
Safety of toys —

Part 1:

**Safety aspects related to mechanical
and physical properties**

Sécurité des jouets —

*Partie 1: Aspects de sécurité relatifs aux propriétés mécaniques et
physiques*



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Contents

	Page
Foreword	vii
Introduction	viii
1 Scope	1
2 Normative references	3
3 Terms and definitions	3
4 Requirements	15
4.1 Normal use	15
4.2 Reasonably foreseeable abuse	15
4.3 Material	16
4.3.1 Material quality	16
4.3.2 Expanding materials	16
4.4 Small parts	16
4.4.1 For children under 36 months	16
4.4.2 For children 36 months and over but under 72 months	17
4.5 Shape, size and strength of certain toys	17
4.5.1 Squeeze toys, rattles, fasteners, and certain other toys and components of toys	17
4.5.2 Small balls	20
4.5.3 Pompoms	20
4.5.4 Pre-school play figures	20
4.5.5 Toy pacifiers	21
4.5.6 Balloons	21
4.5.7 Marbles	21
4.5.8 Hemispheric-shaped toys	21
4.6 Edges	24
4.6.1 Accessible sharp edges of glass or metal	24
4.6.2 Functional sharp edges	24
4.6.3 Edges on metal toys	25
4.6.4 Edges on moulded toys	25
4.6.5 Edges on exposed bolts or threaded rods	25
4.7 Points	25
4.7.1 Accessible sharp points	25
4.7.2 Functional sharp points	25
4.7.3 Wooden toys	26
4.8 Projections	26
4.8.1 General requirements	26
4.8.2 Special considerations for bath toy projections	26
4.9 Metal wires and rods	26
4.10 Plastic film or plastic bags in packaging and in toys	27
4.11 Cords	28
4.11.1 General	28
4.11.2 Cords in toys intended for children under 18 months	28
4.11.3 Cords in toys intended for children 18 months and over but under 36 months	29
4.11.4 Fixed loops and nooses intended for children under 36 months	30
4.11.5 Cords on pull toys	30
4.11.6 Electrical cables	30
4.11.7 Diameter of certain cords intended for children under 36 months	30
4.11.8 Self-retracting cords intended for children under 36 months	30
4.11.9 Toys attached to or intended to be strung across, or otherwise attached to, a cradle, cot, perambulator or carriage	30
4.11.10 Cords on toy bags	31
4.11.11 Cords, strings and lines for flying toys	31
4.12 Folding mechanisms	31
4.12.1 Toy pushchairs, perambulators and similar toys	31

4.12.2	Other toys with folding mechanisms.....	32
4.12.3	Hinge-line clearance.....	33
4.13	Holes, clearances and accessibility of mechanisms.....	33
4.13.1	Circular holes in rigid materials.....	33
4.13.2	Accessible clearances for movable segments.....	33
4.13.3	Chains or belts in ride-on toys.....	33
4.13.4	Other driving mechanisms.....	34
4.13.5	Winding keys.....	34
4.14	Springs.....	35
4.15	Stability and overload requirements.....	35
4.15.1	Stability of ride-on toys and seats.....	35
4.15.2	Overload requirements for ride-on toys and seats.....	36
4.15.3	Stability of stationary floor toys.....	36
4.16	Enclosures.....	36
4.16.1	Ventilation.....	36
4.16.2	Closures.....	37
4.16.3	Toys that enclose the head.....	38
4.17	Simulated protective equipment, such as helmets, hats and goggles.....	38
4.18	Projectile toys.....	38
4.18.1	General.....	38
4.18.2	Projectiles.....	39
4.18.3	Projectile toys with stored energy.....	40
4.18.4	Projectile toys without stored energy.....	42
4.19	Rotors and propellers.....	44
4.20	Aquatic toys.....	44
4.21	Braking.....	44
4.22	Toy bicycles.....	45
4.22.1	Instructions for use.....	45
4.22.2	Determination of maximum saddle height.....	45
4.22.3	Braking requirements.....	45
4.23	Speed limitation of electrically driven ride-on toys.....	46
4.24	Toys containing a heat source.....	46
4.25	Liquid-filled toys.....	47
4.26	Mouth-actuated toys.....	47
4.27	Toy roller skates, toy inline skates and toy skateboards.....	47
4.28	Percussion caps specifically designed for use in toys.....	47
4.29	Acoustic requirements.....	47
4.30	Toy scooters.....	48
4.30.1	General.....	48
4.30.2	Warnings and instructions for use.....	49
4.30.3	Strength.....	49
4.30.4	Stability.....	49
4.30.5	Adjustable and folding steering tubes and handlebars.....	49
4.30.6	Braking.....	50
4.30.7	Wheel size.....	50
4.30.8	Projections.....	50
4.31	Magnets and magnetic components.....	50
4.31.1	Magnetic/electrical experimental sets intended for children 8 years and over.....	50
4.31.2	All other toys with magnets and magnetic components.....	50
4.32	Yo-yo balls.....	51
4.33	Straps intended to be worn fully or partially around the neck.....	51
4.34	Sledges and toboggans with cords for pulling.....	52
4.35	Jaw entrapment in handles and steering wheels.....	52
5	Test methods.....	52
5.1	General.....	52
5.2	Small parts test.....	53
5.3	Test for shape and size of certain toys.....	54
5.4	Small balls test.....	55

