INTERNATIONAL STANDARD

ISO 5470-2

Second edition
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Rubber- or plastics-coated fabrics — Determination of abrasion resistance —

Part 2: Martindale abrader

Supports textiles revêtus de caoutchouc ou de plastique — Détermination de la résistance à l'usure —

Partie 2: Appareil d'essai d'abrasion Martindale

Reference number
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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 5470-2:2003), which has been technically revised. The main changes compared with the previous edition are as follows:

— the Normative references have been updated;

— the Terms and definitions have been added;

— in 5.2.1, the definition of wool abradant fabrics has been replaced by a reference to ISO 12947-1;

— 5.5 has been revised in accordance with ISO 12947-2;

— in 8.1.1, specimen clamping has been described more precisely;

— 8.1.2 has been revised;

— the period of use for abradant has been supplemented in 8.1.5;

— the Bibliography has been updated.

A list of all parts in the ISO 5470 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Rubber- or plastics-coated fabrics — Determination of abrasion resistance —

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WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This document specifies two separate methods for determining the resistance of a material to wet and dry abrasion.

It is applicable to the coated surface or surfaces of coated fabrics.

It does not apply to determining the abrasion behaviour of an uncoated surface of a coated fabric, for which the methods for uncoated textiles described in the ISO 12947 series apply.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 2231:1989, *Rubber- or plastics-coated fabrics — Standard atmospheres for conditioning and testing*

ISO 2286-1, *Rubber- or plastics-coated fabrics — Determination of roll characteristics — Part 1: Methods for determination of length, width and net mass*

ISO 12947-1:1998, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 1: Martindale abrasion testing apparatus*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

This document details two different methods. In method 1, test specimens are clamped in a specimen holder and abraded using pieces of a selected abradant under constant pressure. A variant of this method consists of carrying out the method with a wet abradant. Method 2 reverses the position of the abradant and the specimen. In both cases, the relative movement between the abradant and the specimens creates a harmonic motion in right angles to each other by a cyclic planar motion in

form of a Lissajous figure which produces rubbing in all directions. The test is stopped either after a predetermined number of cycles in which case the damage to each specimen is assessed or when the specimen has reached a predetermined degree of abrasion in which case the number of cycles is noted.

5 Apparatus and material

5.1 Abrasion machine, with one or more test stations, each fitted with the items of equipment specified in 5.1.1 to 5.1.6.

5.1.1 Circular specimen holder, with a clamping ring which grips the specimen around its edge, leaving an exposed raised flat circular portion of area (645 ± 5) mm^2.

5.1.2 Horizontal abradant table, of sufficient size to incorporate a square central test area of side 88 mm. Typically, abradant tables are circular and have a diameter of at least 125 mm.

5.1.3 Means of holding the exposed flat portion of the specimen holder (5.1.1) in contact with the abradant table (5.1.2), while allowing the specimen holder to rotate freely in the plane of the abradant table.

5.1.4 Means of producing relative movement between the specimen holder (5.1.1) and the abradant table (5.1.2), which forms a Lissajous figure occupying an area of (60 ± 1) mm × (60 ± 1) mm (see Figure 1). Each Lissajous figure requires 16 elliptical motions (revolutions) of the specimen holder, and the speed of operation of the tester shall be (48 ± 4) revs/min.

The parallelism of the abradant table (5.1.2) and the specimen holder (5.1.1) shall be maintained to within ±0,05 mm throughout each Lissajous figure. A dial gauge fitted in place of the specimen holder can be used to verify the parallelism of the abradant table.

The circumferential parallelism of the holder (5.1.1) in contact with the abradant table shall be better than ±0,05 mm. This can be verified by attempting to insert slip gauges of thickness less than 0,05 mm under the edges of the flat face of the specimen holder.

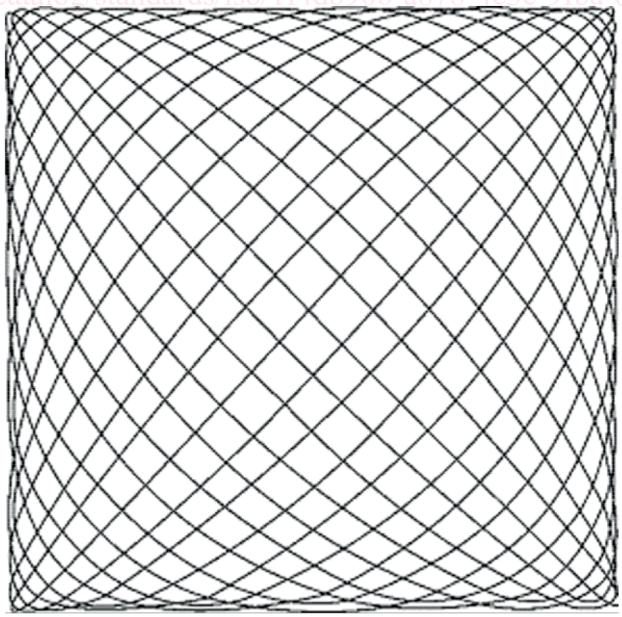

Figure 1 — Lissajous figure