



## STC Test Report

**Date** : 2017-08-15  
**No.** : HP310797

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- Applicant** : Recent Toys  
1001 Je Amsterdam  
Netherlands  
  
Attn: Uwe Meffert
- Supplier** : MEFFERT'S PUZZLES & GAMES
- Description of Samples** : Six pieces of submitted sample said to be:  
**RAINBOW NAUTILUS** (see attached photo)  
COUNTRY OF ORIGIN: CHINA  
COUNTRY OF DESTINATION: USA & EUROPE  
BUYER: RECENT TOYS INTL.  
AGE GRADING: 9 YEARS OLD AND UP
- Investigation Requested** : (1) ASTM Standard Consumer Safety Specification on Toy Safety, F963-16:  
- physical and mechanical tests  
- flammability test  
- heavy metals content  
(2) European Standard for Safety of Toys  
- EN71-1:2014  
- EN71-2:2011+A1:2014  
- EN71-3:2013+A1:2014

WONG Wing-cheung, Benny  
Authorized Signatory

Toys & Children's Products Department  
For and on behalf of

The Hong Kong Standards and Testing Centre Ltd.





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**Date Samples Received** : 2017-07-31

**Date Tested** : 2017-07-31 to 2017-08-03

**Conclusions** : The submitted sample(s) **complied** with the test requirements:

ASTM F963-16: physical and mechanical tests

ASTM F963-16: flammability test

ASTM F963-16: heavy metals content

EN71-1:2014

EN71-2:2011+A1:2014

EN71-3:2013+A1:2014

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10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: [hkstc@hkstc.org](mailto:hkstc@hkstc.org) Website: [www.stc-group.org](http://www.stc-group.org)

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### AGE GRADING:

The sample was appropriately age graded with the marking of "Age 9-99 ".

### AGE GRADING FOR TESTING:

9 years and up.

### Test Results :

1. ASTM F963-16

1.1 Mechanical and physical hazards

Ref.: ASTM F963-16

Applicable requirements before and after normal use testing according to section 8.5:

<u>Applicable Section</u>	<u>Description</u>	<u>Result</u>
4	<u>Safety requirements</u>	
4.1	Material quality (by visual assessment)	Pass
4.2	Flammability	Pass* <sup>1</sup>
4.3	Toxicology	Pass* <sup>1</sup>
4.7	Accessible edges	Pass
5	<u>Labeling requirements</u>	
5.2	Age grading labeling	Pass
5.16	Promotional materials	Pass
7	<u>Producer's markings</u>	
7.1	Name and address of the producer or distributor	Pass

\*<sup>1</sup> = Refer to the relevant test results at the following pages.

1.2 Flammability test of material other than textiles

Ref.: ASTM F963-16 Section 4.2

Method used: FHSA 16 CFR 1500.44

Result: Pass

<u>Sample</u>	<u>Burn rate (in/sec.)</u>
Rainbow Nautilus	0.01

Note 1: The burning rate should not be greater than 0.1 inch per second.

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1.3 Heavy element

Ref.: ASTM F963-11 Section 4.3.5

Method: ASTM F963-11 Section 8.3

Determined by: Inductively Coupled Argon Plasma Atomic Emission Spectrophotometer

Toys Substrate Materials

Ref.: ASTM F963-16 Section 4.3.5.2

Polymeric material

- (a) Main body: red plastic
- (b) Main body: orange plastic
- (c) Main body: yellow plastic
- (d) Main body: green plastic
- (e) Main body: light blue plastic
- (f) Main body: blue plastic
- (g) Main body: purple plastic
- (h) Main body: dull green plastic

Sample no.	Total Lead content, ppm
(a)	<10
(b)	<10
(c)	<10
(d)	<10
(e)	<10
(f)	<10
(g)	<10
(h)	<10
Limit	100

Polymeric material

- (a) Main body: red plastic
- (b) Main body: orange plastic
- (c) Main body: yellow plastic
- (d) Main body: green plastic
- (e) Main body: light blue plastic
- (f) Main body: blue plastic
- (g) Main body: purple plastic
- (h) Main body: dull green plastic

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Sample no.	Soluble heavy metal content, ppm							
	Lead	Cadmium	Chromium	Barium	Antimony	Arsenic	Mercury	Selenium
(a)	<2	<2	<2	<2	<2	<2	<2	<2
(b)	<2	<2	<2	<2	<2	<2	<2	<2
(c)	<2	<2	<2	<2	<2	<2	<2	<2
(d)	<2	<2	<2	<2	<2	<2	<2	<2
(e)	<2	<2	<2	<2	<2	<2	<2	<2
(f)	<2	<2	<2	<2	<2	<2	<2	<2
(g)	<2	<2	<2	<2	<2	<2	<2	<2
(h)	<2	<2	<2	<2	<2	<2	<2	<2
Limit	90	75	60	1000	60	25	60	500

ppm = mg/kg (milligram per kilogram)

