



BSI Standards Publication

Aerospace series — Flammability of non-metallic materials

Part 1: Small burner test, vertical — Determination
of the vertical flame propagation

National foreword

This British Standard is the UK implementation of EN 3844-1:2019. It supersedes BS EN 3844-1:2011, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ACE/65, Non-metallic materials for aerospace purposes.

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

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Published by BSI Standards Limited 2019

ISBN 978 0 539 03674 9

ICS 49.025.15

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2019.

Amendments/corrigenda issued since publication

Date	Text affected
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English Version

**Aerospace series - Flammability of non-metallic materials -
Part 1: Small burner test, vertical - Determination of the
vertical flame propagation**

Série aérospatiale - Inflammabilité des matériaux non
métalliques - Partie 1 : Essai au brûleur, vertical -
Détermination de la propagation verticale de la flamme

Luft- und Raumfahrt - Entflammbarkeit
nichtmetallischer Werkstoffe - Teil 1: Kleinbrenner-
Prüfung, senkrecht - Bestimmung der senkrechten
Flammenausbreitung

This European Standard was approved by CEN on 12 May 2019.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 3844-1:2019) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

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of an identical text or by endorsement, at the latest by February 2020, and conflicting national standards shall be withdrawn at the latest by February 2020.

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 3844-1:2011.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies the test method for the determination of the vertical flame propagation and after flame time of non-metallic materials in part or in whole.

This test method is also used for testing non-metallic materials which have to meet the test criteria for the vertical Bunsen burner test:

- a) with a flame application time of 60 s;
- b) with a flame application time of 12 s.

It is used for evaluation of non-metallic materials or constructions used in the interiors of aerospace vehicles but also may be used in other applications as specified in applicable procurement and regulatory documents.

This standard should be used to measure and describe the properties of non-metallic materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

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.

ASTM-D 5025, *Standard Specification for Laboratory Burner Used for Small-Scale Burning Tests on Plastic Materials* ¹⁾

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

time of flame application

length of time for which the burner flame is applied to the specimen

3.2

after flame time

time in seconds for which the specimen continues to flame after the burner flame has been removed from the specimen

1) Published by: ASTM National (US) American Society for Testing and Materials <http://www.astm.org/>.

Note 1 to entry: The time is expressed in seconds.

3.3

after flame time of drips

time in seconds that any flaming material continues to flame after falling from the specimen to the bottom of the chamber

Note 1 to entry: If there is more than one drip, the after flame time of drips reported is that of the longest flaming drip. If succeeding flaming drips reignite earlier drips that flamed, the after flame time of drips reported is the total of all flaming drips.

Note 2 to entry: The time is expressed in seconds.

3.4

burn length

distance in millimetres from the original specimen edge to the farthest evidence of damage of the test specimen due to that area's combustion, including areas of partial consumption, charring, or embrittlement, but not including areas sooted, stained, warped or discoloured, nor areas where material has shrunk or melted away from the heat

Note 1 to entry: The distance is expressed in millimetres.

4 Principle of method

Testing is performed on a specimen that is held vertical. A burner flame, having defined parameters, is applied to the specimen for a defined period of time. The after flame time and the burn length is measured. The occurrence of drips and their after flame time is measured.

5 Designation

EXAMPLE

Description block	Identity block
VERTICAL BUNSEN BURNER TEST	EN3844-1A
Number of this standard _____	
Code for flame application time (see Table 1) _____	

Table 1

Time of flame application s	Code
60	A
12	B