



SLOVENSKI STANDARD
SIST EN 71-1:2000
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Safety of toys - Part 1: Mechanical and physical properties

Sicherheit von Spielzeug - Teil 1: Mechanische und physikalische Eigenschaften

Sécurité des jouets - Partie 1: Propriétés mécaniques et physiques

Ta slovenski standard je istoveten z: **EN 71-1:1998**

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ICS:

97.200.50 Q|æ^ Toys

SIST EN 71-1:2000 **en**

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EUROPEAN STANDARD

EN 71-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 1998

ICS 97.200.50

Supersedes EN 71-1:1988

Descriptors: toys, plastic products, wood products, glass-ware, products made with metal, specifications, setting-up conditions, safety requirements, tests, physical properties, mechanical properties, packages, marking, instructions, technical notices

English version

Safety of Toys - Part 1: Mechanical and physical properties

Sécurité des jouets - Partie 1: Propriétés mécaniques et physiques

Sicherheit von Spielzeug - Teil 1: Mechanische und physikalische Eigenschaften

This European Standard was approved by CEN on 23 November 1997.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 52 "Safety of toys", the secretariat of which is held by DS.

This European Standard replaces EN 71-1:1988 (including Corrigendum 1:1989).

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 January 1999, and conflicting national standards shall be withdrawn at the latest by January 2001.

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 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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This standard constitutes the first part of the European Standard on safety of toys.

This Part of EN 71 is the result of a revision of EN 71-1:1988. The principal changes in this Part of EN 71 compared with EN 71-1:1988 are the following:

- an extensive list of definitions has been introduced;
- design restricting requirements have been avoided as far as possible in favour of an approach that is developed to reduce the occurrence of hazards (see annex C);
- more stringent requirements and tests have been introduced for toys for children under 36 months and for toys for children who are too young to sit up unaided;
- requirements for percussion caps specifically designed for use in toys and acoustics have been introduced. More stringent acoustical requirements apply three years after the date of availability of this part of EN 71;
- requirements for warning labelling of balloons, toy bicycles, toys intended to bear the mass of a child under 36 months and toys comprising monofilament fibres have been introduced.

This standard contains five annexes:

- Annex A (normative) - Percussion caps specifically designed for use in toys;
- Annex ZA (informative) - Clauses of this European Standard addressing essential requirements or other provisions of EU Directives
- Annex B (informative) - Requirements guide by toy categories;
- Annex C (informative) - Background and rationale;

- Annex D (informative) - Bibliography.

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

Introduction

This European Standard for 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.

The standard aims at reducing as far as possible those risks which are not evident to users and it does not cover inherent dangers (e.g. instability of scooters, sharp needles in a sewing kit, etc.) that are obvious to children or the persons in charge of them. Assuming that the toys are used in the manner for which they are intended, they should not present any further risk to children for whom they are intended. Allowance should also be made for normal or foreseeable use, bearing in mind the normal behaviour of children who do not generally share the same degree of care as the average adult user.

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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 be taken therefore when choosing a toy or game; account should be taken of the mental and physical development of the child who will be using it.

The requirements of the standard do not release parents or carers from their responsibility of watching over the child while he or she is playing.

1 Scope

This Part of EN 71 specifies requirements and methods of tests for mechanical and physical properties of toys.

The standard applies to toys for children, toys being any product or material designed or clearly intended for use in play by children of less than 14 years of age. It refers to new toys taking into account the period of foreseeable and normal use and when the toys are used as intended or in a foreseeable way, bearing in mind the normal behaviour of children.

It includes specific requirements for toys intended for children under 36 months and for children who are too young to sit up unaided. Soft filled toys with simple features intended for holding and cuddling are, for the purpose of this standard, considered as toys intended for children under 36 months. This standard also

specifies requirements for packaging, marking and labelling.

This standard does not cover musical instruments, sports equipment or similar items but does include their toy counterparts.

It does not cover electrical safety aspects of toys. These are covered by EN 50088, "Safety of electric toys".

