

## EN 71-1:2011: What is new?

8 July 2011

*The new version of the standard for mechanical and physical properties, EN 71-1:2011, was published on 8 June 2011 and was referenced in the Official Journal of the European Union on 18 June 2011. The revised standard supports the requirements of the new Toy Safety Directive 2009/48/EC and gives presumption of conformity to the Directive. Both the new standard and the new Directive will apply after 20 July 2011. Previous versions of EN 71-1 will not give presumption of conformity to the new Directive.*

This article provides a summary of some of the changes in EN 71-1:2011 when compared to the version that presently gives presumption of conformity with the old Directive, i.e. EN 71-1:2005+A9:2009.

EN 71-1:2005+A9:2009 was published by the European Committee for Standardization (CEN) in July 2009. At the beginning of 2011, four amendments were published:

- A 10 regarding “Cords in toys”
- A 11 regarding “Suction cups on projectiles intended for children over 3 years”
- A 12 regarding “Bicycles, scooters and ride-on toys”
- A 14 regarding “Suction cups and expanding material”

EN 71-1:2011 includes these amendments as well as the revision made due to the new Toy Safety Directive. Both the amendments and the revision are addressed in this article.

### **Amendment A 10 “Cords in toys”**

A10 is the most comprehensive amendment of the four, and several changes to the previous requirements are introduced. The main changes are:

- New clarifying definitions for cord, fixed loop, tangled loop, noose, ribbon, strap, chain, tape, electrical cable and yoyo-ball
- A new requirement addresses yoyo-balls, based on initial length of tether, and the ratio between the mass and the elastic constant
- New maximum length for cords with attachments that can form a tangled loop or a noose:
  - Toys intended for children under 18 months: 220 mm
  - Toys intended for 18 to 36 months: 300 mm  
(a specific warning is required when the length exceeds 220 mm)
- Maximum length for cords with a free end (excluding “pull-along toys”):
  - Toys for children under 18 months: 300 mm
  - Toys for 18-36 months: Warning required if length >300 mm
- Maximum length for cords with free end on “pull-along toys”



intended for children under 36 months: 800 mm

- Toys intended for children under 36 months that have electrical cables longer than 300 mm shall carry a warning (an “electrical cable” is defined as a “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”)
- Straps on toys intended for children under 36 months, and that are intended to be worn fully or partially around the neck (e.g. straps on binoculars or guitars) and which create a fixed loop, shall have a 25 N breakaway feature (a “strap” is defined as a “strip of flexible material used for fastening, securing, carrying or holding”)
- Perimeters of fixed loops shall not exceed 380 mm (or an alternative, equivalent requirement if the fixing points of the cord to the toy are more than 94 mm apart and part of the toy is thus a significant part of the formed loop. In this case an alternative measurement method is applied). A longer perimeter is accepted if the loop separates in parts less than 220/300 mm at < 25 N
- The perimeter of nooses shall not exceed 380 mm (see above regarding alternative requirement/measurement method)
- Toys with cords intended to be strung across a cradle, cot or perambulator shall carry a warning
- This warning requirement also applies also to toys with cords that are:
  - intended to be attached to a cradle, cot or perambulator and are
  - intended to be out of reach of the children, and
  - have cords longer than 220 mm that can form a tangled loop or a noose

However, if these toys are intended to be within the reach of children they shall comply with the length limitations of 220 mm/300 mm) (i.e. a warning is not enough)

Apart from the above, new test methods have been introduced, for example, for measurement of loops/nooses (see above) and for yoyo-balls. Also, a rationale for the new requirements has been added to the Annex of the standard.

