

**Test Report**

Number: SHAH01056094

Applicant: NINGBO VIGA INTERNATIONAL CO.,LTD  
20F, 588 CANGHAI ROAD, NINGBO, ZHEJIANG  
CHINA.  
Attn: AMY

Date: 16 Jan, 2019

Sample Description:

One (1) set of submitted sample said to be :

Item Name : **Red UV Ink, Yellow UV Ink, Blue UV Ink, Black UV Ink, White UV Ink, Light red UV Ink, Light blue UV Ink.**

Country Of Origin : China.

Item No : See Attachment.

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Tests Conducted:

As requested by the applicant, for details refer to attached page(s).

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To be continued

Authorized By:



Young Zhu  
Vice President



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Conclusion:

<u>Tested Samples</u>	<u>Standard</u>	<u>Result</u>
Tested components of submitted sample	U.S. ASTM F963-17 for total Lead content	Pass
	U.S. ASTM F963-17 for soluble elements content in surface coating	Pass
	U.S. CFR title 16(CPSC regulations) Part 1303 total Lead content	Pass
	U.S. Code of Federal Regulations title 16 part 1303 for total Lead content in surface coating	Pass
	U.S. Consumer Product Safety Improvement Act 2008 title I, section 101 for total Lead content in surface coating	Pass
	US Consumer Product Safety Improvement Act 2008 Title I, Sec 108(a) & (b)(3) and US 16 CFR Part 1307 for Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates	Pass
	California Proposition 65 for Toys,Consent Judgement No.RG-356892 -Total Lead (Pb) content	Pass
	US California Proposition 65 -- Phthalate content	Pass
	EN 71-3:2013+A3:2018 on migration of certain elements & EU 2018/725 amending 2009/48/EC (effective from Nov 18,2019) for chromium (VI) migration	Pass
	Phthalates content requirement in Annex XVII items 51 & 52 of the REACH regulation (EC) NO. 1907/2006 & Amendment NO.552/2009	Pass

To be continued

Authorized By:



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Tests Conducted

1 Total Lead (Pb) Content

As per section 4.3.5 of the ASTM standard consumer safety specification on toy safety F963-17, test method CPSC-CH-E1001-08.3, CPSC-CH-E1002-08.3 or/and CPSC-CH-E1003-09.1 was/were used and total Lead content was determined by Inductively Coupled Argon Plasma Spectrometry.

( I ) Surface coating

<u>Tested components</u>	<u>Result in ppm</u>	<u>Limit (ppm)</u>
(1+2+3)	<20	90
(4+5+6)	<20	90
(7)	<20	90

Remark: ppm = parts per million = mg/kg

Tested Components: See component list in the last section of this report.

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Testing Period: 11 Jan, 2019 To 15 Jan, 2019

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Tests Conducted

2 Soluble Elements Analysis In Surface Coating

As per section 4.3.5.1(2) of the ASTM standard consumer safety specification on toy safety F963-17, acid extraction method was used and heavy metal elements migration content were determined by Inductively Coupled Argon Plasma Spectrometry.

	Result (ppm)						Limit (ppm)
	(1)	(2)	(3)	(4)	(5)	(6)	
Sol. Barium (Ba)	16	10	12	11	<5	<5	1000
Sol. Lead (Pb)	<5	<5	<5	<5	<5	<5	90
Sol. Cadmium (Cd)	<5	<5	<5	<5	<5	<5	75
Sol. Antimony (Sb)	<5	<5	<5	<5	<5	<5	60
Sol. Selenium (Se)	<5	<5	<5	<5	<5	<5	500
Sol. Chromium (Cr)	<5	<5	<5	<5	<5	<5	60
Sol. Mercury (Hg)	<5	<5	<5	<5	<5	<5	60
Sol. Arsenic (As)	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	25

	Result (ppm)	Limit (ppm)
	(7)	
Sol. Barium (Ba)	<5	1000
Sol. Lead (Pb)	<5	90
Sol. Cadmium (Cd)	<5	75
Sol. Antimony (Sb)	<5	60
Sol. Selenium (Se)	<5	500
Sol. Chromium (Cr)	<5	60
Sol. Mercury (Hg)	<5	60
Sol. Arsenic (As)	<2.5	25

Remark : Sol. = soluble

ppm = parts per million = mg/kg

spl.wt. = sample weight

Tested components : See component list in the last section of this report.

