

**TECHNICAL REPORT**

**Report # 23540**

**Thames & Kosmos, LLC  
77 Long Wharf  
Newport, RI 02840**

**November 21, 2003**

**Requested by:** Ted McGuire  
**Authorization Received:** November 4, 2003  
**Sample Name:** Bubble Builder (Bubble Science Kit)  
**Model/Style #:** 653415  
**Sample Received:** October 27, 2003  
**Number of Samples:** 2  
**Condition Received:** Good  
**Age Label on Product:** 8 +  
**Age Grading to be Applied:** 8 +  
**Testing Completed:** November 20, 2003

**SUMMARY:**

**Chemical Analysis:**

16 CFR 1303

**Flammability:**

ASTM F963-96a & 16 CFR 1500.44

**Mechanical Hazards:**

ASTM F963-96a

**Microbial Cleanliness:**

(USP 61)

**RESULTS**

DOES COMPLY

DOES NOT COMPLY


DOES NOT COMPLY

DOES COMPLY.

**Reviewed by:**

  
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Supervisor, Technical Services

  
Jeffrey D. Lipko

Technical Director, Hardlines

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**Chemical Analysis: Lead**

**Procedure:** Analysis of the paints or coatings was performed by *Inductively Coupled Argon Plasma or Atomic Absorption Spectroscopy* to determine compliance with **16 CFR 1303**.

**Requirement:** The lead content (calculated as lead metal) shall not exceed 0.06 weight percent (600 ppm) of the dried paint film as required by **16 CFR 1303**.

**Sample ID:**            **Bubble Builder (Bubble Science Kit)**

**Sample Utilized:**    Coating Removed from Product

**Test Results:**

	<i>Sample/Color</i>	<b>Total Lead Count</b>		<b>Pass /Fail</b>
		Ppm	%	
1.	Blue (Bubble Bottle)	<0.005	<0.001	Pass

**Conclusion:** When tested as specified, the submitted sample **does comply** with **16 CFR 1303** requirements.

**Flammability Test: Federal Hazardous Substances Act and ASTM F963-96a****Procedure:**

The method of testing was that described in 16 *CFR* 1500.44 of the *Federal Hazardous Substances Act and ASTM F963-96a* for rigid and pliable solids.

**Requirement:**

A material is considered "flammable" if it ignites and burns with a self-sustained flame at a rate greater than 0.1 inches per second along its major axis.

**NOTE:**

It is our understanding that a sample is considered as having passed the test requirement if it self-extinguishes before burning 6 inches and prior to the lapse of 60 seconds.

**Sample ID: Bubble Builder (Bubble Science Kit) - Straw**

**Test Results:**

	<b><u>Area of Initial Flame Contact</u></b>	<b><u>Burn Length (inches)</u></b>	<b><u>Time (seconds)</u></b>	<b><u>Burn Rate (inches/second)</u></b>
Burn 1	End	6.0	42	0.14
Burn 2	End	6.0	35	0.17
Burn 3	End	6.0	34	0.18
Burn 4	End	6.0	40	0.15

\*DNI = Did not Ignite

\*\*IBE = Ignited but Extinguished

**Conclusion:** Based upon the results of the test reported above, the submitted sample **does not comply** with the requirements of the U.S. Federal Hazardous Substances Act, 16 CFR 1500.44 and ASTM F963-96a, Section 4.2.

**Flammability Test:**    **Federal Hazardous Substances Act and ASTM F963-96a**

**Sample ID:**    **Bubble Builder (Bubble Science Kit) – Straw Retest**

**Test Results:**

	<b><u>Area of Initial Flame Contact</u></b>	<b><u>Burn Length (inches)</u></b>	<b><u>Time (seconds)</u></b>	<b><u>Burn Rate (inches/second)</u></b>
Burn 1	End	6.0	37	0.16
Burn 2	End	6.0	35	0.17
Burn 3	End	6.0	--	See Note 1
Burn 4	End	6.0	--	See Note 1

\*DNI = Did not Ignite  
 \*\*IBE = Ignited but Extinguished

**Conclusion:** Based upon the results of the test reported above, the submitted sample **does not comply** with the requirements of the U.S. Federal Hazardous Substances Act, 16 CFR 1500.44 and ASTM F963-96a, Section 4.2.