The basic idea behind the requirements that limit the length of cords that can form a tangled loop or a noose and the perimeters of fixed loops and nooses are:

- The length of a cord is limited to 220 mm/300 mm (depending on the intended age group) in order to minimise the risk that it can form a tangled loop or noose after having been placed around the neck
- The perimeter of a fixed loop and a noose is limited to 380 mm (or the equivalent requirement) in order to minimise the risk that the loop/noose can be pulled over the head and placed around the neck

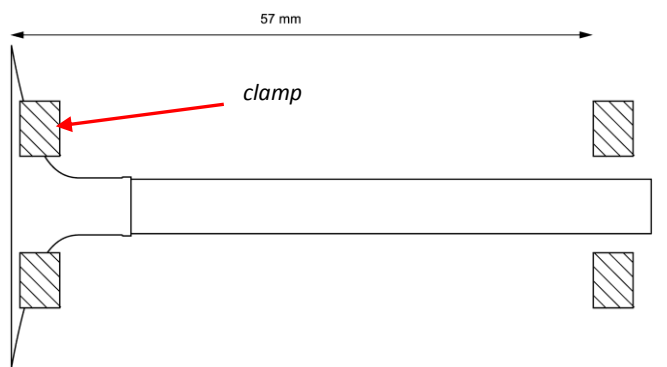
#### **A 11 “Suction cups on projectiles”**

A11 concerns projectiles with suction cups intended for children over 3 years (i.e. not covered by the suction cup requirements in chapter 5). For example, the following requirements are new:

- These suction cups were previously dealt with as a protective component that should not come loose at a tension force of 60 N, but are now dealt with as a part that must withstand a torque test and a 90 N tension test



- The 57 mm requirement (a projectile with a suction cup as impact surface must be at least 57 mm long) has been extended to apply before and after torque/tension (90 N) tests. This means that if the shaft breaks during testing, the part that holds the suction cup must be longer than 57 mm.
- All the above requirements apply only if the suction cup is smaller than the small balls/suction cup template (called template E in the standard), which has an inner diameter of 44.5 mm
- The manner in which the projectile is tested is important and therefore a special test set-up is given in the standard:



The distance will allow the clamps to be attached to projectiles with the shortest permissible length (57 mm) and will also ensure that any weak points of the shaft are detected (i.e. weak points that, when subjected to a tension force, could result in a shaft-part with a suction cup that has a total length of less than 57 mm). In the case of projectiles where the projectile is not moulded in one piece, it shall be ensured that the suction cup is not clamped to the shaft during the test.

## A 12 “Bicycles, scooters and ride-on toys”

The more important changes implemented through this amendment are:

- Electrically driven ride-on toys shall not be for standing use if intended for children under 6 years; i.e. they must have a seat.
- Electrically driven ride-on toys shall have a maximum design speed of 6 km/h if intended for children 0-6 years (unless it has a two-position device, operated by an adult with a tool, which limits the max speed to 6 km/h in one position and 8.2 km/h in the other)
- Electrically driven ride-on toys shall have a maximum design speed of 16 km/h if intended for children over 6 years
- There are requirements for warnings applying to all ride-on toys. A couple of new, additional warnings are introduced for electrically driven ride-on toys:
  - A warning shall indicate the intended age group, for example: “Warning. This toy is unsuitable for children under 3 years due to its maximum speed.”
  - A warning regarding lack of brake shall be present if the toy does not have a break. A break is not required e.g.
    - If the toy has no free-wheeling facility and is not intended for two or more children and does not have an unloaded mass of more than 30 kg
    - If the toy has a sufficient motor-brake through the electrical motor
  - A warning, drawing the attention to the potential hazards of using the toy in areas other than private grounds
- The test method which was previously used to assess “free-wheeling” has been modified and instead used for determining the capacity of the electrical motor-brake
- The requirements for chain- or belt-shield have been modified
- Not only adjustable seat pillars but also adjustable handlebar stems shall have minimum insertion marks
- Metal steering tubes shall not show visible cracks after dynamic test



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- “Not to be used in traffic” has been added to the warning on roller- and inline-skates, skateboards, bicycles and toy scooters
- A toy scooter intended for children with a body mass of less than 20 kg is considered to be intended for children under 3 years

#### **A 14 “Suction cups and expanding material”**

This is a rather short amendment which covers, for example, the following:

- For toys intended for children under 3 years, it is clarified that:
  - Toys with suction cups (directly attached to the toy or attached via a cord) must not pass entirely through template E (inner diameter is 44.5 mm)
  - Suction cups attached to a toy by a cord must not pass entirely through template E if the cord does not withstand the 90 N tension test
- For toys with expanding material it is clarified that:
  - The requirement for maximum 50% expansion shall be fulfilled after 24, 48 and 72 hours soaking

