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AMENDMENT 2
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Safety of toys —

Part 1: Safety aspects related to mechanical and physical properties

AMENDMENT 2: Various

Sécurité des jouets —

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

AMENDEMENT 2: Divers

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

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

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Safety of toys —

Part 1:
Safety aspects related to mechanical and physical properties

AMENDMENT 2: Various

Add the following new terminological entry:

3.88
toy bag
bag, clearly intended for use in play, often having features designed to encourage children to use it in play activities

Note 1 to entry: Bags that are used solely for storage of the toy or its components are to be considered packaging regardless of whether they are attractive to children, for example if they are brightly coloured or have characteristics appealing to children. Such characteristics alone are not enough to define them as toy bags.

Replace the existing 4.3.2 with the following:

4.3.2 Expanding materials

See E.5.

Toys and components of toys which are *expanding materials* and fit entirely, whatever their orientation, into the small parts cylinder (see Figure 26) shall completely pass through the gauge specified in Figure X1, if required when tested in accordance with 5.21 (expanding materials). For a toy or component that at time of purchase is in an expanded state, the small part size assessment shall be performed when it is in a shrunken state.

This requirement does not apply to seeds in growing kits. The requirements in this subclause are not applicable after testing in accordance with 5.24 (reasonably foreseeable abuse tests).

Replace the existing 4.5.1.1 with the following:

4.5.1.1 General

The requirements of 4.5.1 (squeeze toys, rattles, fasteners and certain other toys and components of toys) do not apply to:

— soft-filled (stuffed) toys or soft-filled parts of toys or parts made entirely of fabric; or

— rigid elements having a major dimension equal to 30 mm or less.

Delete the last paragraph of 4.8.1:

Toys intended to be repeatedly assembled and taken apart shall have the individual pieces and fully assembled articles, as shown on packaging graphics, instructions, or other advertising, evaluated

separately. The requirements for the assembled toy do not apply to toys for which the assembling makes up a significant part of the play value of the toy.

Modify 4.11.3.2 as follows:

Where other cords are included with or attached to toys (excluding pull toys) with a free length exceeding 300 mm, when measured according to 5.11.2 (length of cords and electrical cables), the toy's packaging shall carry a warning indicating that the toy is unsuitable for children under the age of 18 months (see B.2.23, toys with cords intended for children 18 months and over but under 36 months). This requirement applies to any cords remaining attached to toys after assessment against 4.11.3.1 b).

Modify 4.11.3.3 as follows:

Where other cords without a free end, with a length exceeding 220 mm but not exceeding 300 mm when measured according to 5.11.2 (length of cords and electrical cables), are included with or attached to toys, the toy's packaging shall carry a warning indicating that the toy is not suitable for children under the age of 18 months (see B.2.23, toys with cords intended for children 18 months and over but under 36 months).

Replace 4.12.2 a) and b) with the following:

a) have a safety stop or locking device to prevent unexpected or sudden movement or collapse of the toy. The safety stop or locking device shall not become partially or fully disengaged when tested in accordance with 5.24 (reasonably foreseeable abuse tests) and the toy shall not collapse when tested in accordance with 5.22.3 (other toys with folding mechanisms);

or

b) have adequate clearance between moving parts to protect the fingers and toes against crushing or laceration in the event of sudden movement or collapse of the toy. If it is possible to insert a 5 mm diameter rod between moving parts, it shall also be possible to insert a 12 mm diameter rod.

Modify 4.18.3 b) as follows:

b) Projectiles with a kinetic energy greater than 0,08 J when tested according to 5.15.1 (kinetic energy of projectiles) shall:

   — have a contact surface(s) made of a resilient material;

   — be accompanied by instructions for use that give the user information on how to use the toy safely (see B.2.15, projectile toys, for guidance). This requirement only applies to projectiles that it might reasonably be possible to aim at the face (see E.32, projectile toys); and

   — have a kinetic energy per unit area not greater than 2 500 J/m^2 when tested according to 5.15.1.3.3 (determination of kinetic energy per area of contact).

Modify 4.18.4 as follows:

Projectile toys without stored energy that could be launched at the face should be accompanied by instructions for use that give the user information on how to use the toy safely (see B.2.15, projectile toys). This recommendation does not apply to projectile toys intended to be thrown towards people, for example flying discs, balls or similar objects.

Add the following new subclause:

4.36 Assembly

4.36.1 General

Toys intended to be assembled shall be accompanied by assembly instructions with sufficient detail to ensure that the toy is assembled as intended by the manufacturer.

