

Test Report

Report No. A2170070243101007

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Applicant DONGGUAN IN MEI COATING CO., LTD

Address TIANXIN AREA, HUANGJIANG TOWN, DONGGUAN CITY, GUANGDONG PROVINCE

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client

Sample Name INK
Part No. G001(VD)、G002(VDN)
Color 01100(110)、10200 (102)、10400 (104)、20000 (200)、20010、20300 (203)、20380、20600 (206)、20610、20700 (207)、20900 (209)、21000 (210)、22000、22240、23000、30000 (300)、30100 (301)、30200 (302)、30300 (303)、30380 (3038)、30400 (304)、30600 (306)、30700 (307)、30730 (3073)、30740 (3074)、30800 (308)、30910、30970、30980、31400 (314)、31500 (315)、40100 (401)、40200 (402)、40300 (403)、40310、40400 (404)、40600 (406)、40700 (407)、40800 (408)、449、50000 (500)、50100 (501)、50200 (502)、50300 (Conductive black)、60100 (601)、60200 (602)、70100 (701)、70200、80100 (801)、80105、90100 (901)、90200 (902)、21310 (131)、31330 (133)、31340 (134)、31580 (158)、31590 (159)、41480 (148)、61400 (140)、01200 (2000)、01300 (4000)

Sample Received Date Dec. 25, 2017

Testing Period Dec. 25, 2017 to Dec. 29, 2017

Test Conducted:

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

Tested by Pink Pei

Reviewed by Danna Yan

Approved by Hill Zheng
Hill Zheng
Technical Manager

Date Dec. 29, 2017



No. R158924302

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Executive Summary:

TEST REQUEST

- 1) ASTM F963-17 Standard Consumer Safety Specification for Toy Safety
 - Clause 4.3.5 Heavy elements – Migration of certain elements
- 2) European Standard on Safety of Toys
 - EN 71-3:2013+A2:2017 Migration of certain elements

CONCLUSION

PASS

PASS

***** For Further Details, Please Refer To the Following Page(s) *****

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1) ASTM F963-17 Standard Consumer Safety Specification for Toy Safety

▼ Clause 4.3.5 Heavy elements – Migration of certain elements

Method(s) ASTM F963-17 Clause 8.3 was/were used, and the item(s) was/were analyzed by ICP-OES.

<u>Tested Item(s)</u>	<u>Result (mg/kg)</u>	<u>MDL (mg/kg)</u>	<u>Limit (mg/kg)</u>
Soluble Antimony (Sb)	N.D.	5	60
Soluble Arsenic (As)	N.D.	2.5	25
Soluble Barium (Ba)	244	5	1000
Soluble Cadmium (Cd)	N.D.	5	75
Soluble Chromium (Cr)	N.D.	2.5	60
Soluble Lead (Pb)	N.D.	5	90
Soluble Mercury (Hg)	N.D.	2.5	60
Soluble Selenium (Se)	N.D.	5	500

Remark:

- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg = ppm = parts per million
- Results shown of soluble elements are of adjusted analytical results by subtracting analytical Correction factor.
- Filter paper was used instead of 0.45µm membrane filter in lab testing.

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2) European Standard on Safety of Toys

▼ EN 71-3:2013+A2:2017 Migration of certain elements

Method(s) EN 71-3:2013+A2:2017 was/were used, and the item(s) was/were determined by ICP-OES, ICP-MS, HPLC-ICP-MS and/or GC-MS.

Category III: scraped-off toy material

<u>Tested Item(s)</u>	<u>Result (mg/kg)</u>	<u>MDL (mg/kg)</u>	<u>Limit (mg/kg)</u>
Aluminium (Al)	N.D.	50	70000
Antimony (Sb)	N.D.	5	560
Arsenic (As)	N.D.	5	47
Barium (Ba)	348	50	18750
Boron (B)	N.D.	50	15000
Cadmium (Cd)	N.D.	1	17
Chromium (III) ^{#1}	N.D.	0.2	460
Chromium (VI)	N.D.	0.002	0.2
Cobalt (Co)	N.D.	5	130
Copper (Cu)	N.D.	50	7700
Lead (Pb)	N.D.	5	160
Manganese (Mn)	N.D.	50	15000
Mercury (Hg)	N.D.	5	94
Nickel (Ni)	N.D.	5	930
Selenium (Se)	N.D.	5	460
Strontium (Sr)	N.D.	50	56000
Tin (Sn) ^{#2}	N.D.	2	180000
Organic tin (TBT) ^{#3}	N.D.	0.05	12
Zinc (Zn)	N.D.	50	46000

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Remark:

- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg = ppm = parts per million
- Filter paper was used instead of membrane filter in lab testing.
- ^{#1} Trivalent chromium (Cr (III)) = Chromium (Cr) - Hexavalent chromium (Cr (VI)) , where the chromium content exceeded the limits of hexavalent chromium and/or trivalent chromium, then hexavalent chromium was analyzed by HPLC-ICP-MS and trivalent chromium content was calculated using the formula.
- ^{#2} Tin (Sn) content can be used for screen test for organic tins analysis to show compliance with the requirement of EN 71-3:2013+A2:2017.
- ^{#3} The migration of organic tin is expressed as tributyltin (TBT). where the tin content exceeded the limit of organic tin, ten organic tins listed in table were determined by GC-MS and the client should be noted there are other organic tins may be present in toy materials.

Organic tins tested under EN 71-3:2013+A2:2017
Methyl tin (MeT)
Butyl tin (BuT)
Dibutyl tin (DBT)
Tributyl tin (TBT)
Tetrabutyl tin (TeBT)
n-Octyl tin (MOT)
Di-n-octyl tin (DOT)
Di-n-propyl tin (DProT)
Diphenyl tin (DPhT)
Triphenyl tin (TPhT)

Tested Sample/Part Description

Gray ink