

**SLOVENSKI STANDARD**  
**oSIST prEN 15426:2017**  
**01-september-2017**

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**Sveče - Specifikacija lastnosti saj**

Candles - Specification for sooting behaviour

Kerzen - Spezifikation für das Rußverhalten

Bougies - Spécification relative à l'émission de suie

**Ta slovenski standard je istoveten z: prEN 15426**

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**ICS:**

75.140	Voski, bitumni in drugi naftni proizvodi	Waxes, bituminous materials and other petroleum products
97.180	Razna oprema za dom in trgovino	Miscellaneous domestic and commercial equipment

**oSIST prEN 15426:2017**

**en,fr,de**



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NORME EUROPÉENNE  
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English Version

## Candles - Specification for sooting behaviour

Bougies - Spécification relative à l'émission de suie

Kerzen - Spezifikation für das Rußverhalten

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 369.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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SIST EN 15426:2019

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

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## European foreword

This document (prEN 15426:2017) has been prepared by Technical Committee CEN/TC 369 “Candle fire safety”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15426:2007.

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## Introduction

Candles have accompanied mankind for more than 2 000 years serving above all as a light source. Closely connected to the development history of the candle are the efforts made to improve its quality and its safety in use. Discussions in the past and present over possible self-forming, harmful emissions and fires caused by unsafe candles and/or inappropriate use during the burning of candles have led to consumer concern for these issues.

This European Standard describes the requirements and a simple method for measuring the sooting behaviour of candles. The soot index obtained by this procedure may be considered as characteristic of the sooting behaviour of the type of candle tested.

The soot which is emitted from a candle is collected on a glass plate throughout a defined period. Afterwards the attenuation of light intensity caused by soot precipitation is quantified in a measuring chamber.

This method helps to ensure a reasonable degree of safety for normal use, thereby improving personal safety.

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## 1 Scope

This European Standard specifies requirements and the test method for evaluating the sooting behaviour of burning indoor candles. It is applicable to single wick candles with a diameter up to 100 mm or equivalent cross sectional area intended to be burned indoors.

NOTE Single wick candles with a diameter above 100 mm or equivalent cross sectional area and multiwick candles cannot be evaluated with this test method for technical reasons. Evaluation of the visible release of soot is a possibility for these candles.

## 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.

ISO 9044:1999, *Industrial woven wire cloth — Technical requirements and testing*

## 3 Terms and definitions

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

### 3.1

#### **base material**

intended fuel source for a candle flame

### 3.2

#### **candle**

one or more combustible wicks supported by a material that constitutes a fuel, which is solid or semisolid at room temperature (20 °C to 27 °C) with the main function of sustaining a light-producing flame, including any coatings on and articles or substances in the fuel

### 3.3

#### **container candle**

candle that is produced and used in the same container

Note 1 to entry: This definition includes tea lights.

### 3.4

#### **free-standing candle**

candle that is designed to be used without a supporting holder

### 3.5

#### **indoor candle**

candle intended and designed for use inside a house or a building with typical indoor conditions concerning ventilation, draught and temperature

Note 1 to entry: An outdoor candle is a candle intended and designed to be used outside buildings in the open air.

### 3.6

#### **measuring period**

time the candle is burned and soot is collected

**prEN 15426:2017 (E)****3.7****molten fuel pool**

portion of the fuel of a candle that is in the liquid form when the candle is burning

**3.8****soot**

solid, carbon enriched particles, which come into existence when the base material is incompletely burned in the flame and which are subsequently released into the atmosphere

**3.9****soot index**

index number for the evaluation of the sooting behaviour of candles

**3.10****soot test cycle**

total length of time the candle is burned during the stabilizing period, measuring period, including pause

**3.11****stabilizing period**

period of time the candle is burned without collecting soot

**3.12****total measuring time**

total time of all measuring periods

**3.13****wick**

object that delivers fuel to a flame through the process of capillary action

**4 Sooting behaviour**

When tested in accordance with Clause 9, the average soot index per hour from three tests (samples) shall be less than 1,0/h. <https://standards.iteh.ai/catalog/standards/sist/5990a1c0-bd37-4ed4-84a4-7b32af39ef2c/sist-en-15426-2019>