4.36.2 Toys intended to be assembled by a child

If a toy is intended to be assembled by a child, the requirements in this document apply to each component made available to the child and to the assembled toy.

Toys, such as construction sets, where assembling provides a significant part of the play value of the toy shall be evaluated to determine if any potential hazards exist (e.g. projection hazards, projectile hazards, strangulation hazards). The evaluation is limited to those assemblies depicted on the packaging and/or instructions for use. Based on this evaluation, assemblies that have the potential to be hazardous shall be constructed and tested according to the appropriate subclauses of this document. For example, a toy that requires the child to assemble a working catapult shall be evaluated for any potential projectile hazards. Where a large number of assembly configurations are possible, the tests in 5.24 (reasonably foreseeable abuse tests) do not need to be carried out on the assembled toy.

NOTE It might only be necessary to construct a portion of the entire assembly to carry out the necessary testing.

4.36.3 Toys intended to be assembled by an adult

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

Toys intended to be assembled by an adult shall:

— have packaging and instructions that prominently indicate that the article is to be assembled by an adult;

— have assembly instructions that highlight any connections that are important for the safe use of the toy, for example connections that prevent failures that may be, or cause, hazards;

— have instructions that include information on the potential hazards resulting from incorrect assembly if this could reasonably result in the creation of a hazard.

4.36.4 Toys that are intended to be disassembled between uses

— The assembly instructions shall highlight the importance of keeping the instructions for future reference.

— Any connections that are important for the safe use of the toy shall be marked to indicate that the product must not be used without the connection in place.

Delete the ninth paragraph of 5.1:

Toys reasonably intended to be assembled by an adult and not intended to be taken apart by a child shall be tested only in the assembled state if the packaging and the assembly instructions prominently indicate that the article is to be assembled only by an adult.

Replace the existing 5.21 with the following:

See 4.3.2 (expanding materials).

Test the toy or component in accordance with points 1 to 4 below and determine whether it expands according to points 5 and 6. Toys or components that expand more than 50 % are tested according to points 7 and 8.

1) Condition the toy or component at (20 ± 5) °C and at a relative humidity of 40 % to 65 % for a minimum of 7 h prior to the test.

2) Measure and record all dimensions of the toy or component, using calipers or another suitable measurement tool, to the nearest 0,1 mm; these dimensions represent the "as-received" state.

3) Submerge the toy or component under test in a bath of deionized water maintained at (37 ± 2) °C for the duration of immersion, without agitation. For toys or components that exhibit positive buoyancy, place weight(s) (with mass just sufficient to achieve complete submersion) atop the toys or components. Care should be taken to minimize contact of the test toy or component with the sides or bottom of the container.

4) Maintain submersion for 72 h, measuring the sample dimensions as in point 2 at 6 h, 24 h, 48 h and 72 h durations.

5) If the toy or component exhibits expansion greater than 50 % in any dimension from its as-received state (see point 2) at any time interval, the toy or component shall be tested according to points 7 and 8.

6) If the toy or component exhibits expansion less than or equal to 50 % in all dimensions from its as-received state (see point 2) at all measurement time intervals, the toy or component shall be considered to meet the requirements of 4.3.2 (expanding materials) and no further testing according to 5.21 is required.

7) If the greatest expansion was observed at 72 h of immersion, proceed to immediately test the toy or component according to point 8. If the greatest expansion was observed at another time interval, condition a new sample according to point 1 and submerge this new sample according to point 3 for the time interval at which the greatest expansion was observed, then immediately test the toy or component according to point 8 at the conclusion of that interval.

8) While the toy or component is submerged in deionized water at (37 ± 2) °C, attempt to push the object through the gauge pictured in Figure X1 (starting from the radiused side) with a force perpendicular to the flat surface of the gauge of up to 20 N using a 10 mm diameter rod with a hemispherical end, with the rod roughly centred within the hole in the gauge. Position the toy or component in the orientation least likely to pass through the gauge opening. The gauge shall be constructed of polytetrafluoroethylene (PTFE).

