



**SLOVENSKI STANDARD**  
**SIST EN 71-2:2006**

**01-marec-2006**

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**SIST EN 71-2:2003**

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Safety of toys - Flammability

Sicherheit von Spielzeug - Teil 2: Entflammbarkeit

Sécurité des jouets - Inflammabilité

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**ICS:**

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|-----------|--|--|
| 13.220.40 | Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju | Ignitability and burning behaviour of materials and products |
| 97.200.50 | Q æ^   | Toys   |

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English Version

## Safety of toys - Part 2: Flammability

Sécurité des jouets - Partie 2: Inflammabilité

Sicherheit von Spielzeug - Teil 2: Entflammbarkeit

This European Standard was approved by CEN on 30 November 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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## Foreword

This European Standard (EN 71-2:2006) has been prepared by Technical Committee CEN/TC 52 "Safety of toys", the secretariat of which is held by DS.

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of an identical text or by endorsement, at the latest by July 2006, and conflicting national standards shall be withdrawn at the latest by July 2006.

This document supersedes EN 71-2:2003.

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

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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## Introduction

This European Standard for the safety of toys consists of the following parts:

Part 1: *Mechanical and physical properties*

Part 2: *Flammability*

Part 3: *Migration of certain elements*

Part 4: *Experimental sets for chemistry and related activities*

Part 5: *Chemical toys (sets) other than experimental sets*

Part 6: *Graphical symbol for age warning labelling*

Part 7: *Finger paints — Requirements and test methods*

Part 8: *Swings, slides and similar activity toys for indoor and outdoor family domestic use*

Part 9: *Organic chemical compounds — Requirements*

Part 10: *Organic chemical compounds — Sample preparation and extraction*

Part 11: *Organic chemical compounds — Methods of analysis*

This European Standard is Part 2 of the standard for safety of toys, EN 71, and should be read in conjunction with Part 1.

There are very few accident data concerning the hazards associated with the flammability of toys.

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## 1 Scope (see A.2)

This European Standard specifies the categories of flammable materials which are prohibited in all toys, and requirements concerning *flammability* of certain toys when they are subjected to a small source of ignition.

The test methods described in Clause 5 are used for the purposes of determining the *flammability* of toys under the particular test conditions specified. The test results thus obtained cannot be considered as providing an overall indication of the potential fire hazard of toys or materials when subjected to other sources of ignition.

This European Standard includes general requirements relating to all toys and specific requirements and methods of test relating to the following toys, which are considered as being those presenting the greatest hazard:

- toys to be worn on the head: beards, moustaches, wigs etc. made from *hair*, pile or material with similar features; moulded and fabric masks; hoods, head-dresses etc.; flowing elements of toys to be worn on the head, but excluding paper novelty hats of the type usually supplied in party crackers;
- toy disguise costumes and toys intended to be worn by a child in play;
- toys intended to be entered by a child;
- *soft-filled* toys (animals and dolls etc.) with a piled surface or textile surface.

NOTE Additional requirements for *flammability* of electric toys are specified in EN 50088, *Safety of electric toys* and EN 62115, *Electric toys - Safety (IEC 62115 : 2003 + A1 : 2004, modified)*.

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## 2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 71-5:1993, *Safety of toys — Part 5: Chemical toys (sets) other than experimental sets*

EN ISO 2431:1996, *Paints and varnishes — Determination of flow time by use of flow cups (ISO 2431 :1993, including Technical Corrigendum 1:1994)*

EN ISO 6941:2003, *Textile fabrics — Burning behaviour — Measurement of flame spread properties of vertically oriented specimens (ISO 6941:2003)*

## 3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

NOTE Terms defined in this clause appear in italics throughout this European Standard.

