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BSI Standards Publication

Child use and care articles – Safety of children's sleep bags – Safety requirements and test methods

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 28, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 30 April 2009. It was prepared by Technical Committee CW/41, *Child use and care articles*. A list of organizations represented on this committee can be obtained on request to its secretary.

Information about this document

The committee is aware that sleep bags with sleeves are available but there is limited information available regarding their use and insulation effect. This standard is based on current industry codes of practice which exclude sleep bags with sleeves. As further information becomes available it will be considered by the committee.

The committee is considering the development of a test method for assessing the requirements for neck openings.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed 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.

1 Scope

This British Standard specifies requirements for the safety of sleep bags for the use of children with a minimum weight of 4 kg designed to provide sufficient warmth so as to remove the need for additional bedding when sleeping in a cot or similar product in which a child is contained.

This standard does not apply to garments with sleeves and feet, i.e. sleep suits or baby gros, or to products designed primarily for outdoor use or to keep children warm when in a pushchair. It also does not apply to sleeping bags covered by BS EN 13537 and BS EN 13538.

NOTE Rationales for the inclusion of some of the requirements given in this standard are given in Annex A.

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 3084:2006, *Slide fasteners (Zips) – Specification*

BS 5335-1:1991, *Continental quilts – Part 1: Specification for quilts containing fillings other than feather and/or down*

BS 5335-2:2006, *Continental quilts – Part 2: Determination of thermal resistance for quilts filled with feather and/or down*

BS EN 71-1, *Safety of toys – Part 1: Mechanical and physical properties*

BS EN 71-3, *Safety of toys – Part 3: Specification for migration of certain elements*

BS EN 14878, *Textiles – Burning behaviour of children's nightwear – Specification*

BS EN 23758, *Textiles – Care labelling code using symbols (ISO 3758)*

BS EN 31092:1994, *Textiles – Determination of physiological properties – Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test) (ISO 11092:1993)*

BS EN ISO 139, *Textiles – Standard atmospheres for conditioning and testing*

BS EN ISO 5077:2008, *Textiles – Determination of dimensional change in washing and drying*

BS EN ISO 6330:2001, *Textiles – Domestic washing and drying procedures for textile testing*

BS EN ISO 7500-1:2004, *Metallic materials – Verification of static uniaxial testing machines – Part 1: Tension/compression testing machines – Verification and calibration of the force-measuring system*

BS EN ISO 10012, *Measurement management systems – Requirements for measurement processes and measuring equipment*

BS EN ISO 14184-1, *Textiles – Determination of formaldehyde – Part 1: Free and hydrolyzed formaldehyde (water extraction method)*

3 Terms and definitions

3.1 sleep bag

full length fabric bag with a neck opening and armholes but without sleeves, hood or specific areas for feet and legs, designed to contain a child and to provide sufficient warmth so as to remove the need for additional bedding when sleeping in a cot or similar product in which a child is contained

NOTE 1 The term "sleep bag" is used to differentiate from "sleeping bags" which are designed for use in leisure activities.

NOTE 2 There may be a filling material enclosed between an outer and an inner fabric.

3.2 thermal resistance

unit equal to ten times the temperature difference between the two faces of a sleep bag (in K) when the heat flow rate across the unit area is equal to 1 W/m^2

NOTE The thermal resistance of a sleep bag is also known as its tog value.

3.3 tog

unit of thermal resistance which is equal to one-tenth of a square metre kelvin per watt ($\text{m}^2 \text{ K/W}$)

NOTE 1 tog = 0.1 m² K/W.

3.4 press stud fastener

fastening consisting of male and female component parts, attached to corresponding parts of the sleep bag and fastening together by aligning and applying force

3.5 slide fastener

fastening consisting of two flexible interlocking stringers, with or without end stops, and a slider so arranged that by moving along the stringers in one direction an opening is formed, and by moving it in the other direction the opening is closed

NOTE Slide fasteners are commonly known as zips.

4 Test conditions

4.1 General

Unless otherwise stated, conditioning and testing shall be carried out in the standard atmosphere for testing textiles as defined in BS EN ISO 139.

4.2 Tolerances

Unless otherwise stated, the following tolerances shall apply:

- forces: $\pm 5\%$ of the nominal force;
- dimensions: $\pm 1.0 \text{ mm}$ of the nominal dimension.

NOTE Unless otherwise specified, the test forces may be applied by any suitable device which does not adversely affect the results.

4.3 Number of samples and order of tests

A separate sample shall be used for the thermal resistance test in 7.3.

