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Safety of toys —

Part 1:

Safety aspects related to mechanical and physical properties

AMENDMENT 3: Cords

Sécurité des jouets —

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

AMENDEMENT 3: Cordages

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[ISO 8124-1:2012/DAMd 3](#)

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Foreword

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Amendment 3 to ISO 8124-1:2012 was prepared by Technical Committee ISO/TC 181, *Safety of toys*.

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Safety of toys — — Part 1: Safety aspects related to mechanical and physical properties - Amendment 3: Cords

3 Terms and definitions

Replace term and definition 3.10 (including its Notes) with the following:

3.10 cord

length of flexible textile or non-textile material including *elastic material*, monofilament polymeric material, *tape, ribbon, rope, strap, chain*, woven and twisted material and string.

NOTE *Electrical cables* in toys are not considered to be *cords*.

Add the following new terms and definitions:

3.X1 elastic material

material or item that is stretchable when subjected to an external force and which is able to recover or nearly recover its original length or shape when the force is removed

3.X2 fixed loop

loop in a *cord*, the perimeter of which is fixed by any permanent means including a knot or knots

NOTE The fixed loop can include a part or parts of the toy (see Figure X1).

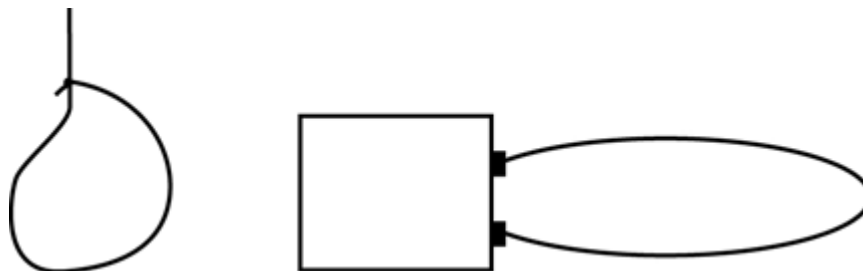
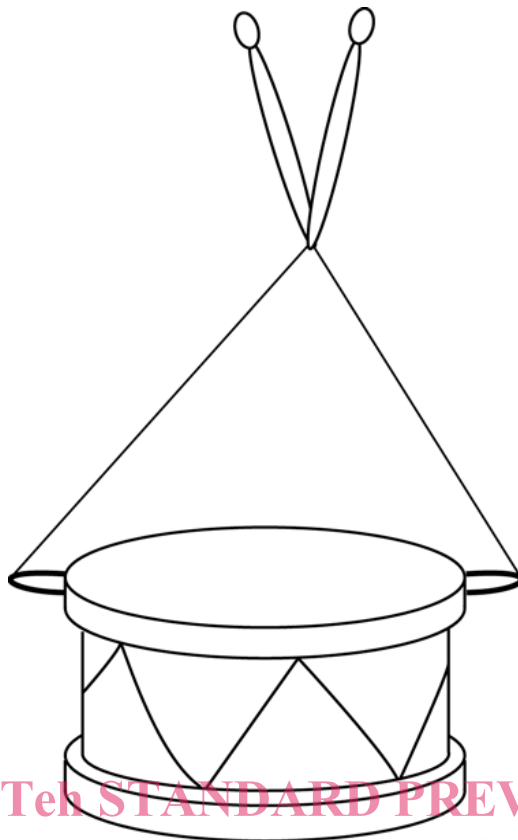


Figure X1 — Example of fixed loops

3.X3 tangled loop

loop created by twisting or snagging a *cord* or *chain* or cords with attachments, knots or fixed loops

NOTE The *tangled loop* can include a part or parts of the toy (see Figure X2).



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Figure X2 — Example of tangled loop

**3.X4
noose**

loop in a *cord* or *chain* which tightens as the *cord* or *chain* is pulled (see Figure X3)

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Figure X3 — Example of a noose

**3.X5
ribbon**

narrow piece of fabric or textile material the width of which is significantly greater than the thickness

**3.X6
strap**

strip of flexible material used for fastening, securing, carrying or holding

**3.X7
chain**

connected series of links or rings

3.X8**tape**

narrow piece of flexible non textile material the width of which is significantly greater than the thickness

3.X9**electrical cable**

flexible insulated conductor used for connecting a toy to a supply of electricity or to a piece of electronic equipment which is not itself a toy or part of a toy

NOTE Electronic equipment includes computers and television sets which does not have a play value on their own.

