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Varnost igráč - 2. del: Vnetljivost

Safety of toys - Part 2: Flammability

Sicherheit von Spielzeug - Teil 2: Entflammbarkeit

Sécurité des jouets - Partie 2: Inflammabilité

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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 28 September 2020.

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 CEN-CENELEC Management Centre or to any CEN member.

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

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Contents	Page
European foreword.....	4
Introduction	6
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Requirements	9
4.1 General requirements	9
4.2 Toys to be worn on the head (see A. 3)	9
4.2.1 General	9
4.2.2 Beards, moustaches, wigs, etc., made from pile or flowing elements which protrude 50 mm or more from the surface of the toy	10
4.2.3 Beards, moustaches, wigs, etc., made from pile or flowing elements which protrude less than 50 mm from the surface of the toy	10
4.2.4 Full or partial moulded head masks	10
4.2.5 Toys to be worn on the head (except those covered by 4.2.2 and 4.2.3), hoods, headdresses including upward protruding items and masks not covered by 4.2.4 which partially or fully cover the head (e.g. fabric and paperboard masks, eye masks, face masks), but excluding those items covered by 4.3	10
4.3 Toy disguise costumes and toys intended to be worn by a child in play (see A.4)	10
4.4 Toys intended to be entered by a child (see A.5)	11
4.5 Soft-filled toys (see A.6)	11
5 Test methods	11
5.1 General	11
5.1.1 Test burner	11
5.1.2 Conditioning and test chamber	11
5.1.3 Test flame	12
5.2 Test relating to beards, moustaches, wigs, etc., made from pile or flowing elements, which protrude 50 mm or more from the surface of the toy	12
5.2.1 Test flame	12
5.2.2 Test burner position	12
5.2.3 Test performance	12
5.3 Test relating to beards, moustaches, wigs, etc., made from pile or flowing elements, which protrude less than 50 mm from the surface of the toy, and full or partial moulded head masks (see A.7)	12
5.3.1 Test flame	12
5.3.2 Test burner position	12
5.3.3 Test performance	12
5.4 Test relating to toys to be worn on the head (4.2.5), hoods, headdresses including upward protruding items and masks not covered by 4.2.4 which partially or fully cover the head (e.g. fabric and paperboard masks, eye masks, face masks), toy disguise costumes and toys intended to be worn or toys intended to be entered by a child (see A.8)	12
5.4.1 Preparation of test specimen	13
5.4.2 Holding and positioning the test specimen	16
5.4.3 Test flame	17
5.4.4 Test burner position	17
5.4.5 Test performance	18
5.4.6 Results	18

5.5	Test for soft-filled toys and certain soft-filled parts of toy disguise costumes.....	19
5.5.1	Test flame	19
5.5.2	Test burner position.....	19
5.5.3	Test performance	19
Annex A (informative) Background and rationale for this document.....		20
A.1	General	20
A.2	General requirements (see 4.1)	20
A.3	Toys to be worn on the head (see 4.2)	20
A.4	Toy disguise costumes and toys intended to be worn by a child in play (see 4.3).....	26
A.5	Toys intended to be entered by a child (see 4.4)	27
A.6	Soft-filled toys (see 4.5).....	27
A.7	Test relating to toy disguise costumes and toys intended to be entered by a child (see 5.4).....	28
A.8	Suggestions to help reduce rate of spread of flames for toy disguise costumes.....	28
A.9	Flowcharts showing how to obtain test specimens from toy disguise costumes	29
Annex B (informative) Significant technical changes between this European and the previous version		32
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2009/48/EC aimed to be covered.....		34
Bibliography		35

SIST EN 71-2:2021

<https://standards.iteh.ai/catalog/standards/sist/5b19fbfc-ba0b-4d6d-903b-dd4ad0346c6d/sist-en-71-2-2021>

EN 71-2:2020 (E)**European foreword**

This document (EN 71-2:2020) 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 June 2021, and conflicting national standards shall be withdrawn at the latest by December 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 71-2:2011+A1:2014.

Additional information on the background and rationale for various requirements are given in Annex A.

Annex B provides details of significant technical changes between this document and the previous edition.

This document has been prepared under mandate M/445 given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2009/48/EC.

For relationship with EU Directive 2009/48/EC, see informative Annex ZA, which is an integral part of this document.

