SLOVENSKI STANDARD
SIST EN ISO 5659-1:2000

01-maj-2000

Polimerni materiali - Nastajanje dima - 1. del: Navodila za merjenje optiļ ne gostote (ISO 5659-1:1996)

Plastics - Smoke generation - Part 1: Guidance on optical-density testing (ISO 5659-1:1996)

Kunststoffe - Rauchentwicklung - Teil 1: Anleitung zur Prüfung der optischen Dichte (ISO 5659-1:1996)

Plastiques - Production de fumée - Partie 1: Guide sur les essais de densité optique (ISO 5659-1:1996)

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ICS:

13.220.40	Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju	Ignitability and burning behaviour of materials and products
83.080.01	Polimerni materiali na splošno	Plastics in general

SIST EN ISO 5659-1:2000 **en**

EUROPEAN STANDARD

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Plastics - Smoke generation - Part 1: Guidance on optical-density testing (ISO 5659-1:1996)

Plastiques - Production de fumée - Partie 1: Guide sur les essais de densité optique (ISO 5659-1:1996)

Kunststoffe - Rauchentwicklung - Teil 1: Anleitung zur Prüfung der optischen Dichte (ISO 5659-1:1996)

This European Standard was approved by CEN on 6 May 1999.

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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 Central Secretariat has the same status as the official versions.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

The text of the International Standard from Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

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of an identical text or by endorsement, at the latest by December 1999, and conflicting national standards shall be withdrawn at the latest by December 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 5659-1:1996 has been approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

Annex ZA (normative)
Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

Publication	Year	Title	EN	Year
ISO 5659-2	1994	Plastics - Smoke generation - Part 2: Determination of optical density by a single-chamber test	EN ISO 5659-2	1998

INTERNATIONAL STANDARD

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Part 1:
Guidance on optical-density testing

Plastiques — Production de fumée —

Partie 1: Guide sur les essais de densité optique

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 5659 was prepared by Technical Committee ISO/TC 61, *Plastics*, subcommittee SC 4, *Burning behaviour*.

ISO 5659 consists of the following parts, under the general title *Plastics — Smoke generation:*

— *Part 1: Guidance on optical-density testing*

— *Part 2: Determination of optical density by a single-chamber test*

Annexes A and B of this part of ISO 5659 are for information only.

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Introduction

Smoke represents a major hazard in fires due to its capacity to obscure vision by the absorption and scattering of light. Consequently, two threats are obvious: the inhalation of hazardous gases and fumes and the obscuration of light by smoke particulates leading to disorientation. These threats interact in a complicated manner, but are usually dealt with by separate procedures.

Smoke particulates reduce the visibility due to light absorption and scattering. Consequently, people may experience difficulties in finding exit signs, doors and windows. Visibility is often determined as the distance at which an object is no longer visible. It depends on many factors, but close relationships have been established between visibility and measurements of the optical density of smoke, as depicted in figure 1.

The production of smoke and its optical properties are often measured simultaneously with other fire properties, such as heat release and flame spread. The measurements may be in small or full scale. They may be performed in small-scale, closed systems and are called cumulative or static methods. They may also be performed in a flow-through system, and these are called dynamic methods.

A distinction is sometimes made between smoke and soot (see 7.2), with the former being measured by optical means, while the latter is determined by actual weighing of particulates collected (gravimetric means). Since fire safety concerns are often with optical smoke measurements, the guidance on smoke tests will focus on obscuration of visibility.