5.5	Test for pompoms.....	55
5.6	Test for pre-school play figures.....	56
5.7	Accessibility of a part or component.....	56
5.7.1	Principle.....	56
5.7.2	Apparatus.....	56
5.7.3	Procedure.....	57
5.8	Sharp-edge test.....	58
5.8.1	Principle.....	58
5.8.2	Apparatus.....	58
5.8.3	Procedure.....	59
5.9	Sharp-point test.....	60
5.9.1	Principle.....	60
5.9.2	Apparatus.....	60
5.9.3	Procedure.....	61
5.10	Determination of thickness of plastic film and sheeting.....	61
5.10.1	General.....	61
5.10.2	Apparatus.....	61
5.10.3	Procedure.....	61
5.11	Test for cords.....	62
5.11.1	Cord cross-sectional dimension.....	62
5.11.2	Length of cords and electrical cables.....	62
5.11.3	Breakaway feature separation test.....	63
5.11.4	Test for fixed loops and nooses.....	63
5.11.5	Self-retracting cords.....	67
5.11.6	Electrical resistance of cords.....	68
5.12	Stability and overload tests.....	68
5.12.1	General.....	68
5.12.2	Sideways stability test, feet available for stabilization.....	68
5.12.3	Sideways stability test, feet unavailable for stabilization.....	68
5.12.4	Fore and aft stability test.....	69
5.12.5	Overload test for ride-on toys and seats.....	69
5.12.6	Stability test of stationary floor toys.....	69
5.13	Test for closures and toy chest lids.....	69
5.13.1	Closures.....	70
5.13.2	Toy chest lids.....	70
5.14	Impact test for toys that cover the face.....	70
5.15	Kinetic energy and wall impact test.....	70
5.15.1	Kinetic energy of projectiles.....	71
5.15.2	Wall impact test for projectiles.....	73
5.16	Free-wheeling facility and brake performance test.....	74
5.16.1	Determination of free-wheeling facility.....	74
5.16.2	Brake performance for mechanically or electrically powered ride-on toys other than toy bicycles.....	74
5.16.3	Brake performance for toy bicycles.....	75
5.17	Determination of speed of electrically driven ride-on toys.....	75
5.18	Determination of temperature increases.....	75
5.19	Leakage of liquid-filled toys.....	75
5.20	Durability of mouth-actuated toys.....	76
5.21	Expanding materials.....	76
5.22	Folding or sliding mechanisms.....	76
5.22.1	Loads.....	76
5.22.2	Toy pushchairs and perambulators.....	76
5.22.3	Other toys with folding mechanisms.....	77
5.23	Washable toys.....	77
5.24	Reasonably foreseeable abuse tests.....	78
5.24.1	General.....	78
5.24.2	Drop test.....	78
5.24.3	Tip-over test for large and bulky toys.....	79

