



## Test Report

**Date** : 2017-06-02  
**No.** : DP17051970

**Page 1 of 8**

**Applicant** : HANDSOME CHEMICAL LTD  
Industrial Zone Da Ban Di, Cun Tou, Hu Men Town,  
Dongguan City

Attn: Mr. Cheng

**Description of Samples** : One bag of submitted sample(s) said to be :  
(see the attached photo)  
NO.:GREEN GNP (460)  
COLOR: GREEN  
LOT NO.: INB4815

**Date Samples Received** : 2017-05-26

**Date Tested** : 2017-05-26 to 2017-06-02

CONCLUSION :		
TEST SAMPLES	TEST STANDARD	RESULT
Pigment	ASTM F963-16: Heavy metals content	Pass
	16 CFR Part 1303, U.S. CPSC	Pass
	SRS-018 Rev. C	Pass
	Directive 2009/48/EC ,Appendix A ,Total Nickel(Ni) content in accessible materials	Pass
	Hasbro requirements on selected heavy elements (w.r.t. EN 71-3:2013+A1:2014)	Pass
	Heavy elements contents in accordance with Mattel Specification RMS #0006-2903 Rev.1.00	Pass
	Mattel Specification QSOP #0006-3600 Rev. 2.00	Pass



HUANG Qi-yin, Shanny  
Authorized Signatory  
Toys and Children's Products Department  
For and on behalf of  
STC (Dongguan) Company Ltd

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code: 523770)

Tel : (86 769) 8111 9888 Fax: (86 769) 8111 6222 Email : dgstc@dgstc.org Website :www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited  
For Conditions of Issuance of this test report, please refer to "the Conditions of Issuance of Test Report" section or Website.



## Test Report

Date : 2017-06-02  
No. : DP17051970

Page 2 of 8

- Investigation Requested :**
- 1.ASTM F963-16: Standard Consumer Safety Specification for Toy Safety  
- Heavy metals content
  - 2.Title 16, Code of Federal Regulations, Part 1303,CPSC of U.S.A.  
-Total Lead content
  - 3.Hasbro Safety and Reliability Specification-SRS-018 Rev. C.  
Heavy metal content specification  
-Heavy metal contents in Coatings materials
  - 4.Total Nickel and Tin contents
  - 5.EN71-3:2013+A1:2014: Migration of certain elements
  - 6.Heavy elements contents in accordance with Mattel Specification RMS #0006-2903 Rev.1.00
  - 7.Heavy elements contents in accordance with Mattel Specification QSOP #0006- 3600 Rev. 2.00

### Sample description

Coating materials

(1) Pigment: green

### Test Results:

#### 1. ASTM F963-16

##### 1.1 Total lead content analysis

Ref.: ASTM F963-16 Section 4.3.5

Method: ASTM F963-16 Section 8.3

Determined by: Inductively Coupled Argon Plasma Atomic Emission Spectrophotometer

<u>Element</u>	<u>Result(%)</u>	<u>Limit(%)</u>
	(1)	
Total Lead (Pb)	<0.0005	0.009

Note(s): (1) < = Less than.

(2) mg/kg = milligrams per kilogram

##### 1.2 Soluble content analysis

Ref.: ASTM F963-16 Section 4.3.5

Method: ASTM F963-16 Section 8.3

Determined by: Inductively Coupled Argon Plasma Atomic Emission Spectrophotometer

<u>Element</u>	<u>Result(mg/kg)</u>	<u>Limit(mg/kg)</u>
	(1)	
Soluble Lead	<2	90
Soluble Cadmium	<2	75
Soluble Chromium	<2	60
Soluble Barium	<2	1000
Soluble Antimony	<2	60

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code: 523770)

Tel : (86 769) 8111 9888 Fax: (86 769) 8111 6222 Email : dgstc@dgstc.org Website :www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited  
For Conditions of Issuance of this test report, please refer to "the Conditions of Issuance of Test Report" section or Website.