#### **Revision due to the new Toy Safety Directive 2009/48/EC**

The new particular safety requirements for mechanical and physical hazards in the Toy Safety Directive called for an update of several parts of EN 71-1. For example:

The scope has been aligned with the new Toy Safety Directive meaning that for example the following *exclusions* have been introduced:

- Bicycles with a maximum saddle height of more than 435 mm
- Scooters intended for use for travel on public roads/pathways
- Electrically driven vehicles intended for use on public roads/pathways/ pavements
- Products intended for use for educational purposes in schools and other pedagogical contexts under the surveillance of an adult instructor, such as science equipment

New definitions have been added for:

- “Free-wheeling mechanism” and “fixed drive”
- Toy bag

#### Examples of changes in chapter 4 (Requirements for all toys regardless of intended age group)

- For expanding material enclosed by a material intended to break during soaking, the breakable material shall be removed before testing
- Splinters on surfaces and accessible edges of toys shall not present an unreasonable risk of injury during foreseeable use (a subjective assessment is required)
- Toys intended to be put in the mouth: No small part shall be released (after applicable testing) from any part of the toy, regardless of intended age group
- Stoppers on air-inflation inlets on aquatic toys and inflatable toys shall after testing not be released if they are small parts (i.e. if they fit entirely in the small parts cylinder)
- Aquatic ride-on toys such as dolphins that are larger than 1.2 m when uninflated) shall fulfill requirements for floating leisure articles, Class A 2 devices in EN 15649-3
- Toys directly attached to food such that the food product does not need to be consumed in order to get direct access to any part of the toy, shall not be a small part or a small ball after applicable testing
- An informative note, mentions that:



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- Toys firmly attached to food, such that no part of the toy is accessible before consuming the food, are banned
- Toys contained within food or co-mingled with food must have their own packaging (which fulfils the requirements for packaging)
- Outer food packaging must carry a warning if there is a toy inside: “Warning. Toy inside. Adult supervision recommended.”

#### Examples of changes in chapter 5 (Requirements for toys intended for children under 3)

- Seams of soft-filled toys/parts of toys, containing fibrous filling material shall not allow the insertion of a 12 mm probe more than 6 mm after a seam test
- The exclusion for containers that are part of the packaging (from the requirements for hemispheric-shaped toys) has been deleted (an exclusion remains for containers that need to be airtight, for example, modelling clay containers)
- Hygiene requirements are mentioned in a note:
  - Toys intended for children under 3 years must be possible to clean
  - Textile toys intended for children under 3 years must be washable, unless they contain a mechanism that may be damaged if soak washed (possible need for the manufacturer to supply cleaning/washing instructions)

#### Examples of changes in chapter 6 (Requirements for packaging)

- Requirements that apply to toys also apply to packaging when the packaging is:
  - plasting sheeting (not shrink-film)
  - “small ball-shaped” (regardless of intended age group)
  - “hemispheric-shaped” (if intended for children under 3 years)
- Packaging that is cylindrical-shaped with a rounded end shall not pass through template E if it can part in two (unless it is longer than 64 mm or is firmly attached to the other part of the cylindrical-shaped packaging)

#### Requirements for warnings (chapter 7)

The new requirements for warnings are dealt with in a [separate article](#).

#### Test methods and rationale (chapter 8 and Annex A)

- Test methods adapted to support changes in chapters 4 and 5
- Rationale adapted to explain changes in chapters 4 and 5

#### **About TIE**

*Toy Industries of Europe (TIE) is the trade association for the European toy industry, which comprises over 25% of the total world toy market. The toy industry is highly international and is one of the most dynamic business sectors in Europe. Around 80% of the sector is composed of small and medium sized enterprises (SMEs) which have less than 50 employees. Members of TIE include corporate companies as well as national associations from Bulgaria, France, Germany, Italy, the Netherlands, Spain, Sweden, the UK and the Nordic region. TIE membership is open to both corporate companies with a presence in Europe and national associations from European Union Member States (including candidate countries).*

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