BS EN 15426:2018

BSI Standards Publication

Candles – Specification for sooting behaviour

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National foreword

This British Standard is the UK implementation of EN 15426:2018. It supersedes BS EN 15426:2007, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee I/-/1, Safety of Candles and Related Products.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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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 European Standard was approved by CEN on 15 July 2018.

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European foreword

This document (EN 15426:2018) has been prepared by Technical Committee CEN/TC 369 “Candle fire safety”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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 15426:2007.

It should be noted that the following significant changes compared to the previous edition have been incorporated in this document:

— improved terms and definitions;

— simplified requirement for the sooting behaviour;

— clearer description of test equipment and apparatus;

— clearer description of the test method including improved illustration for setting up the equipment and new illustrated guidance for selecting the wire mesh cylinder;

— modified characteristics of the candles for selecting the soot test cycles;

— new informative Annex B for the calculation of the hourly fuel consumption.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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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 document 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 document 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 9044:2016, *Industrial woven wire cloth — Technical requirements and tests*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

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
freestanding 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.

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3.6
measuring period
time the candle is burned and soot is collected

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
residual height
height of the candle, measured from the bottom of the candle to the surface of the molten fuel pool

3.9
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

3.10
soot index
index number for the evaluation of the sooting behaviour of candles

3.11
soot test cycle
total length of time the candle is burned during the stabilizing period, measuring period, including pause

3.12
stabilizing period
period of time the candle is burned without collecting soot

3.13
total measuring time
total time of all measuring periods

3.14
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.

5 Test equipment and apparatus

5.1 A wire mesh cylinder[1)] 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 ± 5) % according to ISO 9044:2016.

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1) 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.

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