INTERNATIONAL STANDARD

**ISO 4674-1**

Second edition
2016-10-15

# Rubber- or plastics-coated fabrics — Determination of tear resistance —

## Part 1: Constant rate of tear methods

*Supports textiles revêtus de caoutchouc ou de plastique — Détermination de la résistance au déchirement —*

*Partie 1: Méthodes à vitesse constante de déchirement*

Reference number
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# Foreword

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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 on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*.

This second edition cancels and replaces the first edition (ISO 4674-1:2003), which has been technically revised. The changes are as follows.

— The title of Clause 4 has been changed to "Apparatus and reagents". The clamping device and some reagents have been added.

— Clause 5 has been broken down to two subclauses for conditioning and for testing respectively. The atmosphere of conditioning has been referred to the condition of "1" specified in ISO 2231:1989.

— New Clause 6 "Time-interval between manufacturing and testing" has been added.

— In 7.1, 7.2, 8.1, and 8.2, the wet testing has been moved from Clause 5 with partial modification.

— In 7.2 and 8.2, the procedure of handling abnormal test results has been incorporated. The NOTE in each subclause has been moved to the body text respectively.

— In Clause 10, item f) has been added.

— Annex B has been changed to normative and the body text format has been subdivided by adding clauses.

ISO 4674 consists of the following parts, under the general title *Rubber- or plastics-coated fabrics — Determination of tear resistance*:

— *Part 1: Constant rate of tear methods*

— *Part 2: Ballistic pendulum method*

# Introduction

Tearing is amongst the more usual ways of destruction for many thin materials such as paper, coated or uncoated textiles, plastic films and leather. Knowledge of the resistance of these materials to this type of behaviour is therefore very important.

In practice, tearing can result from very different circumstances; hence the large number of test methods that have been developed in order to predict the behaviour of materials in various situations.

The ISO 4674 series deals with initiated tearing, i.e. the propagation of a tear from an initiating cut.

This part of ISO 4674 describes two methods using a tensile-testing machine at constant rate of elongation. ISO 4674-2 describes a dynamic method using the kinetic energy of a falling pendulum.

# Rubber- or plastics-coated fabrics — Determination of tear resistance —

## Part 1:
## Constant rate of tear methods

**WARNING — Persons using this part of ISO 4674 should be familiar with normal laboratory practice. This part of ISO 4674 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 part of ISO 4674 specifies two methods for determining the forces necessary to initiate and propagate tearing of a coated fabric using the constant rate of tear method. The methods described are the following:

— method A: tongue tear;

— method B: trouser tear.

## 2 Normative references

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

ISO 1421, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break*

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 2602, *Statistical interpretation of test results — Estimation of the mean — Confidence interval*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

**3.1**
**peak**
point on an autographic trace where the gradient, relative to the force values recorded, changes from positive to negative

Note 1 to entry: For tear recordings, a peak to be used for calculation is defined by a drop in force of at least 10 % of the last increasing force value.

**3.2**
**length of tear**
measured length of a tear produced by a tearing force from the initiation of the force until its termination