

This is a preview of "BS EN ISO 4674-1:201...". Click here to purchase the full version from the ANSI store.

**BS EN ISO 4674-1:2016**



**BSI Standards Publication**

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

Part 1: Constant rate of tear methods

This is a preview of "BS EN ISO 4674-1:201...". [Click here to purchase the full version from the ANSI store.](#)

This British Standard is the UK implementation of EN ISO 4674-1:2016. It supersedes BS EN ISO 4674-1:2003 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TCI/69, Footwear, leather and coated fabrics.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2016.  
Published by BSI Standards Limited 2016

ISBN 978 0 580 85473 6

ICS 59.080.40

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2016.

**Amendments/Corrigenda issued since publication**

Date	Text affected
------	---------------

---

## EUROPÄISCHE NORM

November 2016

ICS 59.080.40

Supersedes EN ISO 4674-1:2003

English Version

**Rubber- or plastics-coated fabrics - Determination of tear resistance - Part 1: Constant rate of tear methods (ISO 4674-1:2016)**

Supports textiles revêtus de caoutchouc ou de plastique - Détermination de la résistance au déchirement - Partie 1: Méthodes à vitesse constante de déchirement (ISO 4674-1:2016)

Mit Kautschuk oder Kunststoff beschichtete Textilien - Bestimmung der Weiterreißfestigkeit - Teil 1: Verfahren mit konstanter Geschwindigkeit (ISO 4674-1:2016)

This European Standard was approved by CEN on 2 October 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## European foreword

This document (EN ISO 4674-1:2016) has been prepared by Technical Committee ISO/TC 45 "Rubber and rubber products" in collaboration with Technical Committee CEN/TC 248 "Textiles and textile products" the secretariat of which is held by BSI.

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 May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 4674-1:2003.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 4674-1:2016 has been approved by CEN as EN ISO 4674-1:2016 without any modification.

This is a preview of "BS EN ISO 4674-1:201...". Click here to purchase the full version from the ANSI store.

## Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Apparatus and reagents</b> .....	<b>2</b>
<b>5 Atmospheres for conditioning and testing</b> .....	<b>2</b>
5.1 For conditioning.....	2
5.2 For testing.....	2
<b>6 Time-interval between manufacture and testing</b> .....	<b>2</b>
<b>7 Method A — Tongued (double-tear) test piece</b> .....	<b>2</b>
7.1 Selection and preparation of test pieces.....	2
7.2 Procedure.....	4
7.3 Calculation and expression of results.....	5
7.3.1 Trace with a series of definite peaks.....	5
7.3.2 Trace without definite peaks.....	5
<b>8 Method B — Trouser-shaped (single-tear) test piece</b> .....	<b>6</b>
8.1 Selection and preparation of test pieces.....	6
8.2 Procedure.....	7
8.3 Calculation and expression of results.....	8
<b>9 Precision</b> .....	<b>8</b>
<b>10 Test report</b> .....	<b>8</b>
<b>Annex A (informative) Example of calculation of tear force</b> .....	<b>9</b>
<b>Annex B (normative) Wide-width trouser-shaped test piece</b> .....	<b>11</b>

This is a preview of "BS EN ISO 4674-1:201...". Click here to purchase the full version from the ANSI store.

## 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](http://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](http://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](http://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*

This is a preview of "BS EN ISO 4674-1:201...". [Click here to purchase the full version from the ANSI store.](#)

## 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.

This is a preview of "BS EN ISO 4674-1:201...". [Click here to purchase the full version from the ANSI store.](#)



This is a preview of "BS EN ISO 4674-1:201...". Click here to purchase the full version from the ANSI store.

# 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