**Sample ID:**    **Bubble Builder (Bubble Science Kit) – Blue Plastic Rods**

**Test Results:**

	<b><u>Area of Initial Flame Contact</u></b>	<b><u>Burn Length (inches)</u></b>	<b><u>Time (seconds)</u></b>	<b><u>Burn Rate (inches/second)</u></b>
Burn 1	End	0.50	60	0.01
Burn 2	End	1.25	60	0.02
Burn 3	End	0.50	60	0.01
Burn 4	End	1.00	60	0.02

\*DNI = Did not Ignite  
 \*\*IBE = Ignited but Extinguished

**Conclusion:** Based upon the results of the test reported above, the submitted sample **does comply** with the requirements of the U.S. Federal Hazardous Substances Act, 16 CFR 1500.44 and ASTM F963-96a, Section 4.2.

**Flammability Test:**    **Federal Hazardous Substances Act and ASTM F963-96a**

**Sample ID:**    **Bubble Builder (Bubble Science Kit) – Plastic Cups**

**Test Results:**

	<b><u>Area of Initial Flame Contact</u></b>	<b><u>Burn Length (inches)</u></b>	<b><u>Time (seconds)</u></b>	<b><u>Burn Rate (inches/second)</u></b>
Burn 1	Edge	1.75	46	0.04
Burn 2	Edge	1.75	52	0.03
Burn 3	Edge	1.75	45	0.04
Burn 4	Edge	1.75	50	0.03

\*DNI = Did not Ignite

\*\*IBE = Ignited but Extinguished

**Conclusion:** Based upon the results of the test reported above, the submitted sample **does comply** with the requirements of the U.S. Federal Hazardous Substances Act, 16 CFR 1500.44 and ASTM F963-96a, Section 4.2.

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**Sample ID:**    **Bubble Builder (Bubble Science Kit) – Red Funnels**

**Test Results:**

	<b><u>Area of Initial Flame Contact</u></b>	<b><u>Burn Length (inches)</u></b>	<b><u>Time (seconds)</u></b>	<b><u>Burn Rate (inches/second)</u></b>
Burn 1	Bottom	1.00	60	0.02
Burn 2	Top	2.00	60	0.03
Burn 3	Bottom	1.00	60	0.02
Burn 4	Top	2.00	60	0.03

\*DNI = Did not Ignite

\*\*IBE = Ignited but Extinguished

**Conclusion:** Based upon the results of the test reported above, the submitted sample **does comply** with the requirements of the U.S. Federal Hazardous Substances Act, 16 CFR 1500.44 and ASTM F963-96a, Section 4.2.

**Flammability Test:** Federal Hazardous Substances Act and ASTM F963-96a

**Sample ID:** Bubble Builder (Bubble Science Kit) – Black Plate

**Test Results:**

	<u>Area of Initial Flame Contact</u>	<u>Burn Length (inches)</u>	<u>Time (seconds)</u>	<u>Burn Rate (inches/second)</u>
Burn 1	Corner	2.00	60	0.03
Burn 2	Corner	1.75	60	0.03
Burn 3	Corner	2.00	60	0.03
Burn 4	Corner	2.00	60	0.03

\*DNI = Did not Ignite

\*\*IBE = Ignited but Extinguished

**Conclusion:** Based upon the results of the test reported above, the submitted sample **does comply** with the requirements of the U.S. Federal Hazardous Substances Act, 16 CFR 1500.44 and ASTM F963-96a, Section 4.2.