5.24.4	Dynamic strength test for wheeled ride-on toys other than toy scooters	80
5.24.5	Torque test	81
5.24.6	Tension test	81
5.24.7	Compression test	84
5.24.8	Flexure test	85
5.25	Determination of sound pressure levels	85
5.25.1	General test conditions	85
5.25.2	Specific test methods	87
5.26	Static strength for toy scooters	91
5.27	Dynamic strength for toy scooters	93
5.27.1	Principle	93
5.27.2	Load	93
5.27.3	Procedure	95
5.28	Brake performance for toy scooters	95
5.28.1	Toy scooters with handbrake	95
5.28.2	Toy scooters with foot brake	95
5.29	Strength of toy scooter steering tubes	96
5.29.1	Resistance to downward forces	96
5.29.2	Resistance to upward forces	97
5.30	Resistance to separation of handlebar	97
5.31	Tension test for magnets	98
5.31.1	Principle	98
5.31.2	Toys with magnets or magnetic components	98
5.31.3	Toys that contain one magnet only and a mating metal component	99
5.31.4	Toys that contain one magnet only and no mating metal component	99
5.32	Magnetic flux index	99
5.32.1	General	99
5.32.2	Principle	99
5.32.3	Apparatus	99
5.32.4	Procedure	99
5.32.5	Calculation of magnetic flux index	100
5.33	Impact test for magnets	100
5.34	Soaking test for magnets	100
5.35	Determination of projectile range	101
5.36	Tip assessment of rigid projectiles	102
5.37	Length of suction cup projectiles	102
5.38	Yo-yo ball measurements	103
5.38.1	Measurement of elastic constant, k	103
5.38.2	Measurement of initial length, l_0	104
Annex A (informative)	Age-grading guidelines	107
Annex B (informative)	Safety-labelling guidelines and manufacturer's markings	111
Annex C (informative)	Design guidelines for toys attached to cribs or playpens	119
Annex D (informative)	Toy gun marking	120
Annex E (informative)	Rationale	121
Annex F (informative)	Bath toy projection design guidelines	147
Annex G (informative)	Significant technical changes between this document and the previous version	148
Bibliography		150

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 181, *Safety of toys*.

This fifth edition cancels and replaces the fourth edition (ISO 8124-1:2014). A list of the main technical changes made to the previous edition is given in [Annex G](#).

A list of all parts in the ISO 8124 series can be found on the ISO website.

Introduction

This document is largely based upon existing standards in the European Union (EN 71-1) and in the United States of America (ASTM F963).

Compliance with the requirements of this document will minimize potential hazards associated with toys resulting from their use in their intended play modes (normal use) as well as unintended play modes (reasonably foreseeable abuse).

This document will not, nor is it intended to, eliminate parental responsibility in the appropriate selection of toys. In addition, this document will not eliminate the need for parental supervision in situations where children of various ages may have access to the same toy(s).

Although [Annexes A, B, C, D, E](#) and [F](#) are for information purposes only, they are crucial for the correct interpretation of this document.

The safety of electric toys is described in IEC 62115.

When age indications are required for safety labelling purposes, they may be given in either months or years.

Safety of toys —

Part 1:

Safety aspects related to mechanical and physical properties

1 Scope

The requirements in this document apply to all toys, i.e. any product or material designed or clearly intended for use in play by children under 14 years of age. They are applicable to a toy as it is initially received by the consumer and, in addition, they apply after a toy is subjected to reasonably foreseeable conditions of normal use and abuse unless specifically noted otherwise.

The requirements of this document specify acceptable criteria for structural characteristics of toys, such as shape, size, contour, spacing (e.g. rattles, small parts, sharp points and edges, and hinge-line clearances) as well as acceptable criteria for properties peculiar to certain categories of toy (e.g. maximum kinetic energy values for non-resilient-tipped projectiles and minimum tip angles for certain ride-on toys).

