AS/NZS 8124.1 – Safety of Toys
Mechanical and Physical Properties

2016 Updates

Australian Toy Association

Presenter

Australian Toy Association

Richard Hayman
ATA Compliance

AS/NZS CS-018 Safety of toys – Chair
ISO TC 181 – Standards NZ representative

Housekeeping

Australian Toy Association

- Disclaimer
  - Information is provided ‘to the best of our knowledge’
  - Should not be taken as legal advice
  - Contact us directly at compliance@austoy.com.au if you have a specific issue

ATA Compliance Information

Australian Toy Association

- Webinars
  - More focused topics
  - Shorter
  - More frequent
  - Topic suggestions welcomed
- Bulletins
- Webpage - http://austoy.com.au/members-only/safety-compliance
- Email (compliance@austoy.com.au)
- ATA Safety Committee
  - Selection of Distributors, Retailers and a Laboratory

Agenda / Objectives

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- Understand the changes made to AS/NZS 8124.1 in the 2016 revision
- Review the Regulations that might be impacted
- Provide insights to future changes to AS/NZS 8124.1
- Questions

Background – AS/NZS 8124.1

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- Safety aspects related to the mechanical and physical properties of toys
  - Intended for use in play by children under 14
- Voluntary vs Mandatory
  - Requirements are voluntary unless called up by specific regulation, e.g. Toys for children under 3, Magnets, Projectile toys
  - Suitable as evidence (in association with other relevant Standards) that products are fit for purpose and safe for their intended users as required by the Australian Consumer Law
- Development
  - Joint Australia and New Zealand
  - Developed through ISO then adopted locally
  - Advantages in cost, expertise and global alignment
- Updates
  - Frequent (New understandings on hazards, clarifications, alignment)
  - Amendments vs revisions

ISO vs AS/NZS Development

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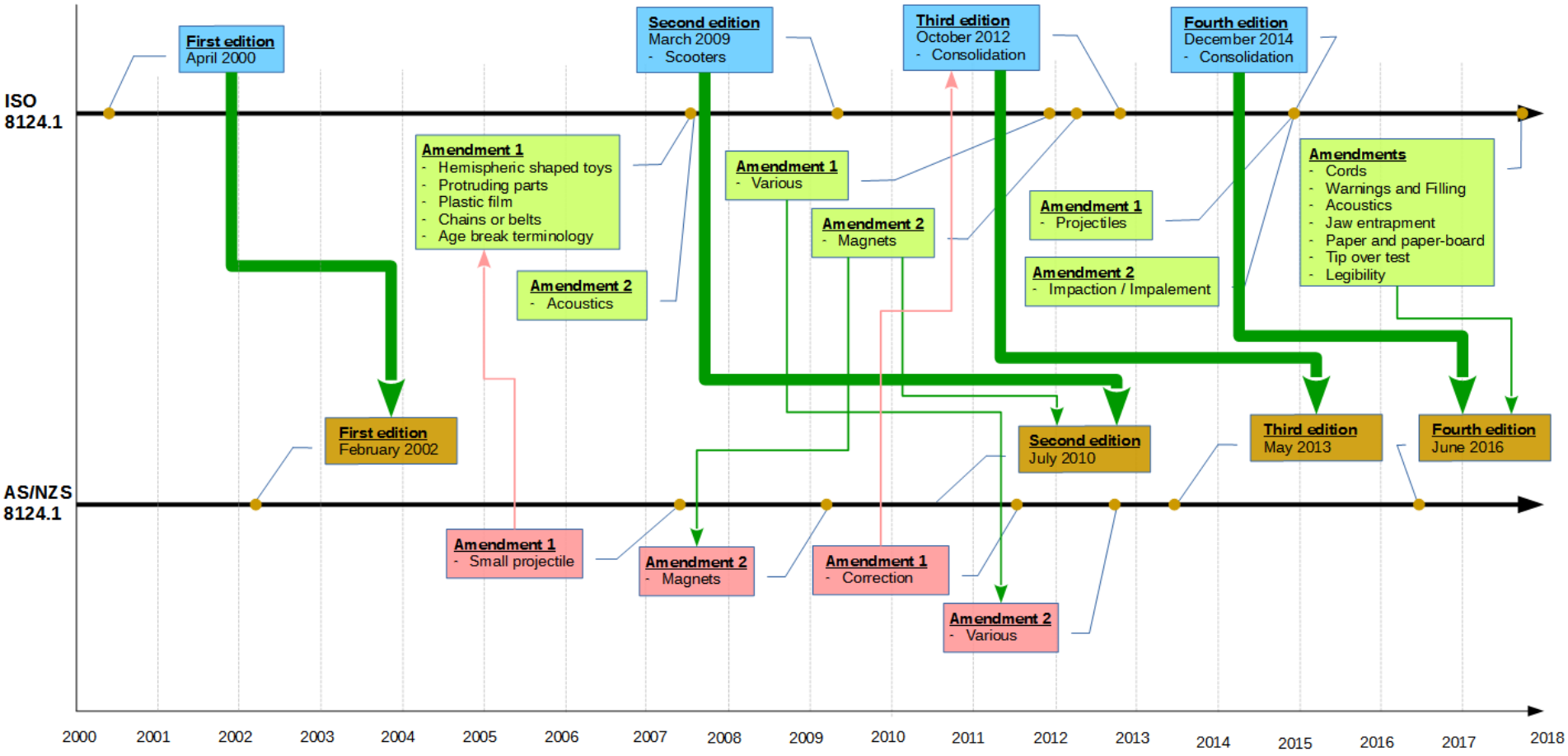