**5 Test equipment and apparatus**

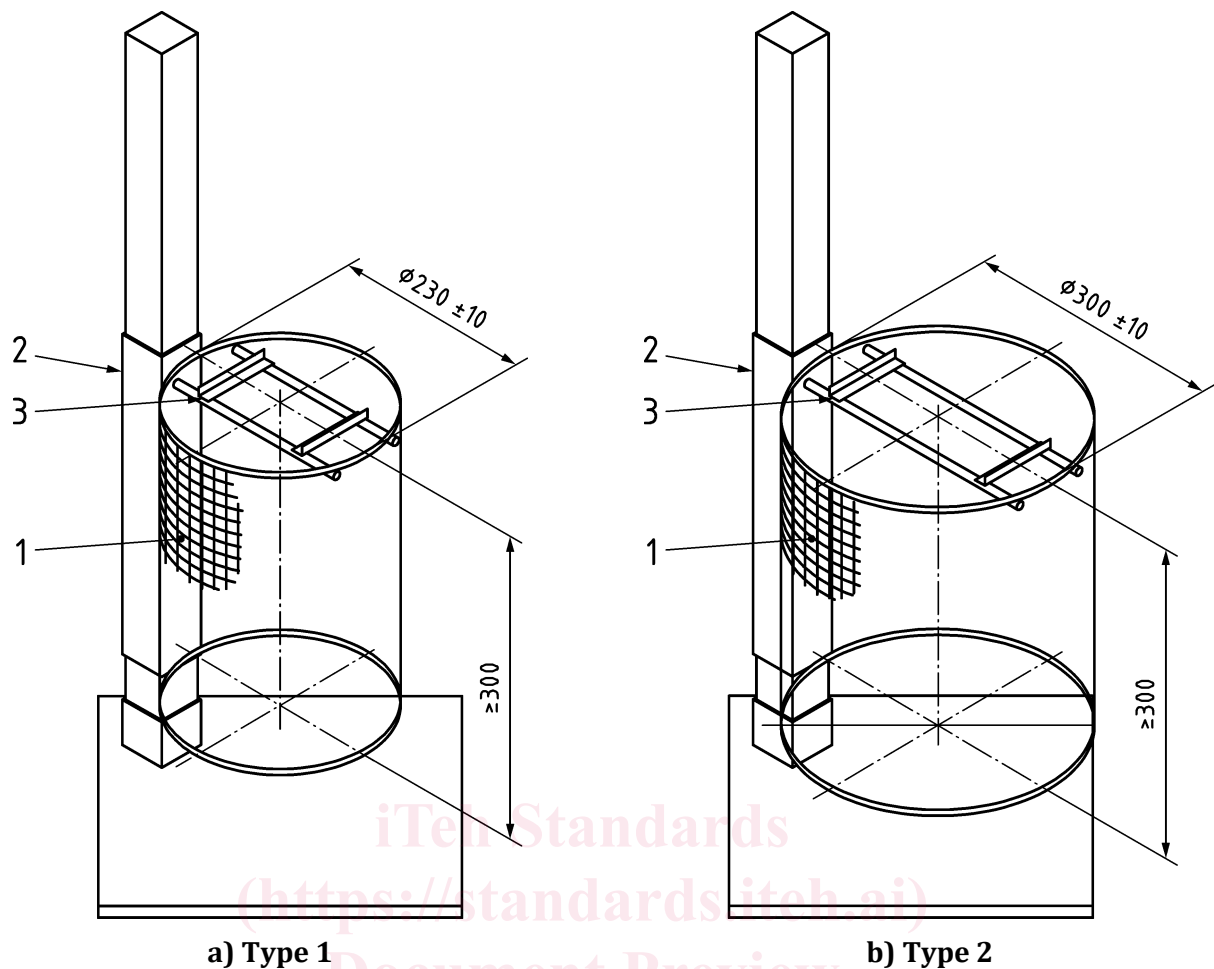
**5.1 A wire mesh cylinder**<sup>1)</sup> fixed to a stand of which the height can be adjusted, with a fixture for a glass plate (see Figure 1). The cylinder has a minimum height of 300 mm and consists of wire mesh with an open screening area of  $(60 \pm 5) \%$  according to ISO 9044:1999.

