

BRITISH STANDARD

Methods of test for assessment of the ignitability of mattresses, upholstered divans and upholstered bed bases with flaming types of primary and secondary sources of ignition

ICS 13.220.40; 97.140

Confirmed December 2011

BSi
British Standards

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

Documents
Document Sharing Hub

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© BSI 2006

ISBN 0 580 47927 7

The following BSI references relate to the work on this standard:

Committee reference FW/6

Draft for comment DC05/30098212

Publication history

First published December 1986

Second edition June 1990

Third edition April 1996

Fourth edition March 2006

Amendments issued since publication

Amd. no.	Date	Text affected
-----------------	-------------	----------------------

Contents

Foreword *iii*

1	Scope	<i>1</i>
2	Normative references	<i>1</i>
3	Terms and definitions	<i>1</i>
4	Criteria of ignition	<i>2</i>
5	Principle	<i>5</i>
6	Health and safety of operators	<i>5</i>
7	Apparatus	<i>6</i>
8	Atmosphere for conditioning and testing	<i>8</i>
9	Mattress, upholstered divan or upholstered bed base tested with primary ignition sources	<i>8</i>
10	Mattress, upholstered divan or upholstered bed base tested with secondary ignition sources of known bed covers (made-up bed)	<i>13</i>
11	Final examination	<i>19</i>
12	Test report	<i>19</i>

Annexes

Annex A (informative) Example of test report layout *21*

Bibliography *22*

List of figures

Figure 1 – Flow diagram for detection of ignition	<i>3</i>
Figure 2 – Test rig	<i>7</i>
Figure 3 – Position of ignition sources for mattress, tested alone	<i>11</i>
Figure 4 – Position of ignition sources for mattresses tested with secondary ignition sources of known bed covers	<i>15</i>
Figure A.1 – Example of test report layout	<i>21</i>

List of tables

Table 1 – Position of ignition source: mattress tested from below with primary ignition sources	<i>9</i>
Table 2 – Position of ignition source: mattress together with known bed covers, tested from below	<i>16</i>

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 22, an inside back cover and a back cover.



Documents

Document Sharing Hub

© BSI 2006 • 1

Foreword

Publishing information

This British Standard was published by BSI and came into effect on 31 March 2006. It was prepared by Technical Committee FW/6, *Flammability performance and fire testing*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 6807:1996, which is withdrawn.

Relationship with other publications

This British Standard extends the range of ignition sources provided by BS EN 597-1 and BS EN 597-2. It should be read in conjunction with BS EN 597-1 and BS EN 597-2 for the complete range of primary and secondary ignition sources.

Attention is drawn to BS 7177, which specifies requirements for the resistance to ignition of mattresses, divans and bed bases in various hazard classifications, when tested in accordance with this British Standard.

Information about this document

This is a full revision of the standard. The principal change is a clarification of progressive smouldering ignition; minor editorial changes have also been made.

Tests for ignitability are usually carried out on a bare mattress, upholstered divan or upholstered bed base (see Clause 9). When different materials and products are placed together the ignitability of the composite arrangement is highly dependent on the interactions between the components. For some end uses the bed assembly is already known, e.g. barracks, married quarters, hospitals and hotels, where the specifier is responsible for all the items which make up the bed assembly. In these cases the mattress, upholstered divan or upholstered bed base and combinations thereof can be tested together with the respective bed covers (see Clause 10). The tests described in Clause 10 are intended solely for use where all the components of the complete bed assembly including sheets, etc. are known.

It cannot be assumed that protection against large flaming ignition sources will automatically give protection against smouldering ignition. It is therefore necessary to submit test specimens to both cigarette tests and flaming ignition tests.

Hazard warnings

WARNING. These tests only relate to the ignitability of the materials described in the test report [see Clause 12b) and Clause 12c)] and are not intended to reproduce the full fire hazards that might be encountered.

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its methods are expressed either as a set of instructions or in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

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

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

Attention is drawn to the following regulations:

- Furniture and Furnishings (Fire) (Safety) Regulations 1988 [1];
- Furniture and Furnishings (Fire) (Safety) (Amendment) Regulations 1989 [2];
- Furniture and Furnishings (Fire) (Safety) (Amendment) Regulations 1993 [3];
- Control of Substances Hazardous to Health Regulations 2002 [4].

1 Scope

This British Standard describes methods for assessing the ignitability of mattresses, upholstered divans and upholstered bed bases when subjected to flaming types of primary and secondary ignition sources of differing severities.

The following methods are described:

- a) mattress, upholstered divan or upholstered bed base tested with primary ignition sources (Clause 9);
- b) mattress, upholstered divan or upholstered bed base and combinations thereof, tested with secondary ignition sources composed of known bed covers (Clause 10).

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.

BS 5852:2006, *Methods of test for assessment of the ignitability of upholstered seating by smouldering and flaming ignition sources*

BS EN 597-1:1995, *Furniture – Assessment of the ignitability of mattresses and upholstered bed bases – Part 1: Ignition source: smouldering cigarette*

BS EN 597-2:1995, *Furniture – Assessment of the ignitability of mattresses and upholstered bed bases – Part 2: Ignition source: match flame equivalent*

3 Terms and definitions

For the purposes of this British Standard, the following definitions apply.

3.1 bed

mattress placed on top of a divan or bed base (whether upholstered or not) with no other bedding items present

3.2 bed assembly

stack of successive layers of mattress and various bed covers, with or without pillow and pillowslip, representing a section through the centre of a made-up bed

3.3 bed cover

item placed on the bed by a user to provide comfort and warmth

NOTE This includes sheets, blankets, bedspreads, valances, continental quilts, quilt covers and mattress covers.

3.4 flaming

undergoing combustion in the gaseous phase with the emission of light and heat

3.5 ignitability

measure of the ease with which a material, product or component can be ignited so as to flame or progressively smoulder

3.6 ignition sources

3.6.1 ignition source

source of energy which is used to ignite combustible materials or products

3.6.2 primary ignition source

initial heat supply in a test

3.6.3 secondary ignition source

combination of primary source and the effect of bed covers in a test

3.7 made-up bed

bed prepared for use by covering with bed covers, tucking these between the mattress and upholstered divan or upholstered bed base, positioning pillows with pillowslips and turning down of sheets and blankets at the head end of the bed

NOTE Individual styles vary in detail depending on the user.

3.8 mattress

upholstered product intended for sleeping upon

3.9 smouldering

combustion of a material with or without the emission of light and generally evidenced by smoke and an increase in temperature but without a flame

3.10 progressive smouldering

smouldering that is self-propagating, i.e. independent of the ignition source

3.11 ticking

primary covering material which is not intended to be removed

3.12 upholstered bed base or upholstered divan

support surface for the mattress which includes padding covered by ticking

4 Criteria of ignition

NOTE 1 The ignition sources used in this British Standard are the primary range of flaming ignition sources 2 to 7 described in BS 5852:2006 and the cigarette and match flame equivalent sources described in BS EN 597-1 and BS EN 597-2.

NOTE 2 A flow diagram illustrating a systematic method for the detection of ignition throughout a test sequence is shown in Figure 1.

Figure 1 Flow diagram for detection of ignition