Dimensions in millimetres

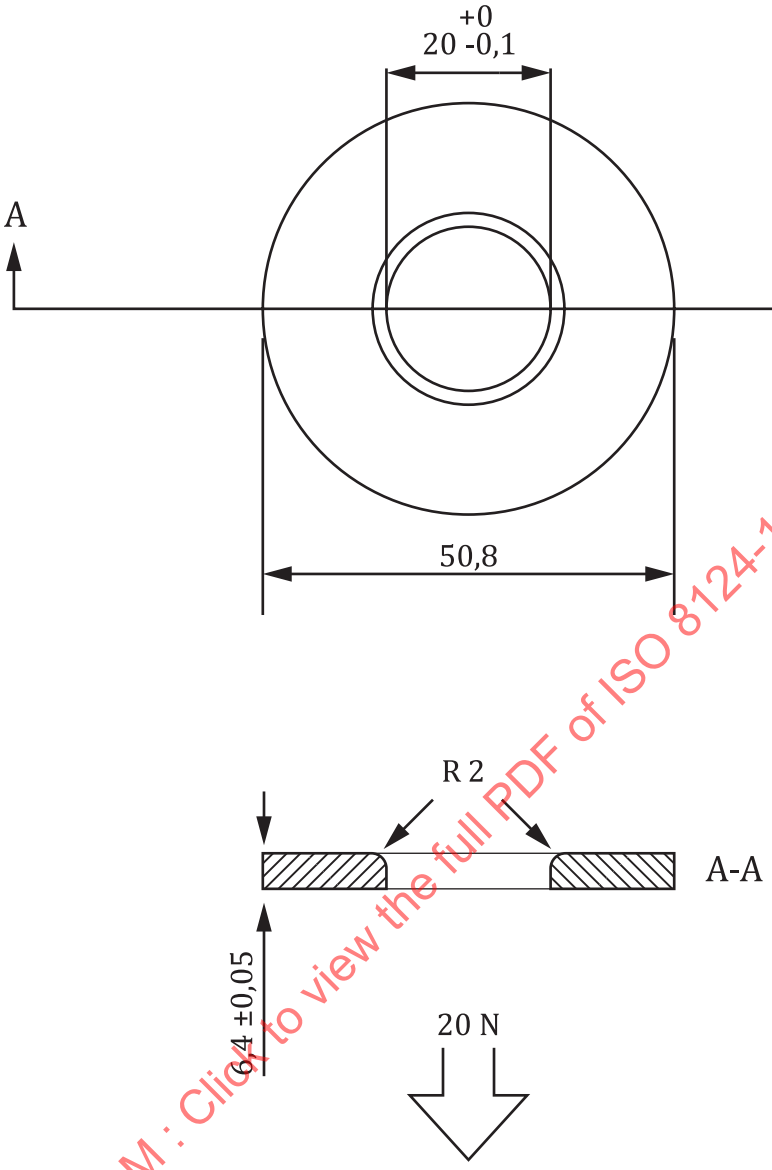


Figure X1 — Expanding toy test template

Modify the second paragraph of 5.24.2 as follows:

The impact surface shall consist of vinyl composition tiles of approximately 3 mm nominal thickness laid over concrete of at least 64 mm thickness. The impact surface shall be at least 0,3 m^2.

Replace 5.24.6.1 with the following:

Any toy with a projection, part or assembly that a child can grasp with at least the thumb and forefinger or the teeth shall be subjected to this test. The tension test shall be performed on the same components of the toy subjected to the test in 5.24.5 (torque test).

If the component to be tested cannot be gripped between the thumb and forefinger, establish whether it is grippable by inserting the feeler gauge (see Figure X4) between the component and the underlying layer or body of the toy at an angle of between 0° and 10° from the toy surface using a force of (10 ± 1) N. If the gauge can be inserted more than 2 mm, the component shall be considered as grippable.

Fasten the toy and apply a clamp capable of applying the tension load to the test component in a manner that will not affect the structural integrity of the attachment between the component and the toy. The loading device shall be a self-indicating gauge or other appropriate means having an accuracy of 2 N.

NOTE 1 For certain toy components like foam mats, it can be necessary to use a clamp with large clamping areas such as that used for soft toys, a clamp utilizing rubber pads, or some other means to minimize the likelihood of a clamp-induced failure.

Apply a force of (70 ± 2) N parallel to the major axis of the test component evenly over a 5 s period and maintain for 10 s.