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### Tests Conducted

#### 3 Total Lead (Pb) Content

As per U.S. Code of Federal Regulations title 16 part 1303, acid digestion method was used and total Lead content was determined by Inductively Coupled Argon Plasma Spectrometry.

<u>Tested components</u>	<u>Result (%)</u>	<u>Limit (%)</u>
(1+2+3)	<0.002	0.009
(4+5+6)	<0.002	0.009
(7)	<0.002	0.009

Remark: % = Percentage based on dry weight of testing sample

Tested Components: See component list in the last section of this report.

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#### 4 Total Lead (Pb) Content In Surface Coating

As per standard operating procedure for determining Lead (Pb) in paint and other similar surface coatings (April 26, 2009), test method CPSC-CH-E1003-09 was used and total Lead content was determined by Inductively Coupled Argon Plasma Spectrometry.

<u>Tested Components</u>	<u>Result (ppm)</u>	<u>Limit (ppm)</u>
(1+2+3)	<20	90
(4+5+6)	<20	90
(7)	<20	90

Remark: ppm = Parts per million = mg/kg

Tested Components: See component list in the last section of this report.

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Tests Conducted

5 Phthalate Content

With reference to CPSC-CH-C1001-09.4, by Gas Chromatographic-Mass Spectrometric (GC-MS) analysis.

Test item	Result (%)			Limit (%) (Max.)
	(1+2+3)	(4+5+6)	(7)	
Dibutyl phthalate (DBP)	ND	ND	ND	0.1
Di-(2-ethylhexyl) phthalate (DEHP)	ND	ND	ND	0.1
Benzyl butyl phthalate (BBP)	ND	ND	ND	0.1
Diisononyl phthalate (DINP)	ND	ND	ND	0.1
Diisobutyl phthalate (DIBP)	ND	ND	ND	0.1
Di-n-pentyl phthalate (DPENP)	ND	ND	ND	0.1
Di-n-hexyl phthalate (DHEXP)	ND	ND	ND	0.1
Dicyclohexyl phthalate (DCHP)	ND	ND	ND	0.1

The above limit was quoted according to 16 CFR part 1307 approved by U.S. Consumer Product Safety Commission (CPSC) for prohibition of children's toys and child care articles containing specified phthalates.

Remark: ND = Not Detected  
 Detection Limit = 0.01%

Tested Component(s): See component list in the last section of this report.

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Tests Conducted

6 Total Lead (Pb) Content

With reference to US EPA method 3050B, acid digestion method was used and total Lead content was determined by Inductively Coupled Argon Plasma Spectrometry.

Tested Components	Result (ppm)	Requirement (ppm)
(1+2+3)	<10	90
(4+5+6)	<10	90
(7)	<10	90

The above limit was quoted from the Consent Judgement No.RG-356892, settled by superior court of the state of California for the County of Alameda, for Toys based on the California proposition 65.

Remark: ppm = Parts per million = mg/kg

Tested Components: See component list in the last section of this report.

Date Sample Received: 11 Jan, 2019

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7 Phthalate Content

With reference to CPSC-CH-C1001-09.3 and by Gas Chromatographic-Mass Spectrometric (GC-MS) analysis.

	Result (%. w/w)			Limit (%. w/w)
	(1+2+3)	(4+5+6)	(7)	
Dibutyl phthalate (DBP)	ND	ND	ND	0.1
Diethyl hexyl phthalate (DEHP)	ND	ND	ND	0.1
Benzyl butyl phthalate (BBP)	ND	ND	ND	0.1
Di-iso-decyl phthalate (DIDP)	ND	ND	ND	0.1
Di-n-hexyl phthalate (DnHP)	ND	ND	ND	0.1
Diisononyl phthalate (DINP)	ND	ND	ND	--

Remark: The above limit was quoted from the Consent Judgment No. BG-350969 settled by superior court of the State of California for the county of Marin, for Toys based on the California Proposition 65.