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<sup>1)</sup> Wire mesh cylinder RMG 2.1 is the trade name of a product supplied by Heil Metalle GmbH, Germany. This information is given for the convenience of the user of this European Standard and does not constitute an endorsement by CEN of the product named. Equivalent products may be used.



Dimensions in millimetres

**Key**

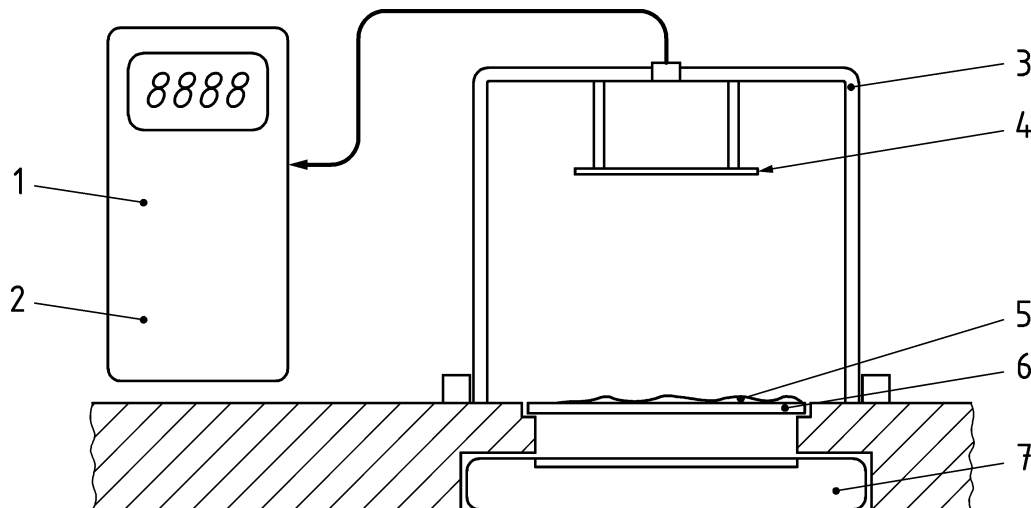
- 1 wire mesh
- 2 stand with height adjustment
- 3 fixture for glass plate

**Figure 1 — Wire mesh cylinder**

**5.2 Measurement unit<sup>2)</sup>** consisting of an indication instrument and a measuring chamber. The measuring chamber consists of the light source, fixture for the heat resistant glass plate, a cover with light reflecting interior coating (at least 90 % reflectivity) with a photodiode integrated in it, which is connected with the indication instrument (see Figure 2).

**NOTE** First operation and calibration of the measurement unit refer to Annex A.

<sup>2)</sup> Measurement unit RMG 2.1 is the trade name of a product supplied by Heil Metalle GmbH, Germany. This information is given for the convenience of the user of this European Standard and does not constitute an endorsement by CEN of the product named. Equivalent products may be used if they can be shown to lead to the same results.

**Key**

- 1 detector current    2 photometer  
 3 photo detector    4 baffle  
 5 soot precipitation    6 heat resistant glass plate  
 7 light source

**Figure 2 — Measurement unit**

**5.3 Heat resistant glass plates**, 100 mm × 100 mm, with a thickness of 3,5 mm to 4,5 mm. Each glass plate shall be marked in such a way that it can be easily identified and the marking does not affect the measurement results. The light absorption of these glass plates shall not exceed 25 % [see Formula (1)].  $E$  is the individually measured illuminance.

$$1 - \frac{E_1}{E_0} \leq 0,25 \quad (1)$$

where <https://standards.iteh.ai/catalog/standards/sist/5990a1c0-bd37-4ed4-84a4-7b32af39ef2c/sist-en-15426-2019>

$E_1$  illuminance of the measuring chamber with a clean glass plate, in Lux;

$E_0$  illuminance of the empty measuring chamber, in Lux.

**5.4 Stop watch.**

**5.5 Balance**, precision 0,1 g.

**5.6 Rule.**

**5.7 Standard**, fat dissolving detergent.

**5.8 Lint free paper towels.**

**5.9 Pair of scissors.**

**5.10 Suitable candle holder.**

**5.11 Additional stand for height adjustment.**