Furthermore, it does not cover the following items which are not considered as toys for the purposes of this standard:

- Christmas decorations (see C.1);
- Detailed scale models for adult collectors (see C.1);
- Equipment intended to be used collectively in playgrounds;
- Sports equipment;
- Aquatic equipment intended to be used in deep water;
- Folk dolls and decorative dolls and other similar articles for adult collectors;
- "Professional" toys installed in public places (shopping centres, stations, etc.) (see C.1);
- Puzzles with more than 500 pieces or without picture intended for specialists;
- Air guns and air pistols (see C.1);
- Fireworks, including percussion caps except percussion caps specifically designed for toys;
- Slings and catapults (see C.1);
- Sets of darts with metallic points;
- Electric ovens, irons or other functional products operated at a nominal voltage exceeding 24 V;
- Products containing heating elements intended for use under the supervision of an adult in a teaching context;
- Vehicles with combustion engines (see C.1);
- Toy steam engines;
- Bicycles designed for sport or for travel on the public highway;
- Video toys that can be connected to a video screen, operated at a nominal voltage exceeding 24V;

- Babies' dummies (soothers);
- Faithful reproductions of real fire arms;
- Fashion jewellery for children (see C.1).

Also, for the purpose of this standard, the following items cannot be considered as toys:

- Flotation aids such as arm bands (see C.24);
- Swimming goggles, sunglasses and other eye protectors as well as bicycle and skateboard helmets (see C.18);
- Items that are propelled into free flight by a child releasing an elastic band (for example aeroplanes and rockets). These are considered as catapults (see the eleventh indent above);
- Bows for archery with an overall relaxed length exceeding 120 cm.

2 Normative references

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This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

IEC 60126:1973	IEC reference coupler for the measurement of hearing aids using earphones coupled to the ear by means of ear inserts
IEC 60318:1970	An IEC artificial ear, of the wide band type for the calibration of earphones used in audiometry
IEC 60651:1979	Sound level meters
IEC 60804:1985	Integrating-averaging sound level meters
prEN ISO 868:1997	Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness)
EN ISO 3744:1994	Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane
EN ISO 3746:1995	Acoustics - Determination of sound power levels of noise sources using sound pressure- Survey method using an enveloping measurement surface over a reflecting plane

ISO 4287-2:1984	Surface roughness - Terminology - Part 2: Measurement of surface roughness parameters
ISO 4593:1993	Plastics - Film and sheeting - Determination of thickness by mechanical scanning
ISO 6508:1986	Metallic materials - Hardness test - Rockwell test (Scales A -B - C - D -E - F - G - H - K)
ISO 7619:1986	Rubber - Determination of indentation hardness by means of pocket hardness meters
EN ISO 11201:1995	Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a work station and at other specified positions - Engineering method in an essentially free field over a reflecting plane
EN ISO 11202:1995	Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a work station and at other specified positions - Survey method in situ
EN ISO 11204:1995	Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a work station and at other specified positions -- Method requiring environmental corrections

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3 Definitions

For the purposes of this standard the following definitions apply:

- 3.1 accessible:** Contact under the test conditions of 8.10 (accessibility of a part or component);
- 3.2 aquatic toy:** Article, whether inflatable or not, intended to bear the weight of a child and used as an instrument of play in shallow water;
- 3.3 backing:** Material adhering to flexible plastic sheeting;
- 3.4 burr:** Roughness, caused by not cleanly severing or finishing the material;
- 3.5 close-to-the-ear toy:** Toy that is manifestly designed to emit sound, intended to be used close to the ear, i.e. a hypothetical position, normally 2,5 cm from the nearest sound emitting part of such a toy that can be put against the ear of a child. Examples of such toys are telephones that ring or beep in the ear piece and toys with earphones;
- 3.6 collapse:** Sudden or unexpected folding of a structure;
- 3.7 cord:** Piece of slender, flexible material including monofilaments, woven and

twisted cord, rope, plastic textile tapes, ribbon and those fibrous materials commonly called string;

