



Toy Industry Association, Inc.

Chemical Alternatives Assessment Practices in the Toy Industry

Presented by Alan Kaufman
Senior Vice President, Technical Affairs
Toy Industry Association, Inc.

Webinar Presentation | April 11, 2012

What are Drivers for Alternatives Assessment?

- Toy Manufacturers, Importers, and Retailers **routinely** perform design reviews and alternatives assessments of chemicals found in toys, striving to design safe product that is also **manufacturable, performs acceptably and addresses all aspects of safety-mechanical/physical, electrical, and flammability as well as chemical risks**
- **Not only is this the responsible thing to do (companies are made up of *people* - who are in most cases also parents - actively working to avoid user risk), it is good business practice – it minimizes liability exposure and reputational/brand risks**
- EU Toy Safety Directive (many SMEs and all large producers distribute in the EU)
 - Requires full design review, including chemical safety assessment; this formalizes existing industry practice of comparison of alternatives and selection of safest option



Addressing Sensitive Populations

- While recognizing that children may be exposed to specific risks not present for the general population simply because they are children, the toy industry routinely considers safety risks to be stratified by age-some age groups may be subject to specific risks not relevant for other age cohorts. Some examples of age-dependent risk and specific requirements to address them are:
 - Based on mouthing behavior of children aged three years and younger, small objects (even those accessible only after abuse testing) are banned from products for this age group
 - Since oral route of exposure is of greatest concern for phthalate plasticizers, special attention is paid to mouthability of components; mouthing behavior is prevalent up to age three years, and is virtually nonexistent in older children. Three phthalates (DINP, DIDP, and DnOP) are prohibited in toy components which have any dimension smaller than five centimeters, a proxy for being able to fit into a child's mouth
 - Cord lengths are limited for very young children to avoid strangulation risk
 - Electrical toys with heating elements are not allowed below age eight years

Case Studies of Alternative Assessment and Ingredient Replacement or Confirmation

- Black Iron Oxide (Fe_3O_4) substituted for carbon black powder in a toy fingerprint kit -- concern about possible fibrosis and contamination with polynuclear aromatic hydrocarbons (PAHs)
- Corn Starch substituted for talc in educational toy out of concern for remote possibility of contamination with asbestos
- 1,5 pentanediol use avoided as solvent in liquid preparations – concern about possible substitution with 1,4-butanediol (recreational drug)
- Polycarbonate remains material of choice for protective gear (goggles, helmets, etc.) despite containing low levels of non-migrating Bisphenol-A; notched impact resistance not matched by any other transparent material

Future Enhancements

- Industry (TIA and TIE) actively developing chemical safety assessment tools which could be applied across the industry in a uniform manner.
- Tools designed to evaluate product for chemical hazard, exposure, and risk without requiring specialized knowledge on part of user, and utilize published, peer-reviewed chemical data
- Of course, absolute scoring and relative ranking of chemicals/mixtures are desired goals

Conclusions

- **Toy Industry routinely:**
 - 1) Performs design reviews and alternatives assessments of chemicals found in toys;
 - 2) Assesses and accounts for differing population vulnerabilities;
 - 3) Makes material substitutions when data and test results warrant and no unacceptable tradeoff in other safety characteristics (e.g. impact resistance, tensile strength) or performance is created by substitution;
- Toy Industry is proactively developing automated tools for chemical safety assessments
- Alternatives assessment process must not force change to a “safer” alternative *based on presence of an allegedly hazardous chemical alone* – risk and exposure, impact of substitution on other safety characteristics or performance, and other tradeoffs which might be created must also be considered

TIA's Long History of Leadership in Toy Safety

TIA's toy safety assurance program focuses on developing standards, educating the industry to ensure compliance and guiding caregivers on safe play

| 1930s | 1940s | 1950s | 1970s | 1990s | 2000s | 2010- |
|--|--|---|--|---|---|---|
| TIA institutes its Safety Standards Committee and begins partnership with the National Safety Council (NSC). | TIA and NSC collaboration leads to establishment of a National Accident Reporting Service. | <p>TIA and NSC efforts continue with development of National Clearinghouse for Toy Injuries.</p> <p>TIA joins with American National Standards Institute (ANSI) to develop a standard for the coating finishes on toys and other children's articles.</p> | <p>TIA leadership results in publication of first comprehensive national toy safety standard (known today as ASTM F963).</p> <p>TIA launches a Toy Safety Educational Program.</p> | TIA institutes an annual Toy Safety Conference for Chinese manufacturers in conjunction with the U.S. Consumer Product Safety Commission (CPSC) and Chinese government. | <p>TIA advocates for mandatory toy safety testing; works with legislators to develop enhanced, uniform toy safety laws; and develops safety compliance best practices.</p> <p>Congress passes Consumer Product Safety Reform legislation.</p> | TIA develops www.ToyInfo.org website as a resource for parents and other caregivers on safe and fun toys and the importance of play. |

Thank you!

Alan P. Kaufman

Senior Vice President for Technical Affairs

Toy Industry Association, Inc.

1115 Broadway, Suite 400, New York, NY 10010

(T) 646.520.4868 | (F) 212.633.1429

akaufman@toyassociation.org

www.toyassociation.org