3.X10**yo-yo ball**

toy with an elastic tether made from an elastic material usually having a loop at one end to place around a finger, and a flexible object at the other end intended to be thrown and returned to the hand.

4 Requirements**4.11 Cords and Chains**

Replace 4.11.1 with the following and delete 4.11.2, 4.11.3, 4.11.5 and 4.11.6. Renumber remaining clauses accordingly.

4.11.1 Cords, chains and electrical cables in toys intended for children under 36 months

See E.16

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The requirements in this clause do not apply to:

- ropes and *chains* that are covered by the diameter requirements of ISO 8124-4 (e.g. climbing and swinging ropes). <https://standards.iteh.ai/catalog/standards/sist/33eade2c-f8e1-4b2c-bcb6-d1f0e1ddfa6/iso-8124-1-2012-dam-3>
- *straps* intended to be worn fully or partially around the neck (see 4.32),
- *straps* in safety harnesses,
- to backpack shoulder straps,
- bag/bucket/box handles.

The requirements from 4.11.1 a) to 4.11.1 e) do not apply to:

- toys intended to be strung across a cradle, cot or perambulator. However, any elements hanging down from such toys, where the elements are intended to be within the reach of children, shall fulfil the applicable requirements in 4.11.1 a) to 4.11.1 e)
 - toys, intended to be attached to a cradle, cot or perambulator, where the cords of such toys are intended to be out of reach of the children
- a) *Cords* connected to a self-retraction mechanism and *cords* in pull toys shall have an average cross-sectional dimension of 1,5 mm or more when measured according to 5.11.1 (cords cross-sectional dimension).
 - b) *Cords* or *chains* that can be reasonably expected to form a *tangled loop* or a *noose* shall either:

- have a length not exceeding 220 mm (for toys intended for children under 18 months) or have a length not exceeding 300 mm (for other toys) when measured according to 5.11.2 (length of *cords* and *chains*), or
- separate into parts with a length not exceeding 220 mm (for toys intended for children under 18 months) or with a length not exceeding 300 mm (for other toys) when tested according to 5.11.3 (breakaway feature separation test). It shall be possible to join the parts after they have been separated without altering the characteristics of the joints (see Figure X4). The length of the separated parts shall be measured according to 5.11.2 (length of *cords* and *chains*).

Toys intended for children of 18 months and over, but under 36 months, and having *cords* or *chains* with a length exceeding 220 mm (which do not separate into one or more parts with a length not exceeding 220 mm) that can reasonably be expected to form a *tangled loop* or a *noose*, shall be accompanied by a warning (see B.2.22), visible at the point of sale, on the toy itself or on its *packaging*.

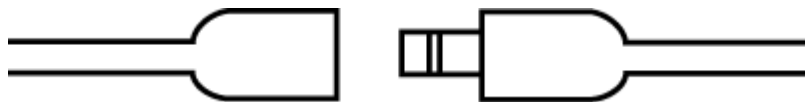


Figure X4 — Example of a joint on cords

c) *Fixed loops* of *cords* or *chains* shall either:

- have a perimeter not exceeding 380 mm when measured according to 5.11.4.2.1 (*cords* and *chains* with a single fixing point or with fixing points less than 94 mm apart), or a distance d not exceeding 96 mm when measured according to 5.11.4.2.2 (*cords* and *chains* fixed to a toy at points of 94 mm or more apart), or
- separate into parts with a length not exceeding 220 mm (for toys intended for children under 18 months) or with a length not exceeding 300 mm (for other toys) when tested according to 5.11.3 (breakaway feature separation test). The length of the separated parts shall be measured according to 5.11.2 (length of *cords* and *chains*).

Toys intended for children 18 months and over, but under 36 months, having a *fixed loop* that separates into one or more parts with a length exceeding 220 mm, shall be accompanied by a warning (see B.2.22), visible at the point of sale, on the toy itself or on its *packaging*.