- 3.8 crack:** Fracture of a material to the full thickness of the material;
- 3.9 crushing:** Injury to part of the body resulting from compression between two surfaces;
- 3.10 driving mechanism:** Assembly of linked parts of a toy, at least one of which moves and is driven either electrically, by clockwork or by other mechanical means and including gears, belts and winding mechanisms;
- 3.11 edge:** Line formed at the junction of two surfaces, the length of which exceeds 2,0 mm;
- 3.12 expanding material:** Material, the volume of which expands when the material is exposed to water;
- 3.13 fastening:** Mechanical device which attaches two or more components of a toy together, for example a screw;
- 3.14 filling:** Material intended to be contained wholly within a soft filled toy;
- 3.15 free wheeling toy bicycle:** Two-wheeled vehicle, with or without stabilisers, with a maximum saddle height of 435 mm and which is propelled solely by the muscular energy of the person on that vehicle, in particular by means of pedals and which does not have a fixed transmitted drive;
- 3.16 functional edge or point:** Edge or point which is essential for the functioning of a toy (e.g. microscope slides, electrical conductors, needles);
- 3.17 functional toy:** Toy which performs and is used in the same way as, and is often a scale model of a certain product, an appliance or an installation intended for adults, e.g. a stove with heating properties;
- 3.18 fuzz:** Bits of fibrous type material that can be readily removed from toys with a pile surface.
- 3.19 hand held toy:** Toy that is manifestly designed to emit sound, intended to be held in the hand e.g. clicking toys, toy tools, musical toys and cap firing toys but excluding close-to-the-ear toys and child actuated toys as well as mouth actuated toys;

- 3.20 hinge line:** Line along or parallel to the line projected through the axis of rotation as shown in figure 1;

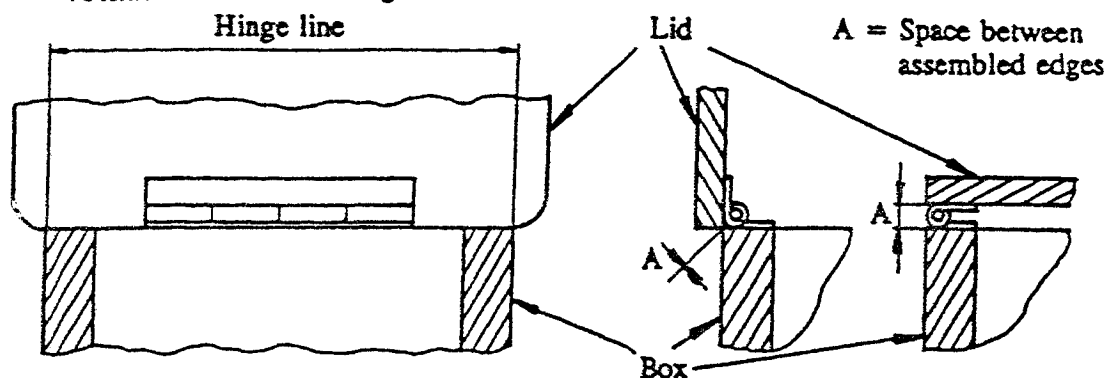


Figure 1: Definition of hinge line

- 3.21 large and bulky toy:** Toy that has a projected base area of more than $0,26 \text{ m}^2$ or a volume of more than $0,08 \text{ m}^3$ calculated without regard to minor appendages or a mass of $4,5 \text{ kg}$ or more;

NOTE: The base area for a toy having permanently attached legs is the area enclosed by straight lines connecting the outermost edge of each leg of the perimeter.

