



BSI Standards Publication

## Rubber or plastics-coated fabrics - Mechanical test methods under biaxial stress states

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Part 1: Tensile stiffness properties

## National foreword

This British Standard is the UK implementation of EN 17117-1:2018.

The UK participation in its preparation was entrusted to Technical Committee TCI/24, Physical testing of textiles.

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

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## Rubber or plastics-coated fabrics - Mechanical test methods under biaxial stress states - Part 1: Tensile stiffness properties

Supports textiles revêtus de caoutchouc ou de plastique - Méthodes d'essais mécaniques sous contraintes biaxiales - Partie 1 : Propriétés de rigidité à la traction

Mit Kautschuk oder Kunststoff beschichtete Textilien - Mechanische Prüfverfahren unter biaxialen Spannungszuständen - Teil 1: Zugsteifigkeitseigenschaften

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## European foreword

This document (EN 17117-1:2018) has been prepared by 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of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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

EN 17117 consists of the following parts, under the general title *Rubber- or plastics-coated fabrics — Mechanical test methods under biaxial stress states*:

- *Part 1: Tensile stiffness properties*
- *Part 2: Determination of the pattern compensation values* (in preparation)

An additional part related to shear stiffness properties will be proposed after the publication of the previous parts.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Introduction**

Conventional mechanical test methods (based on uniaxial method) are not always suitable within the purpose of the design of specific products using coated fabrics such as architectural tensioned covers.

## 1 Scope

This document describes methods of test using biaxial stress states for the determination of the tensile stiffness properties of biaxially oriented coated fabrics (properties along anisotropic directions, such as the weft and warp yarns for woven based coated fabrics, or along the courses and wales of knitted based coated fabrics).

Other mechanical properties (such as pattern compensation values, shear stiffness, and strength) will be described in other parts.

## 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.

EN ISO 2231, *Rubber- or plastics-coated fabrics — Standard atmospheres for conditioning and testing (ISO 2231)*

EN ISO 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system (ISO 7500-1)*

## 3 Terms and definitions

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

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.1

#### **biaxial**

related to measurement or application along two axes simultaneously

### 3.2

#### **tensile stiffness**

resistance to deformation along the directions of the yarns (e.g. weft and warp)

### 3.3

#### **compensation**

adjustment in size of a cutting pattern to achieve a prestress

### 3.4

#### **stress**

force per unit width (expressed in kN/m)

### 3.5

#### **gauge length**

distance between two effective points of a testing device

### 3.6

#### **initial length**

length of the test specimen between two effective points, before testing