A separate sample shall be used for the mechanical hazard testing in Clauses 7, 8, 9, 10, 11.2, 11.3 and 12, with the tests being undertaken in that order.

A separate sample shall be used for the dimensional stability test in 12.1.

5 Apparatus

5.1 Thermal resistance measuring apparatus, consistent with BS 5335-1:1991, D.2 and BS 5335-2:2006, 4.2 but with the following specific modifications.

- a) The apparatus shall be horizontal, with the heat flow upwards, designed so that measurements can be made at the upper hot face of the apparatus and in the ambient air above the quilt.
- b) The surface of the upper hot face of the apparatus shall be flat, isothermal, and be of a suitable conductive material (see BS EN 31092:1994, 5.1, paragraph 2).
- c) The central measuring area shall be a square of minimum size 200 mm × 200 mm, maximum size 350 mm × 350 mm. The guard area or effective guard area around the central measuring area shall be at least 15 mm wide.
- d) Suitable means of measuring the temperature of the measuring area shall be used.
- e) Suitable means of measuring the air temperature above the bed shall be used.
- f) Both the upper hot face temperature and the temperature of the air layer above the quilt shall be capable of being controlled to ± 2.0 °C.

5.2 Finger probe with a conical end, made from plastics or other hard smooth material, of diameter 7 mm (see Figure 1), capable of being mounted on a device for exerting a force in such a way that the conical end can be presented to openings in mesh.

5.3 Constant rate of extension (CRE) tensile-testing machine, provided with means for indicating and recording the force applied to the test specimen in stretching it to rupture. The metrological confirmation system for the tensile testing machine shall be in accordance with BS EN ISO 10012. Under conditions of use, the accuracy of the machine shall be Class 1 in accordance with BS EN ISO 7500-1:2004. The error of the indicated or recorded maximum force at any point in the range in which the machine is used shall not exceed $\pm 1\%$. The machine shall be capable of maintaining a constant rate of extension of 100 mm/min, with an accuracy of $\pm 10\%$. The machine shall be such that it is possible to set the gauge length to any value between 1.0 mm and 75 mm, to within ± 0.5 mm.

5.4 Button box with a slotted plate, for testing of buttons, tack buttons, pom-poms and beads. Examples of different types of button box are shown in Figure 2a) and Figure 2b). The box shall be of sufficient size to accommodate the attachment to be tested but the shape and dimensions of the box are not critical. The slotted plate shall be as shown in Figure 3 made from gauge plate metal (1.65 ± 0.15) mm thick. The slot width, W , shall be such that the attachment being tested can slide onto the plate without damaging the means of attachment (e.g. sewing thread or shank).

NOTE 1 The slotted plate may be an integral part of the button box, or be interchangeable to allow the testing of attachments of different sizes or types.

NOTE 2 Slot widths of (3 ± 0.2) mm, (5 ± 0.2) mm and (7 ± 0.2) mm have been found to be suitable to test the majority of attachments used on children's sleep bags.

NOTE 3 It is recommended that the button box attachment to the load cell be articulated to make it easier to slide in the component under test.

5.5 Press fastener upper grip, for testing of press fasteners, including press stud fasteners, comprising a multi-pronged claw, with a minimum of three prongs and able to grasp a minimum of 70% of the circumference of the outer rim of the fastener. The prongs shall be evenly spaced. The profile of the claw shall be such that it is capable of gripping the fastener and can be tightened to grip it firmly without causing deformation of, or damage to the integrity of, the fastener rim.

An example of a suitable grip for the testing of 13, 14 and 15 ligne (8.25 mm, 8.5 mm and 9.5 mm) press stud fasteners is shown in Figure 4.

NOTE 1 The three-pronged claw used for tension testing in accordance with BS EN 71-1 should not be used as this does not have a suitable profile for testing fasteners and could exert a shearing force rather than a direct pull.

NOTE 2 Where the outer rim of the male side of the press fastener is not grippable, an alternative grip may be used to grip the centre post.

5.6 Press fastener lower grip, for testing of press fasteners including press stud fasteners, as shown in Figure 5.

NOTE The dimensions of this grip have been found to be suitable to test the majority of press fasteners used on children's sleep bags.

5.7 Diamanté upper grip, for testing of fused or glued on diamantés >3 mm, comprising a two pronged grip, as shown in Figure 6, capable of opening sufficiently to slide over the diamanté, and sprung loaded in order to grip under the edges of the diamanté as the grip rises.