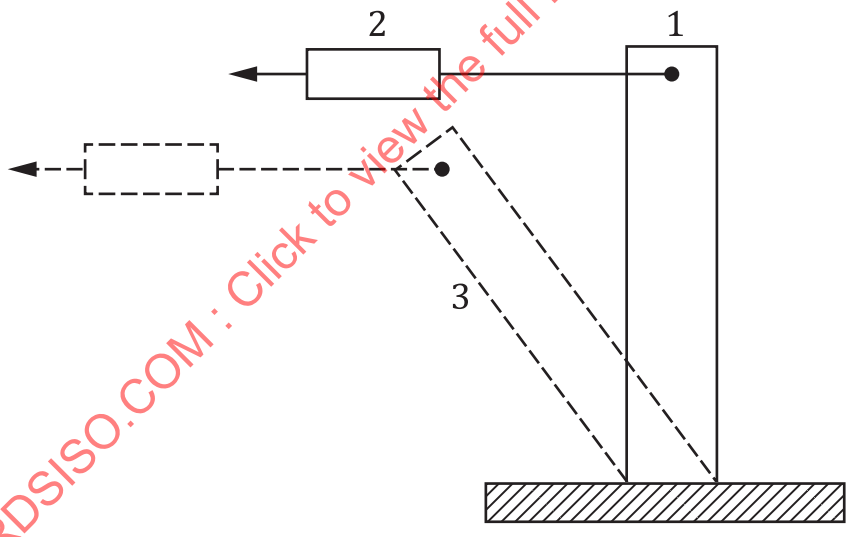
Release the force, replace or reposition the clamp, or reposition the toy such that the tension load can be applied perpendicular to the major axis of the test component.

Apply a force of (70 ± 2) N perpendicular to the major axis of the test component evenly over a period of approximately 5 s and maintain for 10 s, keeping the force vector substantially perpendicular to the original orientation of the test component.

If the test component bends during this process, adjust the position of the gauge or toy constantly as the force is applied in order to keep the force vector substantially perpendicular to the original orientation of the test component (see Figure X2).

NOTE 2 If it is difficult to maintain the correct direction of force, a more consistent result can be obtained by positioning the toy such that the major axis of the test component is horizontal and the force applied vertically with a mass rather than manually by the operator (see Figure X3).

Determine whether the toy continues to conform to the relevant requirements of Clause 4 (requirements).



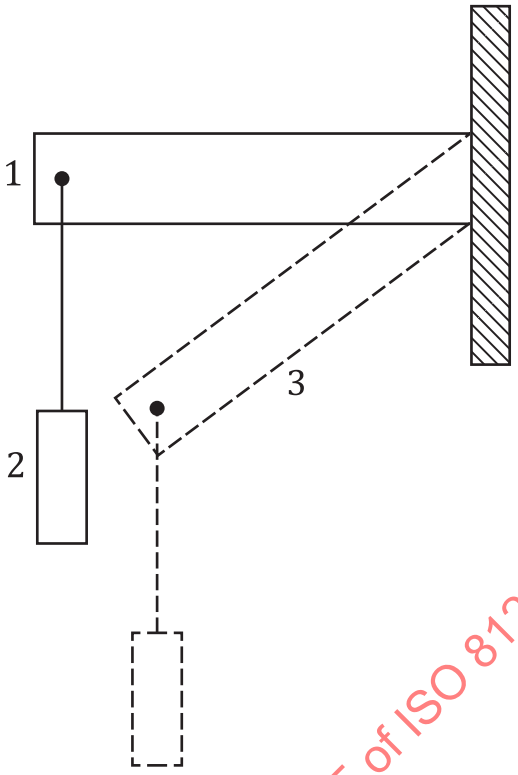
Key

1 component under test in its initial position

2 means of applying a controlled amount of tensile force, for example a force gauge pulled by the operator or a suitable device

3 component under test in its dynamic position

Figure X2 — Direction of force during perpendicular tension test

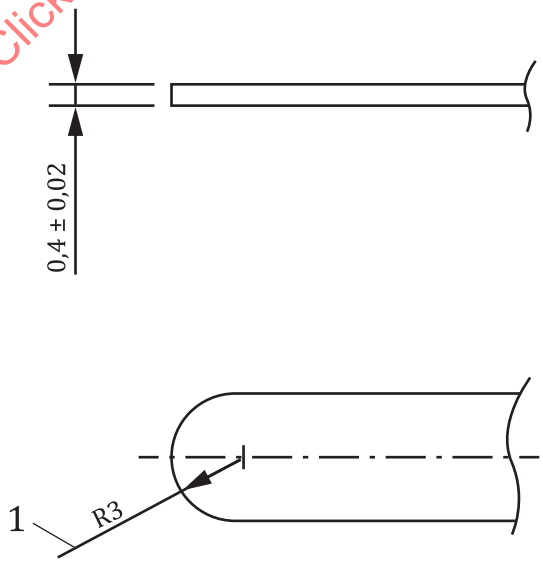


Key

1 component under test in its initial position
2 means of applying a controlled amount of tensile force, for example a suspended mass
3 component under test in its dynamic position

Figure X3 — Perpendicular tension test using a mass

Dimensions in millimetres



Key

1 insertion edge radius

Figure X4 — Feeler gauge