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AMENDMENT

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Safety of toys —

Part 1: Safety aspects related to mechanical and physical properties

AMENDMENT 1: Projectiles, rotors and propellers

Sécurité des jouets —

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

AMENDEMENT 1: Projectiles, rotors et propulseurs

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The committee responsible for this document is ISO/TC 181, *Safety of toys*.

Safety of toys —

Part 1:
Safety aspects related to mechanical and physical properties

AMENDMENT 1: Projectiles, rotors and propellers

Page 9, Clause 3

Amend the existing definitions with the following:

3 Terms and definitions

3.47
projectile
object without capacity for self-propulsion, intended to be launched into free flight

Note 1 to entry: The definition does not include self-propelled flying toys such as remote control helicopters and wind-up airplanes unless the capacity for self-propulsion is from self-contained compressed gas and/or liquid (e.g. rockets).

3.48
projectile toy with stored energy
toy with a projectile launched by means of a discharge mechanism capable of storing energy independent of the user and incorporating a release mechanism

Note 1 to entry: Release mechanisms should operate following at least one single discrete activation by the user.

Note 2 to entry: Toy rockets and similar toys propelled by a chemical reaction or compressed gasses (e.g. air) where the energy can be stored independent of the user are considered as projectile toys with stored energy. For example, in a rocket propelled by a mixture of vinegar and baking soda, the user initiates the reaction by mixing the two substances but no longer has control of the actual launching. The rocket will launch when the pressure build up overcomes the force that holds the rocket onto the launch platform.

3.49
projectile toy without stored energy
toy with a projectile propelled by energy imparted by the user or by means of a discharge mechanism incapable of storing energy independent of the user

Page 12, Clause 3

Add the following new definitions:

3.71
free flight
unconstrained travel through the air

Note 1 to entry: to entry:This includes projectiles that are ultimately restrained by means of a non-rigid tether (e.g. a pop-gun).

3.72
arrow
projectile in the form of a shaft with a length of 150 mm or more, intended to be discharged from a bow held by the user

3.73
discharge mechanism
a component of the toy, separate from the projectile, which releases or propels the projectile into free flight

3.74
dart
a projectile in the form of a shaft less than 150 mm in length that is intended to be thrown or blown

3.75
leading edge
an area of the projectile (e.g. tips, edges or protrusions) which would be expected to make contact with the eyeball in the event of launching towards the eye

Note 1 to entry: This includes all areas on projectiles that travel in unpredictable orientations (e.g. tumbling) that could reasonably be expected to strike the eyeball.

Page 29, Subclause 4.18

Replace the existing Subclause 4.18 with the following:

4.18 Projectile toys

See E.32.

4.18.1 General

a) The requirements of 4.18.2 a), b), c), 4.18.3 b) to e) and 4.18.5 do not apply to projectiles that have a maximum range of 300 mm or less when measured in accordance with 5.35 (determination of projectile range).

b) The requirements of 4.18.3 a) do not apply to projectile toys for children 3 years and above with a range of 100 mm or less when measured in accordance with 5.35 (determination of projectile range).

c) The requirements of 4.18.2, 4.18.3, 4.18.4 do not apply to

- components that function as projectiles which are permanently enclosed within a toy unless they are liberated when the outer container is tested according to 5.24 (reasonably foreseeable abuse tests);
- ground based toys propelled along a track or launched onto another surface;

NOTE These are not considered to be projectile toys even if they include an element of motion in free flight, for example leaps between tracks or surfaces.

- rotors and propellers.

4.18.2 Projectiles

Projectile toys shall conform to the following requirements.

a) Tips or leading edges on rigid projectiles shall not protrude beyond the depth of the gauge shown in Figure X(5) when tested according to 5.36 (tip assessment of rigid projectiles).

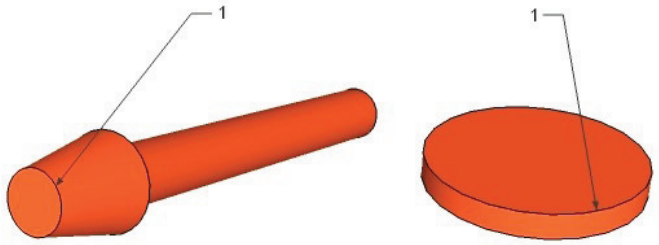
b) The leading edges of a projectile, as well as any corners that are adjacent to the leading edge(s) shall be smooth and free of points, burrs, flash or similar projections.

c) For rigid projectiles discharged by projectile toys with stored energy, the corners of the projectile that are adjacent to the leading edge(s) shall have rounded edges. For purposes of this requirement a radius of 0.25 mm shall be considered sufficient. This requirement does not apply to projectiles made from paper or paperboard.

NOTE 1 There may be multiple leading edges that require evaluation, especially in situations where the projectile may travel in irregular or unpredictable orientations (e.g. tumbling).