ND = Not Detected  
Detected Limit = 0.01%(w/w)

Tested Component(s): See component list in the last section of this report

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**Test Report**

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Tests Conducted

8 19 Toxic Elements Migration Test

(A) Test Result

As per EN 71-3:2013+A3:2018 and followed by Inductively Coupled Plasma Atomic Emission Spectrometry, Inductively Coupled Argon Mass Spectrometry, Ion Chromatography- Inductively Coupled Plasma-Mass Spectrometry, and Gas Chromatographic - Mass Spectrometry

Category (III): Scraped-off toy material

Element	Result (mg/kg)				Limit (mg/kg)
	(1)	(2)	(3)#	(4)	
Aluminium (Al)	< 300	< 300	< 300	< 300	70000
Antimony (Sb)	< 10	< 10	< 10	< 10	560
Arsenic (As)	< 10	< 10	< 10	< 10	47
Barium (Ba)	16	< 10	12	11	18750
Boron (B)	< 50	< 50	< 50	< 50	15000
Cadmium (Cd)	< 5	< 5	< 5	< 5	17
Chromium (III) (Cr III) **	< 10	< 10	< 10	< 10	460
Chromium (VI) (Cr VI) **	< 0.025	< 0.025	< 0.025	< 0.025	0.2/0.053◎
Cobalt (Co)	< 10	< 10	< 10	< 10	130
Copper (Cu)	< 10	< 10	13	< 10	7700
Lead (Pb)	< 10	< 10	< 10	< 10	23
Manganese (Mn)	< 10	< 10	< 10	< 10	15000
Mercury (Hg)	< 10	< 10	< 10	< 10	94
Nickel (Ni)	< 10	49	< 10	15	930
Selenium (Se)	< 10	< 10	< 10	< 10	460
Strontium (Sr)	< 100	< 100	< 100	< 100	56000
Tin (Sn)	< 10	< 10	< 10	< 10	180000
Organic tin **	< 3.0	< 3.0	< 3.0	< 3.0	12
Zinc (Zn)	< 100	< 100	< 100	< 100	46000

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### Tests Conducted

Element	Result (mg/kg)			Limit (mg/kg)
	(5)#	(6)#	(7)#	
Aluminium (Al)	< 300	< 300	< 300	70000
Antimony (Sb)	< 10	< 10	< 10	560
Arsenic (As)	< 10	< 10	< 10	47
Barium (Ba)	< 10	< 10	< 10	18750
Boron (B)	< 50	< 50	< 50	15000
Cadmium (Cd)	< 5	< 5	< 5	17
Chromium (III) (Cr III) **	< 10	< 10	< 10	460
Chromium (VI) (Cr VI) **	< 0.025	< 0.025	< 0.025	0.2/0.053 <sup>©</sup>
Cobalt (Co)	< 10	< 10	< 10	130
Copper (Cu)	26	< 10	< 10	7700
Lead (Pb)	< 10	< 10	< 10	23
Manganese (Mn)	< 10	< 10	< 10	15000
Mercury (Hg)	< 10	< 10	< 10	94
Nickel (Ni)	< 10	< 10	< 10	930
Selenium (Se)	< 10	< 10	< 10	460
Strontium (Sr)	< 100	< 100	< 100	56000
Tin (Sn)	< 10	< 10	< 10	180000
Organic tin **	< 3.0	< 3.0	< 3.0	12
Zinc (Zn)	< 100	< 100	< 100	46000

Remark: mg/kg = Milligram per kilogram

spl. wt. = Sample weight

++ = Unless the test results were marked with "#" or "Δ", Chromium (III) & Chromium (VI) and Organic tin contents were not directly determined and were derived from migration results of total chromium and tin respectively.

- Organic tin test result was expressed as tributyl tin.
- Unless specified, test results of Chromium (III), Chromium (VI) and Organic tin were derived from migration results of total chromium and tin respectively.
- Migration of Chromium (III) = Migration of total Chromium – Migration of Chromium(VI), when performed confirmation test for Chromium (VI)

© = The new chromium (VI) migration limit [(0.053mg/kg for Category (III)] were quoted from directive (EU) 2018/725 amending 2009/48/EC effective from 18 November 2019.

