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Safety of toys - Part 1: Mechanical and physical properties - Amendment A8

Sicherheit von Spielzeug - Teil 1: Mechanische und physikalische Eigenschaften

Sécurité des jouets - Partie 1 : Propriétés mécaniques et physiques

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Safety of toys - Part 1: Mechanical and physical properties

Sécurité des jouets - Partie 1 : Propriétés mécaniques et physiques - Amendement 8 concernant les aimants dangereux dans les jouets

Sicherheit von Spielzeug - Teil 1: Mechanische und physikalische Eigenschaften

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 52.

This draft amendment A8, if approved, will modify the European Standard EN 71-1:2005. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 71-1:2005/prA8:2008) has been prepared by Technical Committee CEN/TC 52 “Safety of toys”, the secretariat of which is held by DS.

This document is currently submitted to the Unique Acceptance Procedure.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this document.

1 Modification to the Scope

In the 6th paragraph, replace "EN 50088, *Safety of electric toys*" *with* "EN 62115, Electric toys - Safety".

2 Modification to Clause 3

Add the following definitions:

"

3.43
magnetic component
any part of a toy which contains an attached or fully or partially enclosed magnet

3.44
magnetic/electrical experimental set
toy containing one or more magnets intended for carrying out educational experiments involving magnetism and electricity

3.45
functional magnet in electrical or electronic components of toys
any magnet necessary for the function of motors, relays, speakers and other electrical or electronic components in a toy where the magnetic properties are not part of the play pattern of the toy"

3 Addition of 4.23

Add the following subclause 4.23:

"

4.23 Magnets (see A.51)

4.23.1 General

The requirements in 4.23.2 do not apply to *functional magnets in electrical or electronic components of toys*.

The requirement in 4.23.3 does not apply to *magnetic/electrical experimental sets* in which all magnets have a magnetic flux index less than 50 kG^2mm^2 (0,5 T^2mm^2) when tested according to 8.35 (magnetic flux index), or do not fit entirely in the cylinder when tested according to 8.2 (small parts cylinder).

4.23.2 Toys other than magnetic/electrical experimental sets

a) Any loose as-received magnet(s) and *magnetic component(s)* shall either have a magnetic flux index less than 50 kG^2mm^2 (0,5 T^2mm^2) when tested according to 8.35 (magnetic flux index), or shall not fit entirely in the cylinder when tested according to 8.2 (small parts cylinder).

b) Any magnet(s) and *magnetic component(s)* that become(s) released from a toy when tested according to 8.3 (torque test), 8.4.2.1 (tension test, general), 8.4.2.2 (tension test, seams and materials), 8.5 (drop test), 8.7 (impact test), 8.8 (compression test), and finally, for magnets that are *accessible* but not grippable (as specified in 8.4.2.1), 8.34 (tension test for magnets), shall either have a magnetic flux index less than 50 kG^2mm^2 (0,5 T^2mm^2) when tested according to 8.35 (magnetic flux index), or shall not fit entirely in the cylinder when tested according to 8.2 (small parts cylinder).

NOTE An example of a magnet that is accessible but not grippable could be a magnet that is recessed.

c) Wooden toys, toys intended to be used in water, and mouth-actuated toys shall be tested according to 8.9 (soaking test) before being tested according to 4.23.2 b) above.

4.23.3 Magnetic/electrical experimental sets

Magnetic/electrical experimental sets intended for children over 8 years shall carry a warning (see 7.19)."

4 Modification to 7.14

Amend the title of 7.14 to read as follows:

"Acoustics (see 4.19 and 4.20 f))".

5 Addition of 7.19

Add the following subclause 7.19:

"

7.19 Magnetic/electrical experimental sets (see 4.23 and A.51)

The packaging and the instructions for use of *magnetic/electrical experimental sets* shall carry the following warning:

> “WARNING! Not suitable for children under 8 years. This product contains (a) small magnets(s). Swallowed magnets can stick together across intestines causing serious injuries. Seek immediate medical attention if magnet(s) are swallowed”.