### 3.1

#### **flammability**

ability of a material or a product to burn with a flame under specified test conditions

### 3.2

#### **flaming debris**

material that becomes detached from the sample during the test procedure and continues to flame as it falls

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### 3.3

#### **hair**

slender flexible fibres intended to represent *hair* (see 4.2)

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### 3.4

#### **soft-filled toys**

toy, clothed or unclothed, with soft body surfaces and filled with soft material, allowing compression of the main part of the toy readily with the hand (see EN 71-1)

### 3.5

#### **surface flash**

rapid spread of flame over the surface of a material without ignition of its base structure at the same time [EN 1103:1995]

### 3.6

#### **molten drips**

falling droplets of molten material

### 3.7

#### **flammable liquids**

preparations having a flash point equal to or greater than 21 °C and less than or equal to 55 °C

### 3.8

#### **highly flammable liquids**

preparations having a flash point below 21 °C



## 4 Requirements

### 4.1 General (see A.3)

The following materials shall not be used in the manufacture of toys:

- celluloid (cellulose nitrate), except when used in varnish, paint or glue, or in balls of the type used for table tennis or similar games, and materials with the same behaviour in fire as celluloid. Specific materials to which the test flame is applied in order to check compliance of the toy with requirements in 4.2 to 4.5 are considered to comply with this requirement if the toy meets its appropriate requirements in 4.2 to 4.5;
- materials with a piled surface which produce *surface flash* on the approach of a flame. Piled surfaces showing no momentary area of flame over the area of the piled surface remote from the test flame are considered to meet this requirement;
- highly flammable solids.

In addition, toys shall not contain flammable gases, *highly flammable liquids*, *flammable liquids*, flammable gels except as provided for below:

- *flammable liquids*, flammable gels and preparations supplied in sealed containers having a maximum volume of 15 ml per container;
- *highly flammable liquids* and *flammable liquids* being entirely retained within a porous material in capillary channels of writing instruments;
- *flammable liquids* with a viscosity greater than  $260 \times 10^{-6} \text{ m}^2/\text{s}$  corresponding to a flow time of more than 38 s when determined in accordance with EN ISO 2431 using cup No. 6;
- *highly flammable liquids* contained in toys covered in EN 71-5.

NOTE Different legal requirements may exist in non-EU countries.

### 4.2 Toys to be worn on the head

#### 4.2.1 General

The requirements of 4.2 apply to

- beards, moustaches, wigs etc. made from *hair*, pile or material with similar features,
- moulded and fabric masks,
- hoods, head-dresses etc.,
- flowing elements of toys to be worn on the head,

but not to paper novelty hats of the type usually supplied in party crackers (see A.4).

When a product incorporates several features, for example a hat with an attached mask and *hair*, each part shall be tested separately to the applicable clause relevant to that particular part of the toy.

Attachments made from elastic or string which are used for the purpose of securing a mask, hat etc. on the head shall not be tested.

**4.2.2 Beards, moustaches, wigs etc., made from *hair*, pile or material with similar features (e.g. free-hanging ribbons, paper or cloth strands etc.), which protrude more than or equal to 50 mm from the surface of the toy**

These materials may or may not be attached to masks, hats or other products worn on the head.

When tested in accordance with 5.2, the duration of flaming shall not be more than 2 s after the removal of the test flame.

In addition, if ignition occurs, the maximum burnt length of *hair*, pile, or material with similar features shall be:

- a) not more than 50 % of the greatest initial length, when the initial length was 150 mm or more;
- b) not more than 75 % of the greatest initial length, when the initial length was less than 150 mm

When determining whether materials are required to be tested under 4.2.2, the distance by which the material protrudes shall be measured without applying tension to the protruding part, e.g. curly *hair* is not straightened. Plaits or braided *hair* shall be fully released and combed, where possible, before testing.

**4.2.3 Beards, moustaches, wigs etc. made from *hair*, pile or material with similar features (e.g. free-hanging ribbons, paper or cloth strands etc.), which protrude less than 50 mm from the surface of the toy**

These materials may or may not be attached to masks, hats or other products worn on the head.