Where the distance between fixing points of *cords* and *chains* can change during play due to the flexibility of the toy (e.g. *cords* on soft filled toys or on textile toys without rigid parts) the perimeter shall be determined according to 5.11.4.2 regardless of the at-rest distance between the fixing points.

d) The perimeter of *nooses*:

- shall not exceed 380 mm when measured according to 5.11.4.2. 1 (*cords* and *chains* with a single fixing point or with fixing points less than 94 mm apart), or
- the distance d shall not exceed 96 mm when measured according to 5.11.4.2.2(*cords* and *chains* fixed to the toy at points of 94 mm or more apart).

e) The force of self-retraction mechanisms for *cords* in toys shall not retract the *cord* more than 6,4 mm, under any of the conditions specified when tested according to 5.11.5 (self-retracting *cords*).

f) Toys with *cords* and *chains* intended to be strung across or attached to a cradle, cot or perambulator shall carry a warning (see B.2.10, B.3.2, B.3.3 and Annex C for guidance). This requirement applies also to toys with *cords* and *chains* intended to be attached to a cradle, cot or perambulator where the *cords* and *chains* of such toys are intended to be out of reach of the children and those *cords* and *chains* do not

comply with 4.11.1 a) to e). Such toys intended to be strung across a cradle, cot or perambulator will also need to carry a warning (see B.3.2, B.3.3 and Annex C for guidance).

- g) *Cords* and *chains* with a free end (i.e. with no attachments) on toys (excluding pull toys) intended for children under 18 months shall have a free length not exceeding 300 mm when measured according to 5.11.2 (length of *cords* and *chains*).

Toys (excluding pull-along toys) intended for children over 18 months of age, but under 36 months of age, and having *cords* or *chains* with a free end and a free length exceeding 300 mm, shall carry a warning (see B.2.22).

- h) *Cords* and *chains* with a free end (i.e. with no attachments) on pull toys intended for children under 36 months shall have a free length not exceeding 800 mm when measured according to 5.11.2 (length of *cords* and *chains*).
- i) Toys with accessible portions of *electrical cables* longer than 300 mm when measured according to 5.11.2 (length of *cords* and *chains*) shall carry a warning (see B.2.22).

Add the following new sub-clause:

4.31 Yo-yo balls (see E.45)

The initial length l_0 of the *yo-yo ball* tether, measured as described in 5.37.2 (measurement of initial length) shall not be greater than 370 mm.

The ratio of the mass m (in grams) to the elastic constant k of the *yo-yo ball*, measured as described in 5.37.1 (measurement of elastic constant) shall be less than 2,2 (see Equation 1):

$$m/k < 2,2 \quad (1)$$

where

m is the total mass of the *ball* and the tether made of *elastic material*;

k is the elastic constant of the *yo-yo ball* as measured in 5.37.1.

Add the following new sub-clause:

4.32 Straps intended to be worn fully or partially around the neck (see E.46)

Toys intended for children under 36 months with *straps* intended to be worn fully or partially around the neck and which create a *fixed loop* shall have a breakaway feature which breaks when tested according to 5.11.3 (breakaway feature separation test).

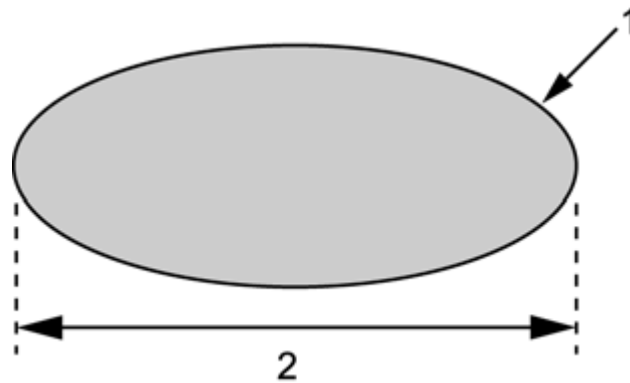
Safety harnesses, backpack shoulder straps, and the straps of bag/bucket/box handles are excluded.

5 Test methods

5.11.1 Determination of cord thickness

Replace 5.11.1 with the following: Cords cross-sectional dimension (see 4.11.1 a))

Whilst under a tension of (25 ± 2) N, measure the maximum cross-sectional dimension of the *cord* (see Figure X5) at between three and five points along its length using an instrument capable of measuring in units of 0,1 mm or less. Determine the average cross-sectional dimension to the nearest 0,1 mm. For *cords* approaching 1,5 mm in cross-sectional dimension, use a non-compressible measuring device, e.g. an optical projector.