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**Sample ID:** Bubble Builder (Bubble Science Kit) – Bubble Wand

**Test Results:**

	<u>Area of Initial Flame Contact</u>	<u>Burn Length (inches)</u>	<u>Time (seconds)</u>	<u>Burn Rate (inches/second)</u>
Burn 1	Handle	1.50	60	0.02
Burn 2	Edge	1.50	60	0.02
Burn 3	Edge	2.00	60	0.03
Burn 4	Edge	1.50	60	0.02

\*DNI = Did not Ignite

\*\*IBE = Ignited but Extinguished

**Conclusion:** Based upon the results of the test reported above, the submitted sample **does comply** with the requirements of the U.S. Federal Hazardous Substances Act, 16 CFR 1500.44 and ASTM F963-96a, Section 4.2.

**Flammability Test:**    **Federal Hazardous Substances Act and ASTM F963-96a**

**Sample ID:**    **Bubble Builder (Bubble Science Kit) – Cans**

**Test Results:**

	<b><u>Area of Initial Flame Contact</u></b>	<b><u>Burn Length (inches)</u></b>	<b><u>Time (seconds)</u></b>	<b><u>Burn Rate (inches/second)</u></b>
Burn 1	Left Front	1.25	60	0.02
Burn 2	Right Rear	1.25	60	0.02
Burn 3	Right Front	--	--	See Note 3
Burn 4	Left Rear	--	--	See Note 3

\*DNI = Did not Ignite

\*\*IBE = Ignited but Extinguished

**Conclusion:** Based upon the results of the test reported above, the submitted sample **does comply** with the requirements of the U.S. Federal Hazardous Substances Act, 16 CFR 1500.44 and ASTM F963-96a, Section 4.2.

**MECHANICAL HAZARDS, ASTM F963-96a**

<b><u>Sample ID:</u></b>	<b>Bubble Builder (Bubble Science Kit)</b>	<b><u>Packaging Included:</u></b>	<b>Yes</b>
<b><u>Labeled Age Group:</u></b>	<b>8 +</b>	<b><u>Appropriate Warning Labeling:</u></b>	<b>N/A</b>
<b><u>Age Grading to be Applied:</u></b>	<b>8 +</b>	<b><u>Machine Washable Plush Toy</u></b>	<b>N/A</b>
		<b><u>Number of Samples:</u></b>	<b>2</b>

**Procedure:** The submitted samples were tested to the applicable sections of *ASTM F963-96a* requirements for Mechanical Hazard.

P = Pass		F = Fail		N/A = Not Applicable		
Clause	Description	P	F	N/A		
4.0	Safety Requirements					
4.1	Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.2	Flammability	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
			See Comment 1			
4.3	Toxicology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.3.7	Stuffing Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.4	Electrical/Thermal Energy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.5	Impulsive Noise	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.6	Small Objects					
4.6.1	Children under 36 months – no small parts allowed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
					See Comment 2	
4.6.1.3	Adult Assembly Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.6.2	Mouth Actuated Toys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.7	Accessible Edges					
4.7.1	Children under 8 years old – no metal or glass sharp edges	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Functional sharp edges (48 to 96 months)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.7.2	Functional sharp edges (0 to 48 months)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.7.3	Metal Toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.7.4	Molded Toys (no hazardous edges)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.7.5	Exposed Bolts & Threaded Rods	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.8	Accessible Points					
4.8.1	Children under 8 years old – no sharp points	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Functional sharp point (48 to 96 months)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.8.2	Functional sharp point (0 to 48 months)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.8.3	Wood	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.9	Projections	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.10	Nails and Fasteners	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.11	Wires or Rods	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.12	Packaging Film	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.13	Cords and Elastics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.13.1	Self-retracting pull strings: Cords and Elastics in Toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.13.2	Pull toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