## Test Report

**Date** : 2017-06-02  
**No.** : DP17051970

**Page 3 of 8**

<u>Element</u>	<u>Result(mg/kg)</u>	<u>Limit(mg/kg)</u>
	(1)	
Soluble Arsenic	<2	25
Soluble Mercury	<2	60
Soluble Selenium	<2	500

Note(s): (1) < = Less than.  
(2) mg/kg = milligrams per kilogram

### 2. **Children's products containing lead - Total Lead content in paint and surface coating**

Ref.: 16 CFR Part 1303, U.S. CPSC

Method used: CPSC-CH-E1003-09.1

Determined by: Inductively Coupled Argon Plasma Atomic Emission Spectrophotometer

<u>Element</u>	<u>Result(mg/kg)</u>	<u>Limit(mg/kg)</u>
	(1)	
Total Lead (Pb)	<5	90

Note(s): (1) < = less than  
(2) mg/kg = milligrams per kilogram

### 3. **Hasbro Safety and Reliability Specification-SRS-018 Rev. C. Heavy metal content specification**

#### Test Method / Instrument:

Total testing is carried out in accordance with EPA3052, EPA3050 B or other validated test methods;  
Soluble testing was carried out in accordance with EN71-3:2013+A1:2014, Analysis were performed  
by using Inductively Coupled Argon Plasma Atomic Emission Spectrophotometer

#### **Coating materials**

Sample Elements	<u>Result in ppm</u>	Limit in ppm ACTION	Limit in ppm REQUIRED
	(1)		
Total Cadmium (Cd)	ND	30	40
Total Lead (Pb)	ND	--	20
Total Chromium (Cr)	ND	500	750
Total Mercury (Hg)	ND	--	<5
Total Antimony (Sb)	ND	750	--
Total Arsenic (As)	ND	30	--
Total Barium (Ba)	ND	750	--
Total Selenium (Se)	ND	750	--
Soluble Chromium (Cr)	ND	40	60
Soluble Antimony (Sb)	ND	25	60
Soluble Arsenic (As)	ND	10	25
Soluble Barium (Ba)	ND	--	350

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code: 523770)

Tel : (86 769) 8111 9888 Fax: (86 769) 8111 6222 Email : dgstc@dgstc.org Website :www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited  
For Conditions of Issuance of this test report, please refer to "the Conditions of Issuance of Test Report" section or Website.



## Test Report

**Date :** 2017-06-02  
**No. :** DP17051970

**Page 4 of 8**

Sample Elements	Result in ppm	Limit in ppm ACTION	Limit in ppm REQUIRED
	(1)		
Soluble Selenium (Se)	ND	200	500
Soluble Cadmium (Cd)	ND	10	17
Soluble Lead (Pb)	ND	--	20
Soluble Mercury (Hg)	ND	--	<5

Note(s): ND = Not Detected, Method detection limit (MDL) for Total Cd, Pb, Cr, Hg, As, Ba, Se are 5ppm (ICP-OES); for Soluble Cr, Sb, As, Ba, Se, Cd, Pb, Hg are 5ppm(ICP-OES).

#### 4. **Total Tin(Sn) and Total Nickel(Ni) content in accessible materials**

**Test Method / Instrument:**

With reference to EPA3052, EPA3050 B or other validated test methods. Analysis were performed by using Inductively Coupled Argon Plasma Atomic Emission Spectrophotometer

**For Category III : Scrape off toys materials**

Sample Elements	Result in ppm	Limit in ppm ACTION	Limit in ppm REQUIRED
	(1)		
Total Nickel (Ni)	ND	930	10000
Total Tin (Sn)	ND	12	--

Note(s): ND = Not Detected, Method detection limit(MDL) for Total Ni, Sn are 5ppm.

#### 5. **EN 71-3:2013+A1:2014: Migration of certain elements**

**Test Method / Instrument:**

With reference to EN 71-3:2013+A1:2014, Analysis were performed by using Inductively Coupled Argon Plasma Atomic Emission Spectrophotometer & Inductively Coupled Plasma Mass Spectrometry.

**Category III: Scraped off toy materials**

Sample Elements	Result in ppm	Limit in ppm ACTION	Limit in ppm REQUIRED
	(1)		
Soluble Aluminium (Al)	140	--	70000
Soluble Boron (B)	ND	--	15000
Soluble Cobalt (Co)	ND	--	130
Soluble Copper (Cu)	ND	--	7700
Soluble Manganese (Mn)	ND	--	15000
Soluble Strontium (Sr)	ND	--	56000
Soluble Zinc (Zn)	ND	--	46000
Soluble Antimony (Sb)	ND	--	560
Soluble Arsenic (As)	ND	--	47
Soluble Barium (Ba)	ND	--	18750

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code: 523770)

Tel : (86 769) 8111 9888 Fax: (86 769) 8111 6222 Email : dgstc@dgstc.org Website :www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited  
For Conditions of Issuance of this test report, please refer to "the Conditions of Issuance of Test Report" section or Website.