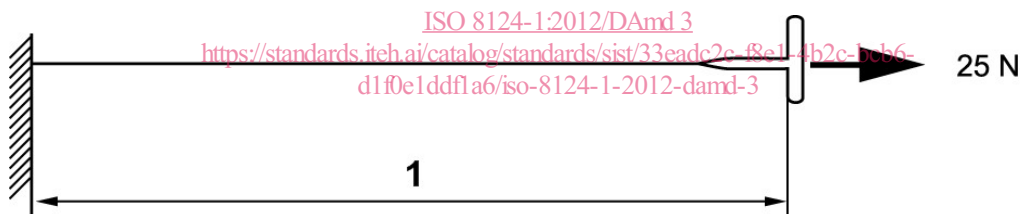
Key
 1 cord transversal section
 2 cross-sectional dimensions

Figure X5 — Example of measurement of the cross-sectional dimension of a cord

Replace 5.11.2 with the following:

5.11.2 Length of cords, chains and electrical cables (see 4.11.1 b), 4.11.1 c), 4.11.1 g), 4.11.1 h) and 4.11.1 i))

Fix one end of the *cord* or *chain* and apply a force of (25 ± 2) N to the other end along the axis of the *cord* or *chain*. Measure, to an accuracy of ± 1 mm, the length of the *cord* or *chain* from the fixing point to the end of the *cord* or *chain*. If the fixing point has the same shape or form as the *cord* or *chain*, this part is measured as part of the entire *cord* or *chain* (see Figure X6).



Key
 1 length of *cord* or *chain*

Figure X6 — Measurement of the length of a cord or chain with attachments of the same shape or form as the cord or chain.

NOTE For the purposes of this test method an *electrical cable* is regarded as a *cord*.

Renumber the existing 5.11.3 as 5.11.6

Replace 5.11.3 with the following:

5.11.3 Breakaway feature separation test (see 4.11.1 b), 4.11.1 c) and 4.XY)

Fix one end of the *cord*, *chain* or the *strap*. Apply a force of (25 ± 2) N to the other end, along the axis of the *cord*, *chain* or *strap*, in such a way that the breakaway feature is in the middle between the fixing points. The required tensile force shall be applied evenly, within a period of 5 seconds and maintained for an additional 10 seconds. Observe whether or not the *cord*, *chain*, *strap* or breakaway feature separates.

Add new clauses as follows:

5.11.4 Perimeter of cords and chains (see 4.11 c) and 4.11 d))

5.11.4.1 Test equipment

Test blocks: two rectangular test blocks made of rigid, smooth material (wood is acceptable) with dimensions $(94 \pm 1) \text{ mm} \times (25 \pm 1) \text{ mm} \times (25 \pm 1) \text{ mm}$ (see Figure X7).

Dimensions in millimetres



Figure X7 — Test blocks dimensions

One of the test blocks shall be equipped, at its corners, with a suitable means to attach a *cord* (e.g. holes, screws etc.) (see Figure X8).

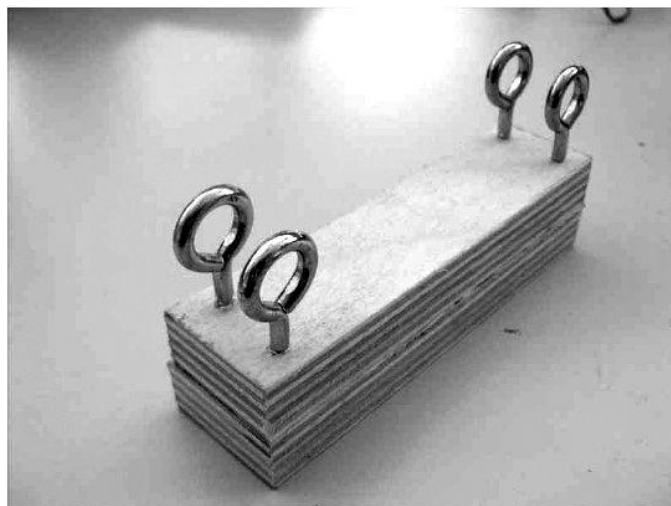


Figure X8 — Example of suitable cord fixing means

Two inelastic *cords* shall be attached to this test block as shown in Figure X9.