This document specifies requirements and test methods for toys intended for use by children in various age groups from birth to 14 years. The requirements vary according to the age group for which a particular toy is intended. The requirements for a particular age group reflect the nature of the hazards and the expected mental and/or physical abilities of a child to cope with them.

This document also requires that appropriate warnings and/or instructions for use be given on certain toys or their packaging. Due to linguistic problems which may occur in different countries, the wording of these warnings and instructions is not specified but given as general information in [Annex B](#). It should be noted that different legal requirements exist in many countries with regard to such marking.

This document does not purport to cover or include every conceivable potential hazard of a particular toy or toy category. Except for labelling requirements indicating the functional hazards and the age range for which the toy is intended, this document has no requirements for those characteristics of toys which represent an inherent and recognized hazard which is integral to the function of the toy.

EXAMPLE 1 An example of such a hazard is the sharp point necessary for the proper function of a needle. The needle is a hazard which is well understood by the purchaser of a toy sewing kit, and the functional sharp-point hazard is communicated to the user as part of the normal educational process of learning to sew as well as at the point of purchase by means of cautionary labelling on the product's packaging.

EXAMPLE 2 As a further example, a two-wheeled toy scooter has inherent and recognized hazards associated with its use (e.g. instability during use, especially while learning). The potential hazards associated with its structural characteristics (sharp edges, pinch hazards, etc.) will be minimized by compliance with the requirements of this document.

Products not included within the scope of this document are:

- a) bicycles, except for those considered to be toys, i.e. those having a maximum saddle height of 435 mm (see [E.1](#), general);
- b) slingshots;

NOTE "Slingshots" are also known as "catapults" and are usually held in the hand; examples are given in [Figure 1](#). Toy versions of medieval catapults and trebuchets are not exempt from this document; an example is given in [Figure 2](#).



Figure 1 — Examples of slingshots (not within the scope of this document)



Figure 2 — Medieval toy catapult (within the scope of this document)

- c) darts with metal points;
- d) home and public playground equipment;
- e) compressed air- and gas-operated guns and pistols (see [E.1](#));
- f) kites (except for the electric resistance of their strings, which is included);
- g) model kits, hobby and craft items, in which the finished item is not primarily of play value;
- h) sporting goods and equipment, camping goods, athletic equipment, musical instruments and furniture; however, toys which are their counterparts are included.

It is recognized that there is often a fine distinction between, for example a musical instrument or a sporting item and its toy counterpart. The intention of the manufacturer or distributor, as well as normal use and reasonably foreseeable abuse, determines whether the item is a toy counterpart or not;

- i) models of aircraft, rockets, boats and land vehicles powered by combustion engines; however, toys which are their counterparts are included (see [E.1](#));
- j) collectible products not intended for children under 14 years of age;
- k) holiday decorations that are primarily intended for ornamental purposes;
- l) aquatic equipment intended to be used in deep water, swimming-learning devices and flotation aids for children such as swim-seats and swim-aids;
- m) toys installed in public places (e.g. arcades and shopping centres);
- n) puzzles having more than 500 pieces or without a picture, for specialists;
- o) fireworks including percussion caps, except percussion caps specifically designed for toys;

- p) products containing heating elements intended for use under the supervision of an adult in a teaching context;
- q) steam engines;
- r) video toys that can be connected to a video screen and operated at a nominal voltage greater than 24 V;
- s) babies' pacifiers (dummies);
- t) faithful reproduction of firearms;
- u) electric ovens, irons or other functional products operated at a nominal voltage greater than 24 V;
- v) bows for archery with an overall relaxed length exceeding 120 cm;
- w) fashion jewellery for children (see [E.1](#)).

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.

ISO 4287, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

ISO 11201, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

ISO 11202, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections*

ISO 11204, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections*

IEC 61672-1, *Electroacoustics — Sound level meters — Part 1: Specifications*

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:

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

NOTE The requirements in this document are applicable to certain age ranges. For interpretation of these age ranges, see [E.43](#) (age-break terminology).

3.1

accessible

<part or component> any area of the toy that can be contacted by any portion forward of the collar of the accessibility probe as described in [5.7](#) (accessibility of a part or component)