## Test Report

**Date** : 2017-06-02  
**No.** : DP17051970

**Page 5 of 8**

Sample Elements	Result in ppm	Limit in ppm	Limit in ppm
	(1)	ACTION	REQUIRED
Soluble Cadmium (Cd)	ND	--	17
Soluble Lead (Pb)	ND	--	160
Soluble Mercury (Hg)	ND	--	94
Soluble Selenium (Se)	ND	--	460
Soluble Nickel (Ni)	ND	--	930
Soluble Tin (Sn)	ND	2.5*	180000

Note(s): ND = Not Detected, Method detection limit(MDL) for Soluble Al, B, Cu, Mn, Sr, Zn, Ba are 20ppm; for soluble Sb, As, Co, Pb, Hg, Ni, Se are 5ppm; for Soluble Cd, Sn are 2.5ppm

\*= If Soluble Tin content > action limit, proceed to Organic Tin analysis

### Chromium (VI) analysis

#### Test Method / Instrument:

With reference to EN 71-3 Annex G, Analysis were performed by using Inductively Coupled Plasma Mass Spectrometry

#### For Category III : Scrape off toys materials

Sample Elements	Result in ppm	Limit in ppm	Limit in ppm
	(1)	ACTION	REQUIRED
Soluble Chromium (Cr)	ND	0.2* <sup>1</sup>	--

Note(s): (1)ND = Not Detected, Method detection limit(MDL)for Soluble Cr is 0.1ppm  
 (2)\*<sup>1</sup> =If soluble Chromium content > action limit, proceed to soluble Chromium(VI) analysis using LC-ICP-MS.

### 6. Heavy elements contents

Ref.: Mattel Specification RMS #0006-2903 Rev.1.00

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

<u>Element</u>	<u>Result(ppm)</u>	<u>Total Limit (ppm)</u>	<u>Soluble limit For method 1 (ppm)</u>
	(1)		
Antimony (Sb)	ND	--	30
Arsenic (As)	ND	--	10
Barium (Ba)	ND	--	250
Cadmium (Cd)	ND	40	17
Chromium (Cr)	ND	50	30
Lead (Pb)	ND	20	20

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code: 523770)

Tel : (86 769) 8111 9888 Fax: (86 769) 8111 6222 Email : dgstc@dgstc.org Website :www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited  
 For Conditions of Issuance of this test report, please refer to "the Conditions of Issuance of Test Report" section or Website.



## Test Report

Date : 2017-06-02  
No. : DP17051970

Page 6 of 8

<u>Element</u>	<u>Result(ppm)</u>	<u>Total Limit (ppm)</u>	<u>Soluble limit For method 1 (ppm)</u>
	(1)		
Mercury (Hg)	ND	500	30
Selenium (Se)	ND	--	150
Aluminum (Al)	$4.80 \times 10^3$	--	70000
Boron (B)	ND	--	15000
Cobalt (Co)	ND	--	130
Copper (Cu)	$3.75 \times 10^4$	--	7700
Manganese (Mn)	ND	--	15000
Nickel (Ni)	ND	10000	930
Strontium (Sr)	ND	--	56000
Tin (Sn)	ND	--	180000
Zinc (Zn)	17	--	46000
Organic tin	--	--	0.2

Note(s): (1) ppm = parts per million  
(2) ND= Not detected (method detection limit for Sb, As, Ba, Cd, Cr, Pb, Se, Al, B, Co, Cu, Mn, Ni, Sr, Sn, Zn = 5ppm, and Hg = 2ppm).

### Soluble 1 content analysis

<u>Element</u>	<u>Result Sample(1)</u>	<u>Soluble limit for method 1</u>
Copper (Cu)	ND	7700ppm

Note(s): (1) ppm = parts per million  
(2) ND= Not detected (method detection limit for for Cu =5ppm).

