

**Textiles and textile products - Burning behaviour -  
Curtains and drapes - Measurement of flame spread of  
vertically oriented specimens with large ignition source**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 13772:2011 sisaldab Euroopa standardi EN 13772:2011 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 28.02.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 19.01.2011.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 13772:2011 consists of the English text of the European standard EN 13772:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 19.01.2011.

The standard is available from Estonian standardisation organisation.

ICS 13.220.40, 59.080.30, 97.160

messung, probe, probenahme, pruefanordnung, pruefgeraet, pruefung, pruefverfahren, spinnstoff, zuendquelle, test, textiles flaechengebilde, textilgewebe, textilien, textilpruefung, vertikal, widerstandsfahigkeit, vorhang, vorhangstoff

### Standardite reprodutseerimis- ja levitamisoigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:  
Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

### Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:  
Aru str 10 Tallinn 10317 Estonia; [www.evs.ee](http://www.evs.ee); Phone: 605 5050; E-mail: [info@evs.ee](mailto:info@evs.ee)

English Version

**Textiles and textile products - Burning behaviour - Curtains and  
drapes - Measurement of flame spread of vertically oriented  
specimens with large ignition source**

Textiles et produits textiles - Comportement au feu -  
Rideaux et tentures - Mesurage de la propagation de  
flamme d'éprouvettes orientées verticalement, avec une  
source d'allumage importante

Textilien und textile Erzeugnisse - Brennverhalten -  
Vorhänge und Gardinen - Messung der  
Flammenausbreitungseigenschaften von vertikal  
angeordneten Messproben mit großer Zündquelle

This European Standard was approved by CEN on 3 December 2010.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

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

## Contents

Page

Foreword.....	3
Introduction .....	4
1     Scope .....	5
2     Normative references .....	5
3     Term and definition.....	5
4     Principle.....	5
5     Health and safety of test operator.....	6
6     Apparatus and materials.....	6
7     Calibration .....	10
7.1   General.....	10
7.2   Procedure .....	10
8     Sample and test specimens.....	10
8.1   Sample .....	10
8.2   Cleansing.....	10
8.3   Test specimens .....	11
8.3.1 General.....	11
8.3.2 Size of specimens.....	11
8.3.3 Number of specimens (both before and after cleansing).....	11
8.3.4 Insertion of cotton cloth.....	11
9     Conditioning.....	11
10    Procedure .....	11
11    Test report .....	12

## Foreword

This document (EN 13772:2011) 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 July 2011, and conflicting national standards shall be withdrawn at the latest by July 2011.

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 13772:2003.

The main differences between this standard and the previous version are:

- all three marker threads shall be used;
- tolerances for the position of the electric radiator and for the tension of the marker threads have been introduced;
- the metal grid below the specimen has been defined more precisely;
- major adjustments to the cleansing procedure.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

In order to assess the burning behaviour of curtains and drapes two test methods were established, i.e. EN 1101 for the measurement of ignitability (based on EN ISO 6940) and EN 1102 for the measurement of flame spread (based on EN ISO 6941).

EN ISO 6941 measures the flame spread of vertically oriented specimens exposed to a defined small flame. This allows the flame spread properties of ignitable products to be determined. Nevertheless this test method is not suitable to assess products that do not ignite. The measurement of the length or area destroyed by the small flame is questionable as shown by round robin testing. There is a risk that products which pass the small flame test, can still be ignited with a larger ignition source.

The equipment used in EN ISO 6941 has therefore been modified by adding a radiator, which radiates on the lower part of the specimen in order to boost locally and temporarily the ignition of the specimen. The combination of this radiation and the small flame application simulates the action from a larger flaming source. With this combined ignition source some materials, not ignitable with the small flame, may ignite. Some of these will self extinguish, when the action from the ignition source has ceased, while others will self-propagate.

For this purpose, a European research project (CT 96-2057) was set up to establish a small scale test method for assessing the burning behaviour of curtains and drapes using a large ignition source. Reaction to fire parameters like smoke development, heat release and toxic components were not taken into account. The project involved eleven laboratories from nine European countries.

In order to select the relevant characteristics of burning behaviour in terms of classification and to assess the repeatability and reproducibility, 15 samples of commercially available fabrics representative for the main product groups on the market were tested with the large ignition source test method. Most of them had a flame retardant treatment or coating. The material selection included standard and fire retardant polyester, cotton, modacryl, wool, chlorofibre and glass fibre and represented different structures and fibre blends.

The occurrence of flaming debris, the severance of marker threads and the time to sever marker threads (first and third threads) were selected as representative parameter to assess the burning behaviour of the samples. Other burning behaviour characteristics such as after-flame and after-glow times did not bring any extra relevant information and were discarded.

An inter-laboratory test was conducted in 1997 with ten laboratories, each testing 15 materials. Repeatability and reproducibility were assessed through statistical analysis. Consequently, some improvements were introduced in the method. Good agreement was also found with national test methods in use in various European countries or regions (France, Germany, Belgium, the Netherlands, Italy, Scandinavia and the United Kingdom).

## 1 Scope

This European Standard specifies a method for the measurement of flame spread of vertically oriented textile fabrics intended for curtains and drapes in the form of single or multi-component (coated, quilted, multilayered, sandwich construction and similar combinations) fabrics using a large ignition source.

## 2 Normative references

The following referenced documents are indispensable for the application 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 367:1992, *Protective clothing — Protection against heat and fire — Method of determining heat transmission on exposure to flame*

EN 13773:2003, *Textiles and textile products — Burning behaviour — Curtains and drapes — Classification scheme*

EN ISO 139:2005, *Textiles — Standard atmospheres for conditioning and testing (ISO 139:2005)*

EN ISO 3175-2, *Textiles — Professional care, drycleaning and wetcleaning of fabrics and garments — Part 2: Procedure for testing performance when cleaning and finishing using tetrachloroethene (ISO 3175-2:2010)*

EN ISO 3175-3, *Textiles — Professional care, drycleaning and wetcleaning of fabrics and garments — Part 3: Procedure for testing performance when cleaning and finishing using hydrocarbon solvent (ISO 3175-3:2003)*

EN ISO 3175-4, *Textiles — Professional care, drycleaning and wetcleaning of fabrics and garments — Part 4: Procedure for testing performance when cleaning and finishing using simulated wetcleaning (ISO 3175-4:2003)*

EN ISO 6330:2000, *Textiles — Domestic washing and drying procedures for textile testing (ISO 6330:2000)*

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

EN ISO 10528, *Textiles — Commercial laundering procedure for textile fabrics prior to flammability testing (ISO 10528:1995)*

## 3 Term and definition

For the purposes of this document, the following term and definition applies:

### 3.1

#### **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 Principle

A heat flux of a defined energy is applied to a specified area of the lower part of the backside of the vertical specimen. After a period of exposure (30 s), the small flame defined in EN ISO 6941 is applied for 10 s to a small piece of cotton fabric fixed around the bottom edge of the specimen.