2016 Changes – Projectiles (1)

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- Complete re-write
- Closer alignment with EN and ASTM
  - ASTM 2016 version published end October
  - EN update in progress
- Increase clarity, (but you have to read it carefully)
  - Arrows > 150 mm
  - Darts < 150 mm
  - Free flight
  - Projectiles with and without stored energy
  - Gauge for assessment of leading edge vs tip radius
  - Range determination to avoid applying requirements to trivial projectiles
  - Specified improvised projectiles (for consistency)
  - Specific more detailed requirements for darts and arrows

2016 Changes – Projectiles (2)

Australian Toy Association

- Additional requirements
  - Length of projectiles with suction cups - Separate to small part requirement
    - Tension test
- Adjustments for hazard data
  - Increase to allowed kinetic energy per unit area of 2 500 J/m^2 up from 1 600 J/m^2
    - Bibliography
- Rotors and propellers separated to a different clause
  - Clarification that those that rotate in the vertical plane are excluded
- Extensive explanations in the Rationale
- Appendix ZZ
  - Fixed some errors that were identified in anticipation of the fix in ISO
  - Needed to act early to support local regulation
  - Clarify that projectiles with less than 0.08 J do not need to be test for kinetic energy per unit area
  - Dimensions of gauge used in the leading edge test

2016 Changes – Impaction

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- To address impaction incidents with specific shaped toys or components of toys
- Similar to preschool play figure requirement, but different mechanism for injury
- Shape and weight are critical
- Compliance determined by test template
- 4.5.1.3 – Requirements for children under 18 months
  - Any item meeting shape criteria
- 4.5.1.1 – Requirements for children between 18 and 48 months
  - Toy fasteners only
  - Narrower shape criteria
  - Based on incident data
- Detailed rationale with examples
- Expanded rationale for preschool play figures to explain the difference
- Note also that the requirement for squeeze toys, rattles, etc. has been clarified to apply to products for children under 6 months (vs 'too young to sit up unaided')

2016 Changes – Impalement

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- To address penetration and impalement incidents on bath toys
- Aligned with ASTM
- 4.8 Projections
  - No requirements, but design guidelines are provided in Annex F
- Consider product in any position in which it is stable
  - Not vertical
  - Not accessible
  - Flexible
  - Dimensions

2016 Changes - Other

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- 4.4.2 / 4.5.2 / 4.5.7 - Warnings on toys for children between 36 months and 72 months
  - Clarification that warnings for small parts, small balls and marbles can be combined
- Annex A - Age-grading guidelines
  - Reference to TR 8124-8 Age determination guidelines
- Annex ZZ
  - Anticipates corrections or adjustments to ISO
  - Clarify that fibrous fill is exempted from being considered as a small part
  - Correction to figure 17 – Options for enclosures

