



BSI Standards Publication

**Textiles and textile products  
— Burning behaviour —  
Curtains and drapes — Detailed  
procedure to determine the  
flame spread of vertically  
oriented specimens**

**National foreword**

This British Standard is the UK implementation of EN 1102:2016. It supersedes BS EN 1102:1996 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TCI/66/-/8, Burning behaviour.

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

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English Version

## Textiles and textile products - Burning behaviour - Curtains and drapes - Detailed procedure to determine the flame spread of vertically oriented specimens

Textiles et produits textiles - Comportement au feu -  
Rideaux et tentures - Procédure détaillée pour  
déterminer la propagation de flamme d'éprouvettes  
disposées verticalement

Textilien - Brennverhalten von Vorhängen und  
Gardinen - Detailliertes Verfahren zur Bestimmung der  
Flammenausbreitungseigenschaften vertikal  
angeordneter Proben

This European Standard was approved by CEN on 12 June 2016.

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## European foreword

This document (EN 1102:2016) 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of an identical text or by endorsement, at the latest by February 2017, and conflicting national standards shall be withdrawn at the latest by February 2017.

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.

This document supersedes EN 1102:1995.

The ignitability is determined using a modified EN ISO 6941. These modifications are listed in this document.

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## 1 Scope

This European Standard specifies a procedure to determine the flame spread of textiles for curtains and drapes by testing a vertically oriented specimen in accordance with EN ISO 6941.

## 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.

EN ISO 6330:2012, *Textiles - Domestic washing and drying procedures for textile testing (ISO 6330:2012)*

EN ISO 6941:2003, *Textile fabrics - Burning behaviour - Measurement of flame spread properties of vertically oriented specimens (ISO 6941:2003)*

ISO 3175 (all parts), *Textiles – Professional care, dry cleaning and wet cleaning of fabrics and garments*<sup>1</sup>

## 3 Terms and definitions

For the purpose of this document, the following terms and definitions apply:

**3.1 attendant fire phenomena**  
special phenomena occurring during burning such as flaming debris, darting flames, formation of sparks

**3.2 flaming debris**  
material, separating from the specimen during the test procedure, falling below the initial edge of the specimen and igniting a filter paper

## 4 Sampling

Test samples shall be representative of the materials as used in complete curtains and drapes in accordance with the number and the size of the test specimens required as specified in EN ISO 6941.

## 5 Cleansing

The sample shall be submitted to the cleansing procedure given on the care label. If no cleansing procedure is prescribed the material shall be submitted to one cycle of the following standard cleansing procedures as appropriate to the fabric:

- wash procedure in accordance with method 4N (40 ± 3) °C of EN ISO 6330:2012 and dried in accordance with method C (flat dry) of EN ISO 6330:2012;
- dry cleaning procedure in accordance with ISO 3175 (all parts).

If the fabric is not intended to be cleansed the test method shall be carried out on sample and specimens as received.

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<sup>1</sup> Parts 5 & 6 currently under development.

NOTE This cleansing is not intended as a durability test for flame retardant treatment but only to remove non-durable finishes or contamination and to obtain fabric surface and structure characteristics which are representative of those typically obtained in fabrics during actual use.

## 6 Test specimen

The test specimens shall be cut from the sample described in Clause 4.

The specimens shall consist of one or more layers of materials according to the construction of the curtain.

Unless otherwise specified the specimen shall not contain features of construction such as seams, pleats, etc. Nevertheless the test specimen shall contain pattern or design features when they are a specific part of the fabric such as a Jacquard construction.

## 7 Conditioning

Condition the test specimens and the filter paper for at least 24 h in the standard atmosphere of  $(20 \pm 2)$  °C and  $(65 \pm 5)$  % relative humidity.

## 8 Test procedure

### 8.1 Spread of flame

Spread of flame shall be tested according to EN ISO 6941 using commercial propane gas with the following modifications:

- flame application time shall be 10 s;
- only the first and the third marker thread shall be used;
- the marker threads are spun from pure cotton with a linear density of  $(45 \pm 5)$  tex.

### 8.2 Attendant fire phenomena assessment

The fire phenomena shall be assessed using the apparatus described in EN ISO 6941 during the procedure used to determine the flame spread.

### 8.3 Procedure for the evaluation of flaming debris

Position horizontally, below the test specimen. at a distance of 50 mm from the lower edge of the specimen, on a flat surface, a piece of at least 150 mm x 100 mm of filter paper with the following characteristics:

- area specific mass  $(68 \pm 6)$  g/m<sup>2</sup>, thickness 0,15 mm to 0,16 mm, content of alpha cellulose  $\geq 95$  %.

Note whether the filter paper ignites or not.

## 8.4 Flame spread rate calculation

The flame spread rate,  $V$ , (in mm/s) shall be calculated using the equation:

$$V = \frac{300}{t_3 - t_1}$$

where

$t_1$  is the time in seconds from the start of the application of the igniting flame to the severance of the first marker thread;

$t_3$  is the time in seconds from the start of the application of the igniting flame to the severance of the third marker thread.

## 9 Test report

The test report shall include the following information:

- a) reference to this European standard;
- b) identification of the fabrics tested;
- c) the cleansing procedure if used or a statement that the material is not intended to be cleansed;
- d) date of test;
- e) ambient conditions of temperature and relative humidity in the area in which the test is carried out;
- f) techniques used to attach fabrics which cannot be supported on the pins;
- g) orientation of the burner for igniting the test specimen, edge or surface ignition;
- h) the following times in seconds. for the length and the width directions and for each face tested;
  - 1) the flame spread times(s) measured in accordance with 10.1.3 a) and c) of EN ISO 6941:2003;
  - 2) if six specimens are tested the mean from the results of each direction for all the specimens that burn to the respective marker thread and the number of values averaged for each direction;

NOTE 1 Do not report a mean of less than three values.

- i) the flame spread rate in mm/s for all specimens giving severance of the third marker thread;
- j) if six specimens are tested, the mean from the results of all the specimens of each direction;

NOTE 2 Do not report a mean of less than three values.

- k) the number of specimens that failed to ignite;
- l) the number of specimens which ignited but failed to burn the first marker thread;



- m) the: result of the attendant fire phenomena assessment or a statement that no assessment was made;
- n) any deviation from this procedure.





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