This document constitutes the second part of the EN 71 series of standards on safety of toys.

EN 71, *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 7: Finger paints — Requirements and test methods*
- *Part 8: Activity toys for 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*
- *Part 12: N-Nitrosamines and N-nitrosatable substances*
- *Part 13: Olfactory board games, cosmetic kits and gustative games*
- *Part 14: Trampolines for domestic use*

NOTE 1 In addition to the above parts of EN 71, the following guidance documents have been published:

- CEN/TR 15071, Safety of toys — National translations of warnings and instructions for use in *EN 71*, and
- CEN/TR 15371 (all parts), *Safety of toys — Interpretations*
- CEN/TR 16918, *Safety of toys - Children's mouthing behaviour in contact with toys*
- CEN ISO/TR 8124-8, *Safety of toys – Age determination guidelines*

NOTE 2 Words in italics are defined in Clause 3 (Terms and definitions).

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

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Introduction

This document aims at reducing, as far as possible, those hazards which are not evident to users; it does not cover inherent hazards that are obvious to children or the persons in charge of them. Assuming that the toys are used in the intended manner, they should not present any further hazard to children for whom they are intended (according to the Directive 2009/48/EC “intended for use by” means that a parent or supervisor shall reasonably be able to assume by virtue of the functions, dimensions and characteristics of a toy that it is intended for use by children of the stated age group). Allowance should also be made for foreseeable use, bearing in mind the behaviour of children who do not generally share the same degree of care as the average adult user.

As a general rule, toys are designed and manufactured for particular ages of children. Their characteristics are related to the age and stage of development of the children, and their use presupposes certain aptitudes.

Accidents are frequently due to a toy either being given to a child for whom it is not intended or being used for a purpose other than that for which it was designed. Great care should therefore be taken when choosing a toy; account should be taken of the mental and physical development of the child who will be using it.

The requirements of this document do not release parents or carers from their responsibility of supervising the child while he or she is playing.

1 Scope

This document 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 are not considered as providing an overall indication of the potential fire hazard of toys or materials when subjected to other sources of ignition.

This document 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 pile or *flowing elements*; masks; hoods, headdresses, etc.; However, paper and paperboard hats without embellishments or attachments are excluded;
- toy *disguise costumes* and toys intended to be worn by a child in play;
- *toys intended to be entered by a child* and constructed from textiles and/or polymer sheets and films;
- *soft-filled toys*.

NOTE Additional requirements for *flammability* of electric toys are specified in EN 62115[2]

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN ISO 2431:2019, *Paints and varnishes - Determination of flow time by use of flow cups (ISO 2431:2019)*

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 document, the following terms and definitions apply:

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia. available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

chemical toy

toy intended for the direct handling of chemical substances and mixtures and which is used in a manner appropriate to a given age-group and under the supervision of an adult

[SOURCE EN 71-4:2013[3]]

3.2

cleansing

wipe with dry or damp cloth to remove surface soiling

3.3

extremely flammable liquid

liquid having a flash point < 23 °C and initial boiling point ≤ 35 °C

[SOURCE REGULATION (EC) No 1272/2008[4]]

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3.4

flaming debris

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

3.5

flammability

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

3.6

flammable gas

gas or gas mixture having a flammable range with air at 20 °C and a standard pressure of 101,3 kPa

[SOURCE REGULATION (EC) No 1272/2008[4]]

3.7

flammable liquid

liquid having a flash point ≥ 23 °C and ≤ 60 °C

[SOURCE REGULATION (EC) No 1272/2008[4]]

3.8

flowing elements

loosely hanging elements having the ability to flow like hair, to hang closely to the shape of the head and continue to move on their own after the head is rotated then stopped

EN 71-2:2020 (E)

Note 1 to entry: Imitation hair, free hanging ribbons, paper or cloth strands are examples of flowing elements.

3.9**highly flammable liquid**

liquid having a flash point < 23 °C and initial boiling point > 35 °C

[SOURCE REGULATION (EC) No 1272/2008[4]]

3.10**highly flammable solid**

material with similar behaviour in fire as celluloid (cellulose nitrate), i.e. ignites instantaneously as a result of a brief contact with a flame and proceeds to burn very rapidly

Note 1 to entry: Further information is provided in A.2.