5.8 Diamanté lower grip, for testing of fused or glued on diamantés >3 mm, comprising a central post as shown in Figure 7 and a clamping ring (see Figure 7).

5.9 Flat-faced clamping device, for use as the lower grip for testing of all attachments other than press fasteners, diamantés and slide fastener puller attachments, comprising a clamping device fitted with a front jaw face (25 ± 1) mm $\times$ (25 ± 1) mm, and a back jaw face not less than (25 ± 1) mm $\times$ (50 ± 1) mm.

5.10 *Wedge-type clamping device*, for use as the upper grip for testing of fabric embellishments such as bows and labels, comprising a spring loaded wedge-type clamping device or pinch grip.

5.11 *Clamping device with hook*, as shown in BS 3084:2006, Figure B.1, for testing of embellishments attached to slide fastener pullers.

5.12 *Masking plate*, as described in BS 3084:2006, **B.2.2**, for testing of embellishments attached to slide fastener pullers.

5.13 *Washing machine*, single bath, with a process tank of (55 ± 2) L capacity, fitted with a side impeller with a diameter of 150 mm and a rotation speed of (560 ± 30) r.p.m., allowing for a continuous wash action, fitted with a temperature controller capable of maintaining wash temperatures of (40 ± 2) °C, (50 ± 2) °C and (60 ± 2) °C.

5.14 *Spin dryer*.

5.15 *Tumble dryer*, conforming to BS EN ISO 6330:2001, **5.2.1**.

5.16 *Mesh drying trays*, with a non-rusting finish, large enough for the test specimens to be laid out flat.

5.17 *Balance*, capable of weighing up to at least 2 kg with an accuracy of ± 25 g.

5.18 *Ballast pieces*, made of 100% knitted polyester texturized filament fabric having a mass per unit area of (310 ± 20) g/m². Ballast pieces shall consist of four thicknesses of fabric, overlapped together on all four sides and bar tacked at the corners. The pieces shall measure (20 ± 4) cm $\times$ (20 ± 4) cm. Each ballast piece shall weigh (50 ± 5) g.

5.19 *Thermometer*, with an accuracy of ± 2 °C.

5.20 *Timer*, capable of measuring 15 min with an accuracy of ± 30 s.

Figure 1 **Finger probe**

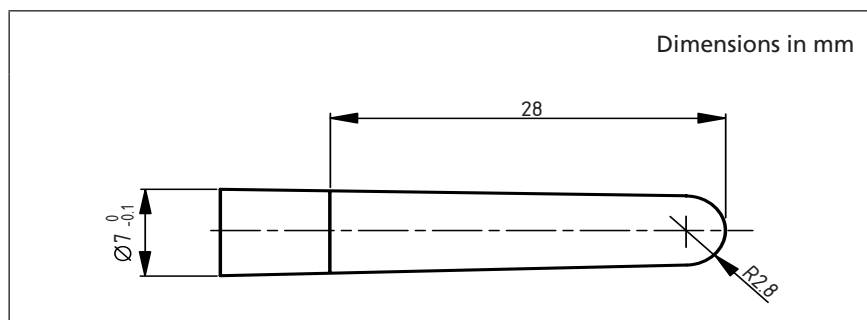
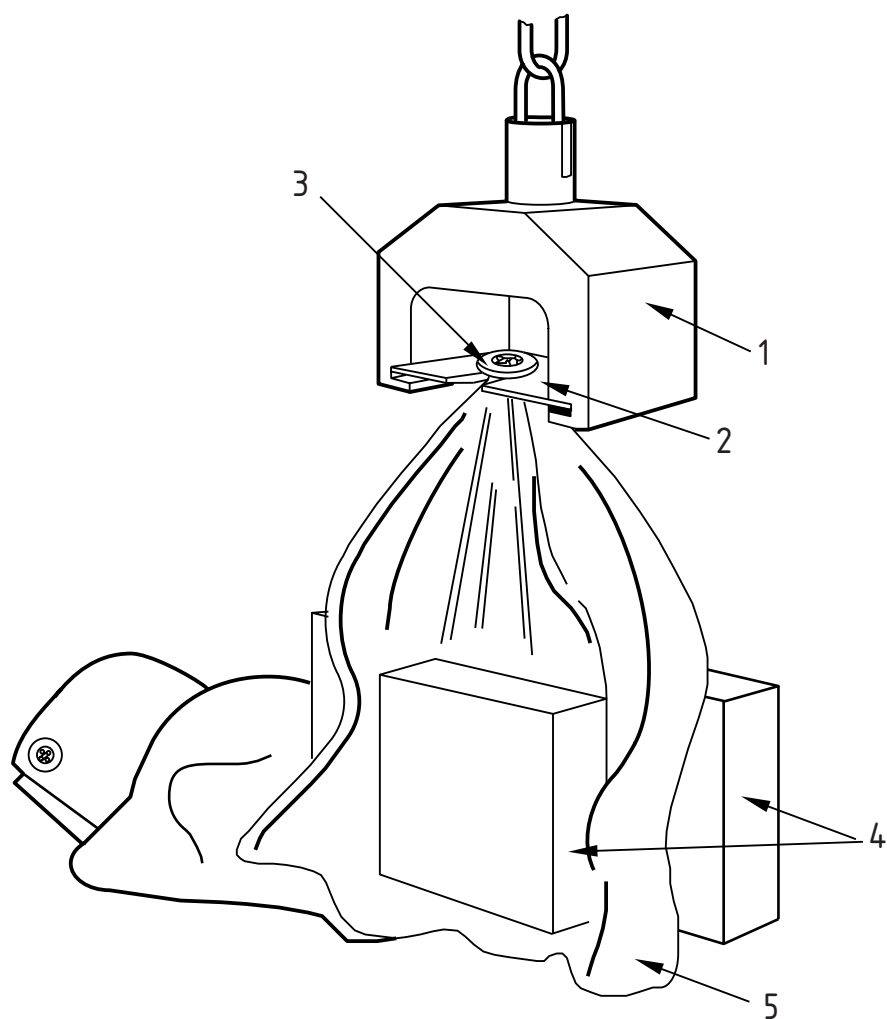


