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Toys & Children's Products

## ASTM publishes new toy safety standard F963-11

The American Society for Testing and Materials (ASTM) International Committee has approved the revisions recently and published a new toy standard F963-11 in December 2011. This voluntary standard will become mandatory 180 days after the date, on which ASTM notifies the Consumer Product Safety Commission (CPSC), unless by receiving any comments from the CPSC within 90 days. This is estimated to be in June 2012.

There are many changes made to the 2011 edition, including new and revised requirements to both physical and mechanical properties as well as chemical requirements. New safety requirements and technical guidance for bath toy projections, acoustics and other potential safety hazards in toys have been added, while revisions are made to the requirements for the following toys: stability of ride-on toy and seats, yo-yo tether balls, toys with spherical ends, jaw entrapment, plastic film, strings and flying devices. Changes to the chemical requirements include aligning the lead limit with 16 CFR 1303, new heavy metal requirements

for substrates at the same levels as EN 71, special cadmium limit to metallic small parts, the introduction of compositing procedures and a provision of alternative methods.



**Table A: Major challenges for ASTM F963-11**

Clause	ASTM F963-11
<b>4.8.1</b> Bath toy projections	Draw attention on rigid projections on toys designed primarily for use in the bath tub and which may pose a specific hazard that can result in serious penetration and impalement injuries. Additional design guidelines specifically for bath toy projections are provided in Annex A4 of this specification
<b>4.12</b> Plastic film	Clause title changed to plastic instead of packaging
<b>4.14.4</b> Strings and lines for flying devices	"Resistivity" changed to "Resistance" and unit changed to " $\Omega/cm$ "
<b>4.15</b> Stability and over-load requirements	Clarify requirements cover toy seats but furniture without play value is excluded
<b>4.37</b> Yo-yo tether balls	Shows example of Typical Test Set-Up
<b>4.39</b> Jaw entrapment in handles and steering wheels	Add the third dimension of test fixture and modify requirement to pass completely through the fixture
<b>4.3.5.1.1</b> Paint and surface coating requirements	Total lead < 90 ppm
<b>4.3.5.2</b> Toy substrate materials requirements	Section specifies requirements and test methods for total lead and the migration of heavy elements for accessible substrate materials which includes: <ul style="list-style-type: none"> <li>▪ Accessible parts before and after use and abuse testing;</li> <li>▪ Accessible glass, metal and ceramic toys or parts of toys, that are small parts;</li> <li>▪ All toy parts intended to be mouthed or come into contact with food or drink;</li> <li>▪ Cosmetic and writing instruments which categorized as toys;</li> <li>▪ Packaging materials intended to be retained as part of toy or have play value.</li> </ul>

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Clause	ASTM F963-11						
4.3.5.2 Toy substrate materials requirements (con't)	<p>Exemption applies to:</p> <ul style="list-style-type: none"> <li>Children's jewelry;</li> <li>Toys or parts of toys which are inaccessible and cannot be sucked, mouthed or ingested due to their size, mass, function or other characteristics;</li> <li>Materials excluded in Consumer Product Safety Improvement Act (CPSIA) for total lead requirements.</li> </ul> <p>In addition, metallic toys or toys components which are small parts MUST NOT exceed 200µg of soluble cadmium when tested as per CPSC-CH-E-1004-11.</p>						
8.3 Test method	<p>Test methods for determination of heavy element content in toys, toy components and materials:</p> <ul style="list-style-type: none"> <li><b>8.3.1</b> Total element content screening as per CPSC method. Composite testing is acceptable up to three components with the same material</li> </ul> <table border="1"> <tr> <td>CPSC-CH-E1001-08.1</td> <td>For metal substrates</td> </tr> <tr> <td>CPSC-CH-E1002-08.1</td> <td>For non metal substrates</td> </tr> <tr> <td>CPSC-CH-E1003-09</td> <td>For paint and surface coating</td> </tr> </table> <ul style="list-style-type: none"> <li><b>8.3.2</b> Method to dissolve soluble matter for surface coatings</li> <li><b>8.3.5.5</b> Soluble element test method for substrate materials</li> <li><b>8.3.6</b> Alternative methods (such as XRF screening which specific conditions are met)</li> </ul>	CPSC-CH-E1001-08.1	For metal substrates	CPSC-CH-E1002-08.1	For non metal substrates	CPSC-CH-E1003-09	For paint and surface coating
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CPSC-CH-E1003-09	For paint and surface coating						
A7 Compositing procedure for total heavy metal analysis	<ul style="list-style-type: none"> <li>Each individual component must be weighed individually.</li> <li>Composite testing is not allowed for metal substrates with different compositions. This may affect the result due to interferences such as incomplete digestion or re-precipitation.</li> <li>When a composite result is greater than 80% of the heavy metal limit, testing of individual samples must subsequently be performed.</li> </ul>						

**Table B: Summary for ASTM F963-11 heavy metals requirements**

Requirements / Material	Total Limit (ppm)		Soluble Limit (ppm)						
	Lead (Pb)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Lead (Pb)	Mercury (Hg)	Selenium (Se)
Paint and surface coating	90	60	25	1000	75	60	90	60	500
Substrates other than modeling clay	100	60	25	1000	75 *200µg	60	90	60	500
Modeling Clay	100	60	25	250	50	25	90	25	500

\*For metallic toys or parts of toys (for small parts only) when tested per 8.3.5.5(3) – Test Procedure - Special Soluble Cadmium

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