3.11**molten drips**

falling droplets of molten material

3.12**moulded head mask**

mask that is moulded to the contours of the head or face

3.13**soft-filled toy**

toy, with soft body surfaces and filled with soft material, readily allowing compression of the main part of the toy with the hand

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3.14**surface flash**

rapid spread of flame over the surface of a material without ignition of its base structure at the same time

3.15**toy disguise costume**

costume intended to be worn by children to facilitate imaginative play where the child pretends to be a character

Note 1 to entry: Costumes and garments for children less than 12 months old are not regarded as toy disguise costumes since such children are unable to engage in character role-play (see A.4).

Note 2 to entry: A toy disguise costume can be a single article or a clothing ensemble with multiple articles. A wizard's cloak or a princess's dress are examples of single article toy disguise costumes. A superhero's cape and bodice and gloves are examples of a clothing ensemble with multiple articles.

3.16**toys intended to be entered by a child**

toy constructed from fabric and/or polymer sheets and films that are intended to fully or almost fully enclose a child on all sides

Note 1 to entry: Tents, puppet theatres, wigwams, tepees and play tunnels are examples of toys intended to be entered by a child.

3.17**washing**

process designed to clean textile articles in an aqueous bath

Note 1 to entry: Washing includes all or some of the following operations in relevant combinations:

- soaking, pre-washing and main washing - carried out usually with heating, mechanical action and in the presence of detergents or other products - and rinsing;
- water extraction, i.e. spinning or wringing performed during and/or at the end of the operations mentioned above.

These operations may be carried out by machine or by hand

[SOURCE EN ISO 3758 [5]]

4 Requirements

4.1 General requirements

The following materials shall not be present in 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;
- *highly flammable solids* (see A.2);
- materials with a piled surface which produce *surface flash* when a flame is applied to the tested material under the conditions described in 5.5. 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.

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 the above requirements if the toy meets its appropriate requirements in 4.2 to 4.5.

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

- *flammable liquids* and flammable gels 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 2431:2019 using cup No. 6;
- *highly flammable liquids* contained in *chemical toys*, and in olfactory board games, cosmetic kits and gustative games, as defined in 2009/48/EC.

4.2 Toys to be worn on the head (see A. 3)

4.2.1 General

The requirements of 4.2 apply to:

- beards, moustaches, wigs, made from pile or *flowing elements*;
- masks;
- hats, hoods, headdresses, etc.,

EN 71-2:2020 (E)

but not to paper or paperboard hats unless they have embellishments or attachments that form *flowing elements*.

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 which are used for the purpose of securing a mask, hat, etc., on the head (e.g. string, elastic, plastic strap) shall not be tested (see A.3).

4.2.2 Beards, moustaches, wigs, etc., made from pile or flowing elements which protrude 50 mm or more from the surface of the toy

When tested according to 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 pile, or *flowing elements* shall not be:

- a) more than 50 % of the greatest initial length, when the initial length was 150 mm or more, or;
- b) 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 pile or flowing elements which protrude less than 50 mm from the surface of the toy

Beards, moustaches, wigs, etc. made from pile or *flowing elements* which protrude 5 mm or less from the surface of the toy are regarded as headdresses and are covered by 4.2.5.

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.

This requirement does not apply to moulded eye masks that neither cover the chin nor a cheek as they are covered by 4.2.5.

4.2.5 Toys to be worn on the head (except those covered by 4.2.2 and 4.2.3), hoods, headdresses including upward protruding items and masks not covered by 4.2.4 which partially or fully cover the head (e.g. fabric and paperboard masks, eye masks, face masks), but excluding those items covered by 4.3

When tested in accordance with 5.4, the rate of spread of flame of the test specimen shall not exceed 10 mm/s or the test specimen shall self-extinguish.

4.3 Toy disguise costumes and toys intended to be worn by a child in play (see A.4)

This requirement does not apply to separate toys to be worn on the head, which are supplied with a *toy disguise costume*.

When tested in accordance with 5.5 parts of *toy disguise costumes* and toys intended to be worn by children in play which contain loose stuffing which would fall out if tested in accordance with 5.4.1.2 shall not exceed 30 mm/s rate of spread of flame or the test specimen shall self-extinguish.