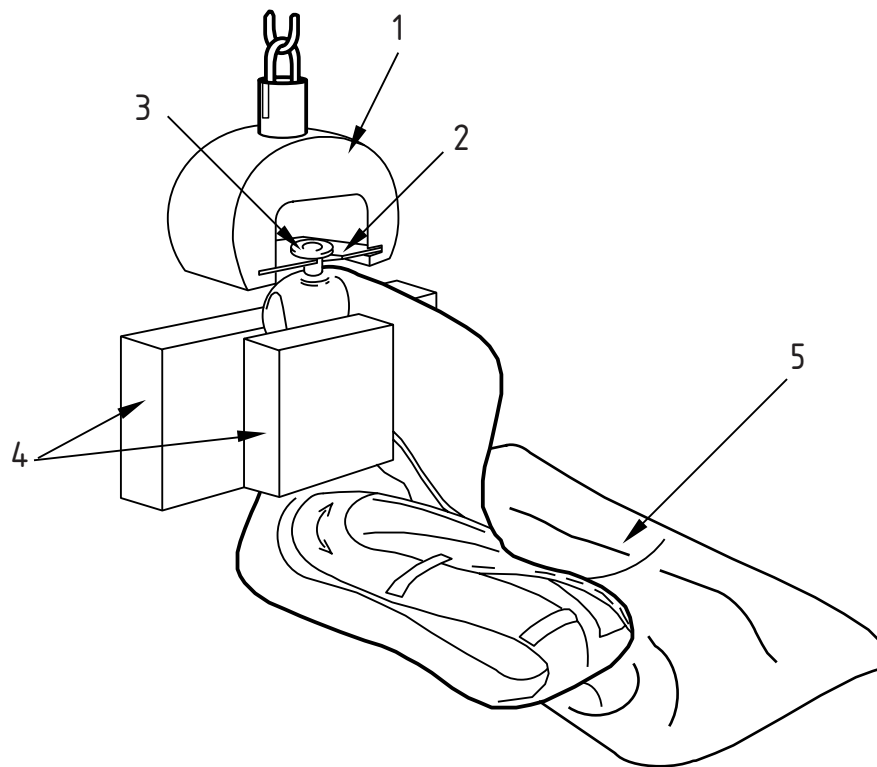
Figure 2 Examples of button boxes

**Key**

- | | |
|---------------------|------------------------------|
| 1 Button box | 4 Flat faced clamping device |
| 2 Slotted plate | 5 Sleep bag fabric |
| 3 Button under test | |

a) Example of a button box showing a button under test

Figure 2 Examples of button boxes (continued)

**Key**

- | | |
|---------------------|------------------------------|
| 1 Button box | 4 Flat faced clamping device |
| 2 Slotted plate | 5 Sleep bag fabric |
| 3 Button under test | |

b) Example of a button box showing a tack button under test