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I.S. EN ISO 13937-1:2000

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**TEXTILES - TEAR PROPERTIES OF FABRICS -
PART 1: DETERMINATION OF TEAR FORCE
USING BALLISTIC PENDULUM METHOD
(ELMENDORF) (ISO 13937-1:2000)**

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English version

**Textiles - Tear properties of fabrics - Part 1: Determination of
tear force using ballistic pendulum method (Elmendorf) (ISO
13937-1:2000)**

Textiles - Propriétés de déchirement des étoffes - Partie 1:
Détermination de la force de déchirure à l'aide de la
méthode balistique au pendule (Elmendorf) (ISO 13937-
1:2000)

Textilien - Weiterreißigenschaften von textilen
Flächengebilden - Teil 1: Bestimmung der Weiterreißkraft
mit dem ballistischen Pendel (Elmendorf) (ISO 13937-
1:2000)

This European Standard was approved by CEN on 2 July 1999.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

The text of EN ISO 13937-1:2000 has been prepared by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI, in collaboration with Technical Committee ISO/TC 38 "Textiles".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

EN ISO 13937 has been prepared in the context of several test methods for the determination of certain mechanical properties of textiles using mainly tensile-testing machines, e.g. tensile properties, seam tensile properties, tear properties, seam slippage. Test requirements for these standards agree where appropriate. The results obtained by one of the methods should not be compared with those obtained by other methods.

EN ISO 13937 specifies methods for the determination of tear force of fabrics. Part 1 describes a ballistic pendulum method and parts 2 to 4 describe methods using tensile-testing machines.

1 Scope

This part of EN ISO 13937 describes a method known as the ballistic pendulum (Elmendorf) method for the determination of tear force of textile fabrics. The method describes the measurement of the tear force required to propagate a single-rip tear of defined length from a cut in a fabric when a sudden force is applied.

The test is mainly applicable to woven textile fabrics. It may be applicable to fabrics produced by other techniques, e.g. to nonwovens (with the same under-mentioned restrictions as for the woven fabrics).

In general the test is not applicable to knitted fabrics and woven elastic fabrics. It is not suitable for highly anisotropic fabrics or loose fabrics where tear transfer from one direction to another direction of the fabric during the tear test is likely to occur.

NOTE 1: For tests using tensile-testing machines part 2 of EN ISO 13937 describes a single tear method known as the trouser test, part 3 the wing test and part 4 the tongue test method.

NOTE 2: For the ballistic pendulum method for coated fabrics see ISO 4674-2. For the trapezoidal test method, see ISO 9073-4 for nonwovens or ISO 4674 for coated fabrics.

2 Normative references

The following normative documents contain provisions 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 139 Textiles - Standard atmospheres for conditioning and testing

ISO 1974:1990 Paper - Determination of tearing resistance (Elmendorf method)

ISO 10012-1 Quality assurance requirements for measuring equipment - Part 1: Metrological confirmation system for measuring equipment

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