This warning is not required for *magnetic/electrical experimental sets* in which all magnets have a magnetic flux index less than 50 kG^2mm^2 (0,5 T^2mm^2) when tested according to 8.35 (magnetic flux index), or do not fit entirely in the cylinder when tested according to 8.2 (small parts cylinder)."

6 Addition of 8.34

Add the following subclause 8.34:

"

8.34 Tension test for magnets (see A.51)

8.34.1 Principle

Either a magnet or a magnetic component, or a reference disc, is used in order to test whether an *accessible* but not grippable magnet in the toy can be detached by a magnetic pulling force.

The test shall simulate the intended or a reasonably foreseeable play pattern.

8.34.2 Toys that contain more than one magnet or magnetic component

Identify the magnet or magnetic component in the toy that is most likely to be able to detach the magnet that is to be subjected to the tension test.

Without damaging the toy, place the magnet or magnetic component as close as possible to the magnet to be tested. Gradually apply a pulling force to the magnet/magnetic component until it separates from the tested magnet or until the magnet is detached from the toy. Perform the test 10 times.

Repeat the procedure for any other magnet that according to 4.23.2 shall be subjected to the tension test for magnets.

NOTE If it is not possible to determine which magnet or magnetic component(s) in the toy that is most likely to be able to detach the magnet that is to be subjected to the test, it is permissible to repeat the test with another magnet or magnetic component from the toy.

8.34.3 Toys that contain one magnet only

8.34.3.1 Apparatus

A nickel disc with a minimum nickel content of 99 %, and having the following dimensions:

- diameter (30 ± 0,5) mm

- length (10 ± 0,5) mm

and having a surface roughness Ra according to EN ISO 4287 which is not greater than 0,40 µm.

8.34.3.2 Procedure

Without damaging the toy, place the flat part of the nickel disc as close as possible to the magnet to be tested.

Gradually apply a pulling force to the disc until it separates from the magnet or until the magnet is detached from the toy. Perform the test 10 times."

7 Addition of 8.35

Add the following subclause 8.35:

"

8.35 Magnetic flux index

8.35.1 Principle

The magnetic flux index is calculated based on the results from measurements of the flux density and the pole surface area.

8.35.2 Apparatus

8.35.2.1 Direct current field Gauss meter which is capable of determining the field to an accuracy of 5 G.

The meter shall have an axial type probe with

- an active area diameter of (0,76 ± 0,13) mm

- a distance between the active area and probe tip of (0,38 ± 0,13) mm.

8.35.2.2 Calliper square or similar device capable of determining dimensions to an accuracy of 0,1 mm.

8.35.3 Procedure

8.35.3.1 Measurement of flux density

Place the tip of the Gauss meter's probe in contact with the pole surface of the magnet. For a *magnetic component* (where the magnet is fully or partially imbedded in part of the toy), place the tip of the probe in contact with the surface of the component.

Maintain the probe in a position perpendicular to the surface.

Move the probe across the surface to locate the maximum flux density.

Record the maximum flux density with an accuracy of ± 5 G.

8.35.3.2 Measurement and calculation of the pole surface area

If the magnet is imbedded/attached as part of a *magnetic component*, extract the magnet from the component even if it is necessary to break the toy.

If the pole is not flat (for example, hemispherical), measure the maximum diameter of the magnet perpendicular to an axis through the magnet poles (see Figure 32), with an accuracy of ± 0,1 mm and calculate the area of the corresponding cross-section.

If the pole surface of the magnet is flat, measure the dimensions with an accuracy of ± 0,1 mm and calculate the area using the appropriate geometric formula.

For multi-pole magnets measure and calculate the area of the largest single pole, which can be identified using magnetic field viewing film or equivalent.

NOTE An example of multi-pole magnet is a rubberized/plastoferrite magnet, consisting of multiple strips of poles.

8.35.4 Calculation of magnetic flux index

The flux index ($kG^2\,mm^2$) is calculated by multiplying the calculated area of the pole surface (mm^2) of the magnet by the square of the maximum flux density (kG^2).