

**Reaction to fire tests for floorings - Part 1:
Determination of the burning behaviour using a radiant
heat source**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 9239-1:2010 sisaldab Euroopa standardi EN ISO 9239-1:2010 ingliskeelset teksti.

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Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 15.06.2010.

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ICS 13.220.40, 59.080.60, 97.150

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EUROPEAN STANDARD

EN ISO 9239-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 13.220.40; 59.080.60; 97.150

Supersedes EN ISO 9239-1:2002

English Version

**Reaction to fire tests for floorings - Part 1: Determination of the
burning behaviour using a radiant heat source (ISO 9239-
1:2010)**

Essais de réaction au feu des revêtements de sol - Partie
1: Détermination du comportement au feu à l'aide d'une
source de chaleur rayonnante (ISO 9239-1:2010)

Prüfungen zum Brandverhalten von Bodenbelägen - Teil 1:
Bestimmung des Brandverhaltens bei Beanspruchung mit
einem Wärmestrahler (ISO 9239-1:2010)

This European Standard was approved by CEN on 19 May 2010.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN ISO 9239-1:2010) has been prepared by Technical Committee ISO/TC 92 "Fire safety" in collaboration with Technical Committee CEN/TC 127 "Fire safety in buildings" 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of an identical text or by endorsement, at the latest by December 2010, and conflicting national standards shall be withdrawn at the latest by December 2010.

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Endorsement notice

The text of ISO 9239-1:2010 has been approved by CEN as a EN ISO 9239-1:2010 without any modification.

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Introduction

The measurements in the test method in this part of ISO 9239 provide a basis for estimating one aspect of fire exposure behaviour of floorings. The imposed radiant flux simulates the thermal radiation levels likely to impinge on the floor of a corridor whose upper surfaces are heated by flames or hot gases or both, during the early stages of a developing fire in an adjacent room or compartment under wind-opposed flame-spread conditions.

Reaction to fire tests for floorings —

Part 1:

Determination of the burning behaviour using a radiant heat source

WARNING — The possibility of a gas-air fuel explosion in the test chamber should be recognized. Suitable safeguards consistent with sound engineering practice should be installed in the panel fuel supply system. These should include at least the following:

- a gas-feed cut-off which is immediately activated when air and/or gas supply fail;
- a temperature sensor or a flame detection unit directed at the panel surface that stops fuel flow when the panel flame goes out.

The attention of all persons concerned with managing and carrying out this test is drawn to the fact that fire testing may be hazardous and that there is a possibility that toxic and/or harmful gases may be evolved during the test. Operational hazards may also arise during the testing of specimens, such as the possibility of an explosion, and during the disposal of test residues.

An assessment of all the potential hazards and risks to health should be made and safety precautions should be identified and provided. Written safety instructions should be issued. Appropriate training should be given to relevant personnel. Laboratory personnel should ensure that they follow written instructions at all times.

1 Scope

This part of ISO 9239 specifies a method for assessing the wind-opposed burning behaviour and spread of flame of horizontally mounted floorings exposed to a heat flux radiant gradient in a test chamber, when ignited with pilot flames. Annex A gives details of assessing the smoke development, when required.

This method is applicable to all types of flooring, e.g. textile carpet, cork, wood, rubber and plastics coverings as well as coatings. Results obtained by this method reflect the performance of the flooring, including any substrate if used. Modifications of the backing, bonding to a substrate, underlay or other changes of the flooring may affect test results.

This part of ISO 9239 is applicable to the measurement and description of the properties of floorings in response to heat and flame under controlled laboratory conditions. It should not be used alone to describe or appraise the fire hazard or fire risk of floorings under actual fire conditions.

Information on the precision of the test method is given in Annex B.

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.

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 13943, *Fire safety — Vocabulary*

ISO 14697, *Reaction-to-fire tests — Guidance on the choice of substrates for building and transport products*

ISO 14934-3, *Fire tests — Calibration and use of heat flux meters — Part 3: Secondary calibration method*

EN 13238, *Reaction to fire tests for building products — Conditioning procedures and general rules for selection of substrates*

IEC 60584-1, *Thermocouples — Part 1: Reference tables*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13943 and the following apply.

3.1

heat flux

amount of thermal energy emitted, transmitted or received per unit area and unit time

NOTE Heat flux is expressed in kilowatts per square metre (kW/m^2).

3.2

critical heat flux at extinguishment

CHF

incident heat flux, in kW/m^2 , at the surface of a specimen at the point where the flame ceases to advance and may subsequently go out

3.3

heat flux at X min

HF- X

heat flux, in kW/m^2 , received by the specimen at the most distant spread of flame position observed during the first X min of the test

3.4

critical heat flux

heat flux at which the flame extinguishes (CHF) or the heat flux after the test period of 30 min (HF-30), whichever is the lower value (i.e. the flux corresponding to the furthest extent of spread of flame within 30 min)

3.5

heat flux profile

curve relating the heat flux on the specimen plane to the distance from the zero point

3.6

zero point of heat flux profile

inner edge of the hottest side of the specimen holder

3.7

sustained flaming

persistence of flame on or over the surface of the specimen for a period of more than 4 s