

**Explanatory
supplement to
BS 5665 “Safety of
toys”—
Part 1:1989
“Specification for
mechanical and
physical properties”**

Committees responsible for this Published Document

The preparation of this Published Document was entrusted by the Textiles and Clothing Standards Policy Committee (TCM/-) to Technical Committee TCM/15, upon which the following bodies were represented:

- Association of Consulting Scientists
- Association of Public Analysts
- British Colour Makers' Association
- British Importers' Confederation
- British Paediatric Association
- British Paper and Board Industry Federation
- British Plastics Federation
- British Retailers' Association
- British Textile Confederation
- British Toy and Hobby Association
- British Toymakers' Guild
- Child Accident Prevention Trust
- Consumer Policy Committee of BSI
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- Department of Education and Science
- Department of Health
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- Paintmakers' Association of Great Britain Ltd.
- Pressed Felt Manufacturers' Association
- Royal Society for the Prevention of Accidents
- Society of British Printing Ink Manufacturers
- Toy and Giftware Importers Association

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National foreword

This Published Document has been prepared under the direction of the Textiles and Clothing Standards Policy Committee, and is the English language version of a report prepared by CEN/TC52 “*Safety of toys*”. The report was prepared as a result of the urgent need for additional information to enable BS 5665-1:1989 (EN 71-1:1988) to be uniformly applied.

It is expected that much of the content of this document will be incorporated into a revision of EN 71-1, and hence this Published Document will be withdrawn on publication of the revision of BS 5665-1:1989 (EN 71-1).

Although there is a need for similar explanatory supplements for BS 5665-2:1989 and BS 5665-3:1989 (EN 71-2 and EN 71-3), it is unlikely that these will be prepared in the time available and hence additional information will be included in the next revisions of these standards, which are in preparation.

NOTE The numbering of the paragraphs in the text refers to clauses of BS 5665-1:1989.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Introduction

This guidance on interpretation of EN 71-1 has been prepared to enable users to apply the standard uniformly.

This document does not attempt to vary the requirements of the standard in any way. Its aim is to offer guidance on interpretation of the requirements. It is based on a vast amount of practical experience.

This document includes proposed definitions, test methods and interpretations for EN 71-1. References to certain source materials are also included.

3.1.1 Flexible plastics sheeting

Definition

backing: A material adhering to the flexible plastics sheeting over any area of minimum dimensions 100 mm × 100 mm.

NOTE A recommended method of test is described in clause 5 of this document.

The thickness requirement applies to perforated film whose minimum hole area for any area of dimensions 30 mm × 30 mm is less than 1 %.

3.1.2 Wood

loose knots: Knots removed under a force of 2 N. For toys intended for children of less than 36 months the requirements of 3.2.2 apply.

splinter: A pointed or sharp edged fragment.

3.1.3 Glass

Toys containing glass fail when used in toys intended for children under 36 months.

Several methods exist to distinguish borosilicate glass, e.g. by specific gravity or refractive index. A recommended method is described below:

Reagents

Bromoform

Methanol

Procedure

Examine the toy for glass, concealed or not. If glass is present assess whether it is necessary to the function of the toy and note whether the toy is intended for children under three years. If any material appears doubtful, place an edge in a bunsen burner flame. Note if edges are rounded and/or protected. Note if the glass is necessary for the function of the toy. If it behaves as glass, note if it shows a bright yellow flame and melts easily (soda glass) or no such flame and melts with difficulty (borosilicate glass). Confirm the type of glass by determining the density if this is necessary because it may be heated.

Make sure the glass fragment is clean. Use a 50 cm³ vol. cylinder. Using a bromoform/methanol mixture in the cylinder and placing the cylinder in a 20 °C water bath add bromoform or methanol until the glass neither floats nor sinks (relative density of glass = relative density of liquid). Determine the specific gravity.

(2.40 ± 0.05) Sheet window

(2.48 ± 0.05) Soft soda

(2.25 ± 0.05) Borosilicate (Pyrex)

(2.21 ± 0.05) Fused silica (Vitreosil)

Reference

Analyst, 1940 p 126, H Moore.

3.1.4 Stuffing materials

Definitions

soft: Easily yields under pressure.

granule: A particle with a discrete three dimensional form approximating to a cube or sphere (e.g. expanded polystyrene), but excluding fibrous materials.

Interpretation

For granules the 3 mm limitation relates to the maximum dimension of a granule, e.g. the diagonal of a cuboid. A method of describing use of a 3 mm sieve specifying a maximum 5 % passing through to be included.

3.1.5 Expanding materials

Interpretation

All dimensions x, y and z directions need to increase simultaneously by more than 5 % in order for the item to fail.

If the item cannot be removed using tongs by virtue of it breaking up through not having sufficient mechanical strength, it passes this requirement.

3.2.1.1 Edges

Definitions

edge: The line formed at the junction of two surfaces the length of which exceeds 2.0 mm.

accessible: Able to be contacted by the relevant probe of 4.17.

protected: Shielded to such a degree that the edge no longer presents an unreasonable risk of injury bearing in mind the age grade, foreseeable use of the toy and location of the edge. In order to provide adequate protection a coating will not be removed when a finger nail is drawn across the edge.

plastic: High molecular weight, solid polymeric substance.

burr: A roughness found along part of an edge, caused by not cleanly severing or finishing the material.

overlap joint: A joint in which an edge overlaps a parallel surface but is not necessarily mechanically attached to it at all points along the length (see Figure 2, EN 71/1, p 8).

References

The Oxford English Dictionary

ASTM F963

Regulations published under the Federal Hazardous Substances Act, Chapter 2, Title 16, Part 1500, Paragraph 1500

EN 71.1:1988, 4.18, 3.2.2.2 c, 3.2.1.1

Testing protocol

Edge thickness. Measure the thickness using calipers. Record to ± 0.05 mm.

Burr. Check by visual inspection. Use a finger to establish the presence of burr. To fail the requirement, the roughness needs to be sufficient to fail the sharp edge test.

Test method for the determination of thickness

The thickness of the sheet metal is measured with a metric micrometer by bending the metal providing that a flat surface is always offered up to the micrometer. Note particularly that we are concerned only with the edge thickness which may be tapered in some cases to a “knife” edge. In such cases we cannot quote a precise thickness but can refer to it as a “knife edge less than 0.5 mm” in the test report.

There should be no significant burr on sheet metal regardless of the thickness. After assessment of any burr they should be carefully removed with a file before measuring thickness of the sheet metal.

Interpretation

Accessibility is checked using the relevant accessibility probe specified in 4.17.

Thin metal sheet should only be considered as foil if light pressure on the edge with a finger causes the metal to fold or collapse, e.g. kitchen foil.

The accessibility of the edges of sheet metal whose surface is adjacent to a non-metal surface e.g. a strip-metal battery contact in a battery compartment, is checked using the appropriate probe.

Plating is not sufficient to protect edges. Paint protects only if it is thick enough to cover the edges properly and not run away from them. It should not be possible to remove any protective coating with a finger nail.

The edges of small pop-fasteners should not be considered accessible provided they are properly fixed to reasonably thick textile material.