## 2. EN71

### 2.1 EN71-1:2014 - Part 1: Mechanical and physical properties

<u>Applicable Clause</u>	<u>Description</u>	<u>Result</u>
4	<u>General requirements</u>	
4.1	Materials cleanliness	Pass
4.7	Edges	Pass
4.8	Points and metallic wires	Pass
7	<u>Markings and instructions for use</u>	
7.1	General	Pass
7.2	Toys not intended for children under 36 months	Pass

### 2.2 EN71-2:2011+A1:2014 - Part 2: Flammability

<u>Applicable Clause</u>	<u>Description</u>	<u>Result</u>
4.1	General requirements	Pass

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2.3 EN71-3 :2013+A1:2014 - Part 3: Migration of certain elements

Test Method: EN71-3: 2013+A1:2014

Determined by: Inductively Coupled Argon Plasma Atomic Emission Spectrophotometer and Inductively Coupled Plasma Mass Spectrometry

Category III: Scraped-off toy material

Polymeric material

- (a) Main body: red plastic
- (b) Main body: orange plastic
- (c) Main body: yellow plastic
- (d) Main body: green plastic
- (e) Main body: light blue plastic
- (f) Main body: blue plastic
- (g) Main body: purple plastic
- (h) Main body: dull green plastic

Elements	Result (mg/kg)			Limit(mg/kg)
	a	b	c	
Aluminium	ND	ND	ND	70000
Antimony	ND	ND	ND	560
Arsenic	ND	ND	ND	47
Barium	ND	ND	ND	18750
Boron	ND	ND	ND	15000
Cadmium	ND	ND	ND	17
Chromium(III)	ND	ND	ND	460
Chromium (VI)	ND	ND	ND	0.2
Cobalt	ND	ND	ND	130
Copper	ND	ND	ND	7700
Lead	ND	ND	ND	160
Manganese	ND	ND	ND	15000
Mercury	ND	ND	ND	94
Nickel	ND	ND	ND	930

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Elements	Result (mg/kg)			Limit(mg/kg)
	a	b	c	
Selenium	ND	ND	ND	460
Strontium	ND	ND	ND	56000
Tin	ND	ND	ND	180000
Organic tin	ND	ND	ND	12
Zinc	ND	ND	ND	46000

Elements	Result (mg/kg)			Limit(mg/kg)
	d	e	f	
Aluminium	ND	ND	ND	70000
Antimony	ND	ND	ND	560
Arsenic	ND	ND	ND	47
Barium	ND	ND	ND	18750
Boron	ND	ND	ND	15000
Cadmium	ND	ND	ND	17
Chromium(III)	0.13	ND	ND	460
Chromium (VI)	0.10	ND	ND	0.2
Cobalt	ND	ND	ND	130
Copper	ND	ND	ND	7700
Lead	ND	ND	ND	160
Manganese	ND	ND	ND	15000
Mercury	ND	ND	ND	94
Nickel	ND	ND	ND	930
Selenium	ND	ND	ND	460
Strontium	ND	ND	ND	56000
Tin	ND	ND	ND	180000
Organic tin	ND	ND	ND	12
Zinc	ND	ND	ND	46000

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Elements	Result (mg/kg)		Limit(mg/kg)
	g	h	
Aluminium	ND	ND	70000
Antimony	ND	ND	560
Arsenic	ND	ND	47
Barium	ND	ND	18750
Boron	ND	ND	15000
Cadmium	ND	ND	17
Chromium(III)	ND	0.22	460
Chromium (VI)	ND	ND	0.2
Cobalt	ND	ND	130
Copper	ND	ND	7700
Lead	ND	ND	160
Manganese	ND	ND	15000
Mercury	ND	ND	94
Nickel	ND	ND	930
Selenium	ND	ND	460
Strontium	ND	ND	56000
Tin	ND	ND	180000
Organic tin	ND	ND	12
Zinc	ND	ND	46000

Remark: ND = Not detected (see Table A)  
mg/kg = milligram per kilogram

The Chromium content was reported as Chromium (III) and Chromium (VI). Whenever the result of Chromium exceeded the limit of Chromium (III) and Chromium (VI), confirmation test was performed.

The Tin content was reported as Organic tin unless specified.

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Table A. Detection limit	
Elements	Limit of Detection (mg/kg)
Aluminium	5
Antimony	5
Arsenic	5
Barium	5
Boron	5
Cadmium	2.5
Chromium(III)	0.1
Chromium (VI)	0.1
Cobalt	5
Copper	5
Lead	5
Manganese	5
Mercury	5
Nickel	5
Selenium	5
Strontium	5
Tin	0.2
Organic tin	0.2
Zinc	5

\*\*\*\*\* End of Test Report \*\*\*\*\*



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### Appendix for Photos of the Submitted Sample





## **STC Test Report**

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