When tested in accordance with 5.3, the duration of flaming shall not be more than 2 s after the removal of the test flame, and the maximum distance between the upper edge of the burnt area and the point of application of the test flame shall not be more than 70 mm.

**4.2.4 Full or partial moulded head masks**

When tested in accordance with 5.3, the duration of flaming shall not be more than 2 s after the removal of the test flame. The maximum distance between the upper edge of the burnt area and the point of application of the test flame shall not be more than 70 mm. Cardboard partial masks with no *hair*, pile or other attachments (other than those for securing the toys) are excluded.

**4.2.5 Flowing elements of toys to be worn on the head (except those covered by 4.2.2 and 4.2.3), hoods, head-dresses etc. and fabric masks which partially or fully cover the head, but excluding those items covered by 4.3**

When tested in accordance with 5.4, the rate of spread of flame of the material shall not exceed 10 mm/s or shall self-extinguish before the second marker thread is severed.

**4.3 Toy disguise costumes and toys intended to be worn by a child in play (see A.5)**

These include for example cowboy suits, nurses outfits etc. and long flowing capes etc. not attached to headwear covered by 4.2.5.

If there is insufficient material to obtain a test sample of at least 610 mm x 100 mm, it is permissible to use a test sample made up of two separate pieces of material measuring 310 mm x 100 mm which - when fitted together with an overlap of 10 mm (see 5.4.1) - will constitute a test sample of 610 mm x 100 mm.

When tested in accordance with 5.4, the rate of spread of flame shall not exceed 30 mm/s or shall self-extinguish before the second marker thread is severed.

If the rate of spread of flame is between 10 mm/s and 30 mm/s, both the toy and the packaging shall be permanently marked with the following warning: **“Warning! Keep away from fire”**.

#### 4.4 Toys intended to be entered by a child (see A.6)

These include for example toy tents, puppet theatres, wigwams and play tunnels.

When tested in accordance with 5.4, the rate of spread of flame shall not exceed 30 mm/s or shall self-extinguish before the second marker thread is severed.

When tested in accordance with 5.4, if the sample has a rate of spread of flame greater than 20 mm/s, there shall be no *flaming debris* or *molten drips*.

If the material has non-identical surfaces, both sides shall be tested.

If the rate of spread of flame is between 10 mm/s and 30 mm/s, both the toy and the packaging shall be permanently marked with the following warning: “**Warning! Keep away from fire**”.

Where there is insufficient material to give a test sample of at least 610 mm x100 mm, it is permissible to use a test sample made up of two separate pieces of material measuring 310 mm x 100 mm which - when fitted together with an overlap of 10 mm (see 5.4.1) - will constitute a test sample of 610 mm x100 mm.

#### 4.5 Soft-filled toys (animals and dolls, etc.) with a piled or textile surface

##### 4.5.1 General

The requirements of this clause do not apply to toys with a maximum dimension of 150 mm or less. A toy shall be tested as supplied, including any clothing present with the toy and, if considered to be more onerous, with the clothes removed if removal can be accomplished without damage to the clothes or toy.

##### 4.5.2 Soft-filled toys with a maximum dimension of 520 mm or less

When tested in accordance with 5.5, the rate of spread of flame on the surface shall not be more than 30 mm/s.

##### 4.5.3 Soft-filled toys with a maximum dimension greater than 520 mm

When tested in accordance with 5.6, the rate of spread of flame on the surface shall not be more than 30 mm/s.

## 5 Test methods

### 5.1 General

#### 5.1.1 Test burner

The test flame shall be obtained from a burner as described in EN ISO 6941:2003, Annex A and shall be operated with butane or propane gas.

#### 5.1.2 Conditioning and test chamber

Before each test, the toys or samples shall be conditioned for at least 7 h in an atmosphere having a temperature of  $(20 \pm 5)$  °C and a relative humidity of  $(65 \pm 5)$  %.