NOTE 2 To determine if a leading edge and/or adjacent corner can strike the eye, the spherical shape of the eyeball should be considered, as well as the size and shape of the projectile relative to the eye, the regularity or predictability of the flight path, and any other relevant factors.

See Figure X(1) for examples of corners adjacent to leading edges.



Key

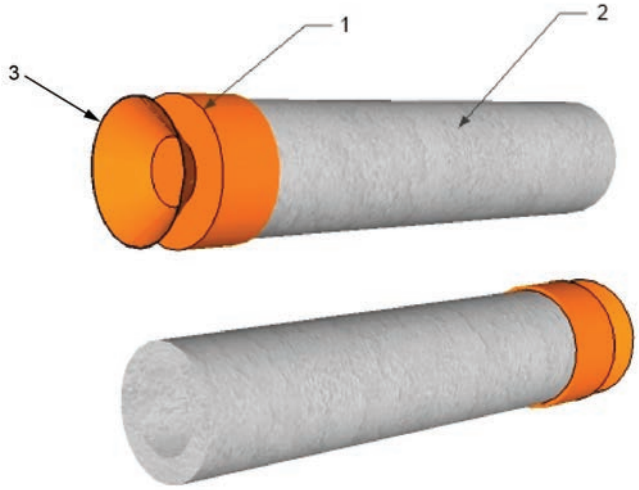
1 corners adjacent to leading edges

Figure X — (1) — Examples of corners adjacent to leading edges on missile and disc-type projectiles

d) Projectiles with a suction cup as a contact surface shall have a length of 57 mm or more when measured according to 5.37 (length of suction cup projectiles) before and after testing according to 5.24.5 (torque test) and 5.24.6.5 (tension test for a projectile with a suction cup) unless:

— the suction cup does not pass entirely through template C when tested according to 5.4 (small balls test), or

— the suction cup is on a foam shaft projectile (see Figure X(2) where the suction cup diameter measured in the relaxed state, is less than or equal to the diameter of the foam shaft.



Key

1 plastic collar

2 foam

3 suction cup

Figure X — (2) — Foam projectile with suction diameter less than or equal to the diameter of foam shaft

NOTE The requirement of 4.18.2 d) applies to both suction cups that have been separately affixed to the shaft and to those that are integral with the shaft (i.e. one-piece mouldings).

e) Suction cups on projectiles with a suction cup as a contact surface shall not detach when tested according to 5.24 (reasonably foreseeable abuse tests) unless:

   — the detached suction cup does not pass entirely through template C when tested according to 5.4 (small balls test), and the exposed shaft end complies with 4.8 projections, or

   — the suction cup is on a foam projectile where the suction cup diameter, when measured in the relaxed state, is less than or equal to the diameter of the foam shaft, see Figure X(2).

NOTE The requirement of 4.18.2 e) applies to both suction cups that have been separately affixed to the shaft and to those that are integral with the shaft (i.e. one-piece mouldings).

4.18.3 Projectile toys with stored energy

Projectile toys with stored energy shall conform to the following requirements:

a) Projectiles shall not, whatever their orientation, fit entirely into the small parts cylinder when tested in accordance with 5.2 (small parts test).

NOTE This requirement applies to projectile toys intended for children 3 years and above.

This requirement does not apply to:

— small parts that are released after testing in accordance with 5.24 (reasonably foreseeable abuse testing) and 5.15.2 (wall impact test for projectiles) that cannot be launched or are unable to travel a distance greater than 100 mm when measured in accordance with 5.35 (determination of projectile range);

— small parts of foam that are released from projectiles whose shafts are completely made of foam following testing in accordance with 5.24 (reasonably foreseeable abuse testing) and 5.15.2 (wall impact test for projectiles).

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, and

— be accompanied by a warning about aiming at the eyes or face (see B.2.15 a) for guidance). This requirement only applies to projectiles that might reasonably be able to be aimed at the face (see E.32.);

— have a kinetic energy per unit area not greater than 2 500 J/m^2 when tested according to 5.15.1.3.2 (determination of kinetic energy per area of contact).

c) Where a protective cap, cover or tip is used it shall either:

— not become detached from the projectile when tested in accordance with 5.24.5 (torque test) and 5.24.6.4 (tension test for protective components), or

— if the protective cap, cover or tip becomes detached and if any resulting component can still be discharged from the discharge mechanism, the toy shall continue to comply with the requirements of 4.18.3.

c) When tested in accordance with 5.15.2 (wall impact test for projectiles), projectiles shall not produce a hazardous sharp edge or a hazardous sharp point and shall continue to meet the requirements of 4.18.3.

d) The discharge mechanism shall be designed so that it is unable to launch the improvised projectiles, specified in Figure AA and Table AA, in a manner determined to be hazardous.

NOTE 1 The discharge mechanism shall be assessed in the form in which it is supplied in the toy, i.e. there shall be no user modifications.