## 7. Heavy Element Contents

Ref.: Mattel Specification QSOP #0006-3600 Rev. 2.00

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

### Clause 2.3.1 Surface Coatings

<u>Element</u>	<u>Result (ppm)</u>	<u>Total Limit (ppm)</u>	<u>Soluble limit For method 1 (ppm)</u>	<u>Soluble limit For method 2 (ppm)</u>
	(1)			
Total Antimony (Sb)	ND	-	60	1000
Total Arsenic (As)	ND	-	25	1000
Total Barium (Ba)	ND	-	1000	1000
Total Cadmium (Cd)	ND	75	17	1000
Total Chromium (Cr)	ND	-	60	-

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code: 523770)

Tel : (86 769) 8111 9888 Fax: (86 769) 8111 6222 Email : dgstc@dgstc.org Website :www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited  
For Conditions of Issuance of this test report, please refer to "the Conditions of Issuance of Test Report" section or Website.



## Test Report

**Date** : 2017-06-02  
**No.** : DP17051970

**Page 7 of 8**

<u>Element</u>	<u>Result (ppm)</u>	<u>Total Limit (ppm)</u>	<u>Soluble limit For method 1 (ppm)</u>	<u>Soluble limit For method 2 (ppm)</u>
	(1)			
Total Lead (Pb)	ND	40	46	-
Total Mercury (Hg)	ND	10	60	-
Total Selenium (Se)	ND	-	460	1000
Total Aluminum (Al)	$4.80 \times 10^3$	-	70000	-
Total Boron (B)	ND	-	15000	-
Total Cobalt (Co)	ND	-	130	-
Total Copper (Cu)	$3.75 \times 10^4$	-	7700	-
Total Manganese (Mn)	ND	-	15000	-
Total Nickel (Ni)	ND	10000	930	-
Total Strontium (Sr)	ND	-	56000	-
Total Tin (Sn)	ND	-	180000	-
Total Zinc (Zn)	17	-	46000	-
Chromium VI (Cr VI)	--	-	0.2	-
Organic tin	--	-	12	-

Note(s): (1) ppm = parts per million  
 (2) ND= Not detected (method detection limit for Total Sb, As, Ba, Cd, Cr, Pb, Se, Al, B, Co, Cu, Mn, Ni, Sr, Sn, Zn = 5ppm, and Total Hg = 2ppm).  
 (3) Soluble method 1 testing of tin was not required as the total Sn result exceeded 12ppm accordance with the Specification

### Soluble 1 content analysis

<u>Element</u>	<u>Result Sample(1)</u>	<u>Soluble limit for method 1</u>
Copper (Cu)	ND	7700ppm

Note(s): (1) ppm = parts per million  
 (2) ND= Not detected (method detection limit for for Cu =5ppm).

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





## Test Report

**Date** : 2017-06-02  
**No.** : DP17051970

**Page 8 of 8**

### Appendix for Photos of the Submitted Sample(s)



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code: 523770)

Tel : (86 769) 8111 9888 Fax: (86 769) 8111 6222 Email : dgstc@dgstc.org Website :www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited  
For Conditions of Issuance of this test report, please refer to "the Conditions of Issuance of Test Report" section or Website.



### **Conditions of Issuance of Test Reports**

1. All samples and goods are accepted by STC (Dongguan) Company Limited (the “Company”) solely for testing and report in accordance with the following terms and conditions. The Company provides its services on the basis that such terms and conditions constitute an express agreement between the Company and any person, firm or company requesting its services (the “Clients”).
2. Any report issued by the Company as a result of this application for testing services (the “Report”) shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to his customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion of correspondence with any Third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders. The Company reserves the right to refuse to take part in any legal action against the Clients.
4. The Report refers only to the sample tested and does not apply to the bulk, unless the sampling has been carried out by the Company and is stated as such in the Report.
5. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
6. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
7. The Company will not be liable for or accept responsibility for any loss or damage howsoever arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
8. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
9. The Company will take reasonable care of samples submitted for testing whilst in the Company’s possession. However, no liability is accepted for loss or damage howsoever caused, to goods and/or samples whilst in the possession or under the control of the Company. Mutilation of samples submitted for the purpose of testing is inevitable. The Company will return, on the Client’s written request, only what remains of the samples after testing. The Clients agree that any samples, of retained by the Company may be destroyed after one month, unless the Company has been specifically instructed otherwise.
10. Sample which are in the Company’s reasonable opinion too small to afford an adequate examination or test to be made, may nevertheless, subject to the Company’s entire discretion, be accepted for test but the relevant report may be accordingly qualified.