# = Confirmation of Chromium (VI) test was performed on the tested component. And the reported value of migration of Chromium (III) = migration value of total Chromium – migration value of Chromium(VI).

Tested Component(s): See component list in the last section of this report.

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Tests Conducted

(B) Categories of various toy materials

Category I: Dry, brittle, powder like or pliable

Solid toy material from which powder-like material is released during playing and semi-solid materials that may also leave residues on the hands during play. The material can be ingested. Contamination of the hands with the material may contribute to the oral exposure of the material. (e.g. the cores of colouring pencils, chalk, crayons, modelling clays and plaster).

Category II: Liquid or sticky

Fluid or viscous toy material, which can be ingested or to which dermal exposure may occur during playing. (e.g. liquid paints, finger paints, liquid ink in pens, glue sticks, slimes, bubble solution).

Category III: Scraped-off

Solid toy material with or without a coating, which can be ingested as a result of biting, tooth scraping, sucking or licking. (e.g. coatings, lacquers, plastics, paper, textiles, glass, ceramic, metallic, wooden, bone, leather and other materials).

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Tests Conducted

9 Phthalate content test

With reference to EN 14372, by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested compound	Result (%w/w)			Limit(%w/w) (MAX.)
	(1+2+3)	(4+5+6)	(7)	
Di-butyl phthalate (DBP)	ND	ND	ND	---
Di(2-ethyl hexyl) phthalate(DEHP)	ND	ND	ND	---
Benzyl butyl phthalate (BBP)	ND	ND	ND	---
Sum of three phthalates	ND	ND	ND	0.1
Di-iso-nonyl phthalate (DINP)	ND	ND	ND	---
Di-n-octyl phthalate (DNOP)	ND	ND	ND	---
Di-iso-decyl phthalate (DIDP)	ND	ND	ND	---
Sum of three phthalates	ND	ND	ND	0.1

Remark: The above limit was quoted according to Annex XVII items 51 & 52 of the REACH regulation (EC) NO.1907/2006 & Amendment NO.552/2009 for phthalate content in toys and children care articles.

Detection limit = 0.01%(w/w)  
ND = Not detected

Tested components: See component list in the last section of this report.

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To be continued



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Tests Conducted



Components:

- (1) Red UV coating on wood.
- (2) Yellow UV coating on wood. spl.wt.=0.0582g
- (3) Blue UV coating on wood. spl.wt.=0.0536g
- (4) Black UV coating on wood. spl.wt.=0.0536g
- (5) White UV coating on wood. spl.wt.=0.0537g
- (6) Light red UV coating on wood.
- (7) Light blue UV coating on wood.