Relationship to Regulations

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- Current Situation
  - No change to regulations
  - Test to Standard to ensure that products are fit for purpose and safe
  - Incremental check to regulation if required
- Regulations referencing 8124.1
  - Toys for children under 3
    - Requirements substantially unchanged
    - Take care with fibre fill in soft toys
  - Toys with projectiles
    - Need incremental check to regulation
  - Toys with magnets
    - Requirements unchanged / more onerous than regulation
  - Flotation / Aquatic toys
    - Unchanged from 2013 version, but different to regulation
    - Need incremental check to regulation

Regulation Reviews

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- ACCC working on updates
  - A consultation paper for those affecting toys should be published shortly
  - Expecting a Regulatory Impact Statement process
- Expected
  - Referencing the 2016 version
  - Magnets
    - Match the Standard
    - Hazardous magnets only allowed in experimental sets intended for children 8 and over, with a warning
- Hoping for
  - No modifications
    - Compliance with Standard ensures compliance with regulation
  - Recognition of EN 71-1 and ASTM F963-16
  - Toys for children under 36 months
    - Stop unnecessary recalls for the release of fibre fill
  - Projectile toys
    - Allow higher powered projectiles
  - Aquatic toys
    - More flexibility in warning text

Future Changes (1)

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- ISO Publication in June 2017 (Amendment)
  - Cords
    - Full rewrite of requirements
    - More fully address hazard of strangulation by cords
    - Align with EN 71-1
    - Cords for particular ages
    - Cords for particular toys (including yo-yo balls)
    - Cords with the potential to tangle (attachments)
    - Definitions, test methods and extensive rationale
  - Various
    - Legibility of symbols and warnings – To provide good practise for visibility and legibility
    - Paper and Paperboard – To provide requirements around the application of small parts requirements to paperboard
    - Tip over test for large and bulky toys – To include toys with a mass of more than 4.5 kg in the definition and provide for situations where such toys should not be tipped over
    - Jaw entrapment – New requirement to address incidents of children under 18 months getting their jaws trapped in openings of steering wheels and handles – Test method and rationale
    - Corrections - Figure 17, projectile adjustments

Future Changes (2)

Australian Toy Association

- ISO Publication in June 2017 (Amendment)
  - Warnings and Fibrous filling
    - Clarify exemptions to small parts requirements for certain materials, e.g. fibrous fill
    - Adjust the text of warning requirements for small parts, small balls and marbles for consistency
  - Acoustics
    - Modify to align with ASTM
    - Clarification regarding requirements for continuous and impulsive noise
    - Adjust limit for impulsive noise in close to the ear toys (95 dB to 110 dB at 50 cm) – It was too low due to an error
    - Clarify exemptions

Future Changes (3)

Australian Toy Association

- ISO Publication in 2019 (Revision)
  - Various 2
    - Expanding toys – To align with ASTM
    - Tension test – To clarify method
    - Adult assembly – To add requirements for instructions on critical assembly points
    - Folding mechanisms – To add reasonably foreseeable abuse of a brace
    - Toy bags – To align with EN 71 and distinguish between retained packaging that wouldn't need to meet requirements and components of the toy that would
    - Shape and Size exemption for impaction requirements for small rigid components – To align with EN 71 and ensure that the requirement would not be misunderstood
    - Hardness of drop test surface – To align with EN 71 and ASTM
    - Accessible clearances – To align with ASTM and clarify that ride-on toys are included
    - Gauge for determination of grippable – To align with EN 71 and provide a method to determine whether a component is grippable
  - Flying toys (including drones)
    - New requirements to cover toy versions of flying toys such as remote control helicopters and drones

Questions (1)

Australian Toy Association

- Do Australian Standards differ significantly from overseas standards?

  Compliance with the applicable parts of **any** of the International Standards, AS/NZS 8124, EN 71 and ASTM F963 would be good evidence that the product is fit for purpose and safe as required by our Australian Consumer Law.

  The Standards are very similar and we are working in ISO to make them more so.

  However, we have a number of specific product regulations, e.g. CPN 14 of 20003 for toys for children under 36 months, that require compliance with specific clauses of a specified version of the AS/NZS Standard and may even make variations to the requirements in that Standard.

  We are therefore cautious about relying on compliance with a different International Standard to ensure compliance with a specific regulation.

