shall have an aperture cut in it  $(180 \pm 5)$  mm  $\times$   $(25 \pm 2)$  mm in size, in order to expose a sufficient area of the specimen for testing.

**5.3 Combed cotton cloth**, bleached and free from sizes and finishes, in a plain weave with approximately  $(32 \times 33)$  yarns/cm, cut into  $(50 \pm 2)$  mm squares (see ISO 105-X12:1993).

**5.4 Light box viewing cabinet**, uniform grey in colour and of suitable size to take the tested specimen and photographic scale with provision for illuminating test specimens with a low angle of illumination  $(10^\circ \pm 1^\circ)$  to a minimum of 600 lx. (A suitable piece of equipment is used for viewing fastness specimens and is given in ISO 105-A01.)

**5.5 Photographic standards**, in accordance with annex A.

## 6 Sampling

**6.1** Sampling shall be in accordance with the principles of ISO 1957, and each laboratory sample shall be full width  $\times$   $(250 \pm 10)$  mm in length.

**6.2** In order to evaluate possible side-to-middle variations in curing, specimens shall be taken from the centre and from within 200 mm of each side of the sample. Two specimens, one lengthwise and one crosswise, shall be taken from each of the three locations.

## 7 Atmosphere for conditioning and testing

Test specimens shall be conditioned for 24 h in the standard atmosphere specified in ISO 139 prior to testing. Testing shall be carried out in the same standard atmosphere.

## 8 Procedure

**8.1** Place a specimen, foam side up, on the base and hold it in place by means of the metal frame (5.2) (Figure 2).

**8.2** Place a new dry square of white cotton test cloth (5.3) over the hemispherical end of the rubbing finger (5.1.2) in such an orientation that it is at a  $45^\circ$  bias to the direction of travel of the rubbing finger during the test. Fasten the cloth in place with a circular spring clip.

Dimensions in millimetres

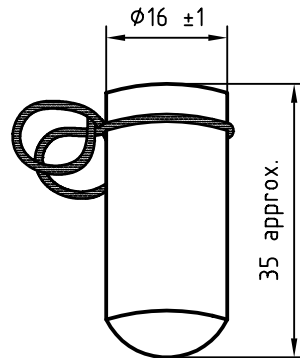


Figure 1 — Device for rubbing the test specimen

Dimensions in millimetres

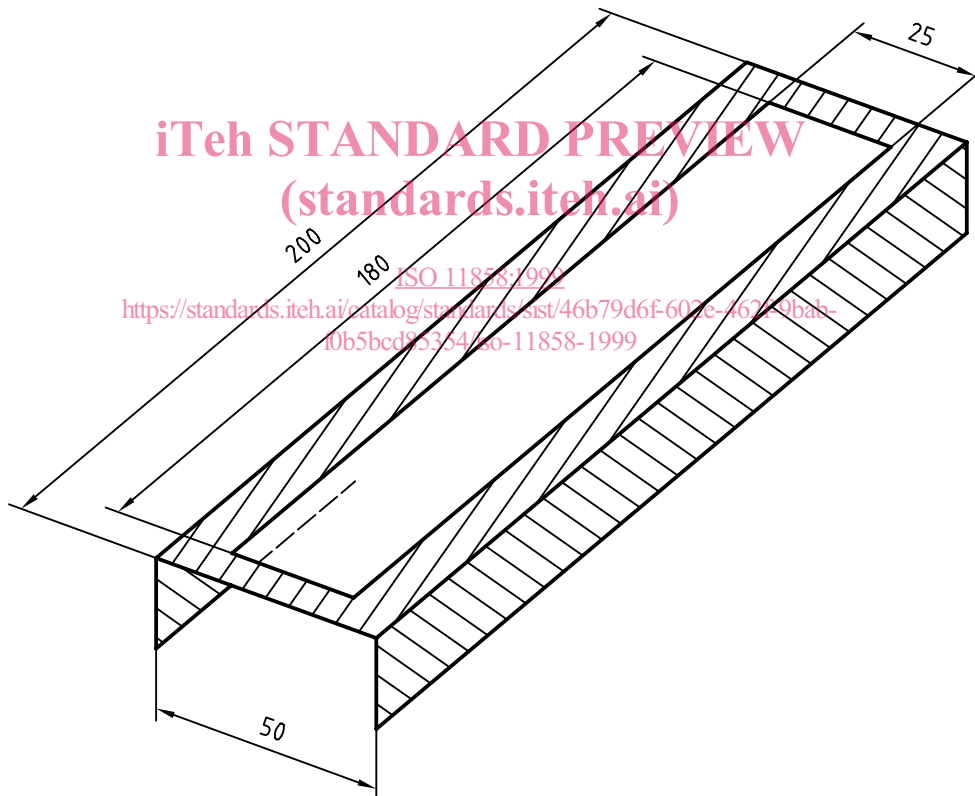


Figure 2 — Frame for holding test specimen

**8.3** Position the rubbing finger so that it is at the extremity of its stroke and lower it on to the test specimen. Operate the apparatus (5.1.1) for two complete strokes, i.e. two complete backward and forward movements.

**8.4** Place each test specimen on a horizontal surface in the viewing cabinet (5.4), orientated so that the length of the specimen lies in the direction of viewing of the observer. Assign a rating by reference to the photographic standards (5.5, see annex A). Whole-number ratings shall be made by two operators acting independently and the results then averaged.

## 9 Precision of results

No precision data for this method of test are currently available. Interlaboratory trial data are being obtained and it is intended that a precision statement based on these will be added at the first revision.

## 10 Test Report

The test report shall include the following information:

- a) reference to this International Standard, i.e. ISO 11858;
- b) identification of the sample;
- c) individual ratings for the six test specimens, each being identified as to its location (side or centre) and as to direction;
- d) the date of the test.

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## Annex A (normative)

### Photographic standards

