INTERNATIONAL STANDARD

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Textiles — Determination of fabric propensity to surface fuzzing and to pilling —

Part 1: Pilling box method

Textiles — Détermination de la propension des étoffes à l'ébouriffage en surface et au boulochage —

Partie 1: Méthode de la boîte de boulochage

Reference number
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Foreword

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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.

Attention is drawn to the possibility that some of the elements of this part of ISO 12945 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 12945-1 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 24, *Conditioning atmospheres and physical tests for textile fabrics*.

ISO 12945 consists of the following parts, under the general title *Textiles — Determination of fabric propensity to surface fuzzing and to pilling*:

— *Part 1: Pilling box method*

— *Part 2: Modified Martindale method*

— *Part 3: Determination using a random tumble method*

Annex A of this part of ISO 12945 is for information only.

Introduction

Pills are formed when fibres on a fabric surface “tease out” and become entangled during wear. Such surface deterioration is generally undesirable, but the degree of consumer tolerance for a given level of pilling will depend on the garment type and fabric end use.

Generally the level of pilling which develops is determined by the rates of the following parallel processes:

a) fibre entanglement leading to pill formation;

b) development of more surface fibre;

c) fibre and pill wear-off.

The rates of these processes depend on the fibre, yarn and fabric properties. Examples of extreme situations are found in fabrics containing strong fibres versus fabric containing weak fibres. A consequence of the strong fibre is a rate of pill formation that exceeds the rate of wear-off. This results in an increase of pilling with an increase of wear. With a weak fibre the rate of pill formation competes with the rate of wear-off. This would result in a fluctuation of pilling with an increase of wear. There are other constructions in which the surface fibre wear-off occurs before pill formation. Each of these examples demonstrates the complexity of evaluating the surface change on different types of fabric.

The ideal laboratory test would accelerate the wear processes a), b) and c) by exactly the same factor and would be universally applicable to all fibre, yarn and fabric types. No such test has been developed. However, a test procedure has been established in which fabrics can be ranked in the same order of fuzzing and pilling propensity as is likely to occur in end-use wear.

Particular attention is drawn to annex A which gives advice on the maintenance of the apparatus. It is recommended that annex A be studied prior to carrying out the procedure.

Textiles — Determination of fabric propensity to surface fuzzing and to pilling —

Part 1:
Pilling box method

1 Scope

This part of ISO 12945 describes a method for the determination of the resistance to pilling and surface change of textile fabrics.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 12945. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 12945 are encouraged to investigate the possibility of applying the most recent edition of the normative document 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.*

3 Terms and definitions

For the purposes of this part of ISO 12945, the following terms and definitions apply.

3.1
fuzzing
roughing up of the surface fibres and/or teasing out of the fibres from the fabric producing a visible surface change

NOTE This change can occur during washing, dry cleaning and/or wearing.

3.2
pills
entangling of fibres into balls (pills) that stand proud of the fabric and are of such density that light will not penetrate and will cast a shadow

NOTE This change can occur during washing, dry cleaning and/or wearing.

3.3
pilling
generation of pills over the surface of the fabric