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- 3.22 maximum saddle height:** Vertical distance from the ground to the top of seat surface, measured with the seat in a horizontal position with the seat pillar set to the minimum insertion mark;
- 3.23 overlap joint:** Joint in which an edge overlaps a parallel surface but is not necessarily mechanically attached to it at all points along the length;
- 3.24 packaging:** Material accompanying the toy when purchased but having no intended play function;
- 3.25 paper:** Material, marketed as either paper or paperboard, with a mass per unit area of 400 g/m^2 maximum;
- 3.26 particle:** Object with a discrete three dimensional form (e.g. expanded polystyrene), but excluding fibrous material;
- 3.27 plastic sheeting:** Thin section plastic sheeting which is used as part of the toy or as part of the packaging;
- 3.28 projectile:** Object intended to be launched into free flight, or a trajectory, in the air;
- 3.29 projectile toy with stored energy:** Toy with a projectile propelled by means of a discharge mechanism capable of storing and releasing energy;
- 3.30 projectile toy without stored energy:** Toy with a projectile discharged by the energy imparted by a child;

- 3.31 rattle:** Toy that is manifestly designed to emit sound when shaken, intended for children who are too young to sit up unaided and activated by the child or other person;
- 3.32 removable component:** Part or component which is intended to be removed from the toy without the use of a tool;
- 3.33 soft filled toy:** Toy, clothed or unclothed, with soft body surfaces and filled with soft materials, allowing compression of the main part of the toy readily with the hand;
- 3.34 splinter:** Sharp pointed fragment;
- 3.35 spring:**
- 3.35.1 helical spring:** Spring in the form of a coil, see figure 2, which can be either a compression spring or an extension spring.



Figure 2: Helical spring
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- 3.35.1.1 compression spring:** Spring which returns to its initial state after compressive force has been released;
- 3.35.1.2 extension spring:** Spring which returns to its initial state after the tensile has been realised.
- 3.35.2 spiral spring:** Clockwork type spring, see figure 3;



Figure 3: Spiral spring

- 3.36 squeeze toy:** Pliable toy incorporating a noise-making feature activated by forcing air through an opening, manifestly designed to emit sound when squeezed, intended for children who are too young to sit up unaided;
- 3.37 table-top and floor toy:** Toy that is intended to be used on a table or floor, e.g. cars, mechanical animals, large and bulky toys;
- 3.38 teether:** Toy designed for oral use intended primarily for symptomatic relief of children's teething discomfort;
- 3.39 tool:** Screwdriver, coin or any other object which can be used to operate a screw, clip or similar fixing device.

4 General requirements

NOTE: Words in *italics* are defined in clause 3.
Additional information is given in annex C.

4.1 Material (see C.2)

Toys and material used in toys shall be visually clean and free from infestation. The material is assessed visually by the unaided eye rather than under magnification.

4.2 Assembly (see C.3)

If a toy is intended to be assembled by a child, the requirements in this Part of EN 71 apply to each unit made available to the child and to the assembled toy. The requirements for the assembled toy do not apply to toys where the assembling provides a significant part of the play value of the toy.

If a toy is intended to be assembled by an adult, the requirements apply to the assembled toy.

Toys intended to be assembled shall be accompanied by detailed assembly instructions if appropriate. The instructions shall indicate if it is necessary that an adult assembles the toy or that the proper assembly is checked by an adult before use.

4.3 Flexible plastic sheeting (see C.4)

Toys with flexible *plastic sheeting* shall conform to the following requirements:

- a) Sheets without any *backing* and of an area greater than 100 mm x 100 mm when tested according to 8.26.1 (plastic sheeting, thickness) shall have an average thickness of 0,038 mm or more.
- b) Sheets with an average thickness of less than 0,038 mm and of an area greater than 100 mm x 100 mm shall be perforated with defined holes so that a minimum of 1 % of the area has been removed over any area of 30 mm x 30 mm.
- c) For plastic balloons the requirements in item a) apply to double layers of *plastic sheeting* (i.e. the thickness is measured without inflating or destroying the balloon).

4.4 Toy bags

Toy bags made of impermeable material with an opening perimeter greater than 380 mm shall not have a drawstring or a cord as a means of closing.