NOTE 2 Improvised projectiles that are discharged 300 mm or less are not considered to be hazardous [see 4.18.1 a)]

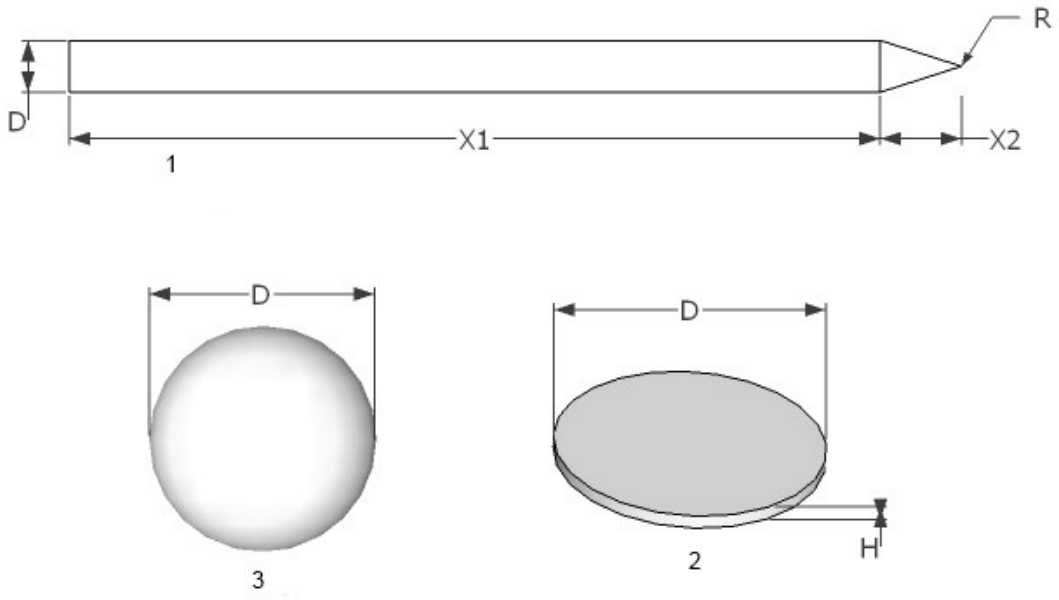
When evaluating the ability of a discharge mechanism to launch improvised projectiles in a hazardous manner, consideration should be given to the following factors:

— the repeatability and ease of loading and then launching the improvised projectile;

— the orientation of the discharge mechanism;

— distance travelled by the improvised projectile;

— other factors considered to be relevant.



Key

1 cylindrical shaft
2 disc
3 sphere

Figure — AA — Improvised projectiles

Table — AA — Dimensions of improvised projectiles shown in Figure AA

Dimensions in millimetres

Designation	Name	Material	D	X1	X2	R[a]	H
Shafts							
A	Pencil	Hardwood	7	155	15	0,5	
B	Long nail / pen refill	Aluminium	3	100	5	0,1	
Z	Pen refill	Aluminium	3	50	5	0,1	
C	Short nail / toothpick	Aluminium	1,5	50	2,3	0,05	
D	Toothpick	Aluminium	1,5	25	2,3	0,05	
Spheres							
E	Steel ball	Steel	8				
F	Small marble	Glass	16				
G	Large marble	Glass	25				
Discs							
H	Small coin	Steel	15				1,5
I	Medium coin	Steel	20				2
J	Medium/large coin	Steel	25				3
K	Large coin	Steel	30				3

[a] Radius on shaft tips are non-critical dimensions.

4.18.4 Projectile toys without stored energy

Projectile toys without stored energy that might reasonably be able to be launched at the face, should be accompanied by instructions for use, which draw attention to the hazards of aiming at eyes or face [see B.2.15 b)]. This requirement does not apply to projectile toys intended to be thrown towards people, e.g. flying discs, balls and similar objects.

4.18.4.1 Mouth actuated projectile toys

Mouth actuated projectile toys shall comply with the requirements of 4.25 (mouth-actuated toys).

4.18.4.2 Projectiles in the form of a dart

Projectiles in the form of a dart shall conform to the following requirements:

a) When measured in accordance with 5.15.1.3.2 a) to f) (contact surface area), the contact area of the dart shall be at least 3 cm^2.

b) The dart shall either be:

— provided with a protective cap, cover or tip that is integral with the front end of the shaft, or

— have a blunted front end to which a protective cap, cover or tip is attached, or

— be made of a resilient material, unless it is reliant on magnetic forces.

c) After testing in accordance with 5.24.5 (torque test) and 5.24.6.4 (tension test for protective components) projectiles in the form of a dart with a protective cap, cover or tip shall conform with at least one of the following requirements:

— the protective cap, cover or tip shall not become detached from the projectile, or

— if the protective cap cover or tip becomes detached from the projectile, the projectile shall not be capable of being launched by the discharge mechanism, or