  The situations and conditions under which we believe that compliance with a different Standard can be relied on for compliance with a regulation are detailed in the Requirements List in the members area of the website - http://austoy.com.au/members-only/safety-compliance

Questions (2)

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- ASTM & EN clarification?

  The US Standard for the safety of toys is ASTM F963
  - All the requirements are contained in this single document.
  - It is made mandatory in the US by the CPSIA Act
  - The latest version was published in October of 2016

  The European Standards for the safety of toys is the EN 71 series.
  - There are 14 different documents covering various different hazard or product categories from mechanical and physical properties to trampolines
  - Regulation is covered by the European Toy Safety Directive (TSD)
  - 11 of the 14 Standards can be used to provide presumption of conformity to the Directive for the specific hazards covered.
  - A product with different or additional hazards would need to be assessed for conformity by a 'Notified Body', i.e. a laboratory authorised by the EU Commission to make such an assessment.

Questions (3)

Australian Toy Association

- Do toys with magnets that are flat sheet (like fridge magnets) have to comply with standards for toys with magnets?

  All toys with magnets need to comply with the Standard and the relevant regulations.

  The requirements limit the size of very strong magnets and flat sheet fridge magnets are typically not affected

- If the magnet is not hazardous (strong enough) does the warning need to be put on packaging?

  No warning would be required on packaging for a magnet that is not hazardous, i.e. small **and** strong.

  It should be noted that the only situation where the Standard allows a product to be sold with a hazardous magnet is for magnetic experimental sets for children 8 years and over. A warning is required in this case and care would also need to be taken to ensure compliance with CPN 5 of 2012

Questions (4)

Australian Toy Association

- If a product containing magnets is suitable for children 5+years would we still need to comply with AS/NZS ISO 8124 Part 1 or could we accept EN71 Part 1 or ASTM?

  The requirements for magnets in toys are not dependant on age.

  However, the requirements in EN 71-1 and ASTM F963 are the same or more onerous than those in AS/NZS 8124.1. Compliance with these Standards is therefore sufficient to know that the goods will comply with our Standard and our regulation regardless of the intended age of the product.

- Can high power magnets be sold to schools to teach children about wonders of magnetism?

  CPN 5 of 2010 (and AS/NZS 8124.1) would allow the supply of Magnetic experimental sets with hazardous magnets intended for children over the age of 8 so long as they contain the specified warning. However, this is superseded by CPN 5 of 2012 which would prevent the sale of consumer products with 2 or more hazardous magnets.

  Consumer products are defined as those likely to be used for personal domestic or household use.

  Products clearly intended for use by educators in a supervised environment would not be caught by CPN 5 of 2012

  You can therefore supply hazardous magnets to schools, but should be mindful of a couple of things:

  – The kits should be clearly intended for children over 8 years

    Younger than this would suggest that they are for play rather than education and carry too much risk to the children, school and yourselves.

  – The kits should not be able to be confused with or available as consumer products

  – There should be very clear information included on the hazards of these magnets

    This is particularly needed because the hazard is not as obvious as that from other items such as knives and chemicals.

    The supervisor must understand the issue and have suitable measures in place to control the activity and the magnets themselves.

    Regardless of legality or liability, the school should not want to risk that a child would die from magnets that had been obtained from their educational kits.

Questions (5)

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- Our soft toys have been tested and passed EN & ASTM requirements. Can we claim and state that our soft toys then meet Australian safety standards / regulations?

  No, the Standards are not identical.

  You could be confident that the products are fit for purpose and safe, but there is a small risk that they would fail the AS/NZS Standard and hence our regulation covering those products.

- Does the ATA have a summary of material differences between AS/NZS standard for soft toys and the EN71/ASTM standards for these toys?

  A comparison is actually quite difficult as it needs to take into account the interactions of definitions, requirements, test methods and rationales. In addition, Europe maintains a set of interpretations that would need to be referenced and understood.

  ISO will shortly publish a comparison of the mechanical and physical properties parts of ISO, EN 71 and ASTM F963. It will be out of date very quickly due to updates and amendments to the requirements in any of the Standards and we would not recommend its use for determining compliance with any of the Standards based on compliance with the others. However, it is the best we have.

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QUESTIONS

– For any questions, please email Richard at compliance@austoy.com.au