P = Pass		F = Fail		N/A = Not Applicable		
Clause	Description	P	F	N/A		
4.13.3	Strings and lines for flying devices	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.14	Wheels, tires and axles	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.15	Folding mechanisms and hinges	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.15.1	Folding mechanisms	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.15.2	Hinge-line clearance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16	Holes, clearance and accessibility of mechanisms	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16.1	Clearances for moveable segments	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16.2	Circular holes in rigid materials	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16.3	Chains and belts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16.3.1	Supporting chains	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16.3.2	Chains or belts for ride-on toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16.4	Inaccessibility of mechanisms	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16.5	Winding keys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.16.6	Coil springs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.17	Stability and over-load requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.17.1	Stability of ride-on toys and seats	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.17.2	Sideways stability requirement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.17.2.1	Sideways stability, feet available for stabilization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.17.2.2	Sideways stability, feet unavailable for stabilization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.17.3	Fore and aft stability	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.17.4	Stability of stationary floor toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.17.5	Overload requirements for ride-on toys and seats	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.18	Confined Spaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.18.1	Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.18.2	Closures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.18.3	Toys that enclose the head	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.19	Simulated protective devices	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.19.1	Eye protection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.19.2	Simulated protective devices	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.20	Projectile toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.21	Rattles	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.22	Pacifiers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.23	Squeeze Toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.24	Teethers and teething toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.25	Crib gyms, crib exercisers and similar toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.26	Toy chests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.26.1	Lid support	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.26.2	Hinge line clearance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.26.3	Closures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.26.4	Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27	Battery-Operated Toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.1	Marking of Battery compartment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.2	Maximum DC potential	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

P = Pass		F = Fail		N/A = Not Applicable		
Clause	Description	P	F	N/A		
4.27.3	Unable to charge non-rechargeable batteries	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.4	Accessibility of batteries (under 3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.5	Accessibility of batteries - small parts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.6	Isolated circuits	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.7	Surface temperature of batteries (less than 71°C)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.8	No short circuits	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.9	No electrical contact (other than battery)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.10	Emitted gases	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.27.11	Instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.28	Flotation toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.29	Stroller/carriage toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.30	Stuffed/beanbag type toys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.31	Art material	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.32	Toy guns	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.33	Balloons	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.34	Marbles	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.35	Balls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.36	Preschool Play Figures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4.37	Pom Poms	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
5.0	Labeling (as applicable)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.0	Instructional literature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7.0	Producers markings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

**Testing Comments:**

1. Flammability exceeded allowable rate of 0.15. Insufficient sample to complete re-test of straws.
2. Small parts are exempt due to age grading.
3. Insufficient sample to perform 2 additional flammability evaluations.

**Conclusion:** When tested as specified, the submitted sample **does not comply** with the *ASTM F963-96a* requirements for Mechanical Hazards.

**Microbial Analysis:**

**Procedure:** The analysis for objectionable material was conducted in accordance with the procedures outlined in the *Official Methods of Analysis of the AOAC 13th ed. Chapter 44 "Extraneous Materials Isolation"*. Microbiological analysis was conducted in accordance with the *Bacteriological Analytical Manual (BAM), FDA 1979*. A portion of the contents was also aseptically removed and analyzed for microbial content: a plate count and coliforms.

**Test Method:** Current USP 26 <61> and supplements

**Requirements** Microbiological standards are not specified for stuffed toys, however, the plate count and coliform count may be used to indicate the unsanitary condition of stuffing.

**Sample ID:** Bubble Builder (Bubble Science Kit)

**Microbiological Analysis:**

<b>Total Plate Count (cfu/gram)</b>	<b>Total Fungal Count</b>	<b><u>Salmonella</u></b>	<b><u>E. coli</u></b>	<b><u>P. aeruginosa</u></b>	<b><u>S. Aeureus</u></b>
<10 cfu/g	<10 cfu/g	Negative – Conforms	Negative – Conforms	Negative – Conforms	Negative Conforms

**Conclusion:** When tested as specified, the submitted sample **was free** of filth, **did not have** high bacterial counts and **did not contain** coliform bacteria.