End of report

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## Test Report

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### Tests Conducted

50012, 50015, 50016, 50017, 50019, 50020, 50021 (50021VG) 、 50022, 50029, 50036, 50041, 50043 (50043VG) 、 50045, 50046, 50064, 50068 (50068VG) 、 50069 (50069VG) 、 50075, 50077, 50078, 50080, 50089, 50090, 50091, 50093, 50111, 50112, 50113, 50115, 50116, 50119, 50120, 50123, 50124, 50125, 50127 (50127VG) 、 50131, 50132, 50136, 50138, 50140, 50143, 50144, 50146, 50150, 50157, 50158, 50160, 50161, 50163, 50168, 50169, 50170, 50171, 50172, 50173, 50174, 50175, 50176, 50178, 50180, 50189, 50190, 50193, 50196, 50197, 50198, 50199, 50200, 50201, 50203, 50204, 50223, 50231 (50231VG) 、 50232 (50232VG) 、 50233 (50233VG) 、 50234 (50234VG) 、 50235 (50235VG) 、 50241, 50255, 50258, 50260, 50266, 50285, 50286, 50287, 50288, 50289 (50289VG) 、 50290 (50290C) 、 50310 、 50324, 50325, 50330, 50335, 50336, 50337, 50338, 50339, 50340, 50341, 50342, 50344, 50346, 50348, 50377, 50378, 50379, 50381, 50384, 50387, 50388, 50390, 50392, 50395, 50396, 50435, 50436, 50437, 50438, 50450, 50469, 50470, 50471, 50472, 50484, 50507, 50508, 50509, 50510, 50520, 50527, 50529, 50530, 50531, 50533, 50534, 50535, 50536, 50540, 50541, 50542, 50545, 50547, 50552, 50554, 50557, 50566, 50568, 50569, 50572 (50572B) 、 50580, 50588, 50590, 50591, 50642, 50643, 50660, 50661, 50664, 50665, 50666, 50667, 50668, 50669, 50670, 50671, 50672, 50673, 50674, 50675, 50676, 50677, 50678, 50679, 50680, 50681, 50682, 50683, 50689, 50690, 50694, 50695, 50696, 50700, 50721, 50722, 50723, 50724, 50760, 50761, 50762, 50763, 50764, 50765, 50807, 50808, 50809, 50810, 50812, 50813, 50814, 50815, 50816, 50817, 50818, 50819, 50820, 50821, 50822, 50825, 50828, 50833, 50834, 50835, 50836, 50837, 50838, 50839, 50840, 50842, 50855, 50857, 50858, 50859, 50861, 50862, 50949, 50950, 50951, 50952, 50957, 50958, 50959, 50961, 50962, 50963, 50964, 50976, 50977, 50978, 50979, 50980, 50981, 50983, 50997-1/2 50997-2/2 (50997) 、 50998, 51269, 51270, 51271, 51272, 51273, 51274, 51312, 51313, 51314, 51316, 51317, 51319, 51321, 51322, 51323, 51324, 51325, 51326, 51423, 51424, 51426, 51427, 51428, 51436, 51437, 51438, 51439, 51440, 51441, 51442, 51443, 51444, 51445, 51446, 51447, 51448, 51449, 51450, 51451, 51452, 51453, 51454, 51455, 51456, 51457, 51458, 51459, 51460, 51461, 51462, 51463, 51600, 51601, 51602, 51603, 51604, 51605, 51606, 51607, 51608, 51609, 51610, 51611, 51612, 51613, 51614, 51615, 51616, 51618, 51619, 51620, 51625, 51626, 51627, 51628, 51629, 52729, 52730, 53769 (53769VG) 、 53906 (53906VG) 、 53908, 53912, 55244 (55244VG) 、 55250 (55250VG) 、 55252 (55252VG) 、 56002, 56163, 56171 (56171VG) 、 56182, 56219, 56254 (56254A) 、 56276, 56281, 56290, 56291, 56304, 56305, 56401, 56403, 56435, 56436, 56437, 56438, 56439, 56440, 58306 (58306VG) 、 58307 (58307VG) 、 58308 (58308VG) 、 58309 (58309VG) 、 58423, 58474 (58474VG) 、 58483 (58483VG) 、 58499, 58500, 58505, 58506, 58543 (58543E) 、 58545, 58550, 58578 (58578E) 、 58595 (58595VG) 、 58806, 58923 (58923VG) 、 58924 (58924VG) 、 58971, 59072 (59072VG) 、 59075, 59235 (59235VG) 、 59303 (59303A) 、 59429 (59429VG) 、 59461, 59486, 59506, 59515, 59517 (59517VG) 、 59533, 59542, 59560, 59610, 59611, 59621, 59652 (59652VG) 、 59661, 59662, 59664, 59690, 59691, 59692, 59694, 59695, 59696, 59698, 59701, 59702, 59703, 59704, 59705, 59706, 59707, 59708, 59709, 59718, 59769, 59789, 59790, 59854 (59854VG) 、 59872, 59893 (59893VG) 、 59924, 59929, 59930, 59931, 59932, 59933, 59934, 59950 (59950VG) 、 59963 (59963VG) 、 59964, 59966, 59980, 59990 (59990VG) 、 50674SM, 50681SM, 59158E (TEASEL) 、 59160E (BIGEASY) 、 58483E(TM) 、 59728-EX (SKYLINE)

