Test Report

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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
Client Reference Information	G003(PVA)、G004(PVAN)
Sample Received Date	Jan. 19, 2016
Testing Period	Jan. 19, 2016 to Jan. 22, 2016

Test Conducted:

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

Tested by [redacted] Reviewed by [redacted]

Danny Liu

Technical Manager

Date Jan. 22, 2016

No. R158929881

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Executive Summary:

TEST REQUEST	CONCLUSION
(1)ASTM F963-11 Standard Consumer Safety Specification for Toy Safety	
- Clause 4.3.5 Heavy elements – Migration of certain elements	**PASS**
(2)European Standard on Safety of Toys	
- EN 71-3:2013+A1:2014 Migration of certain elements	**PASS**

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

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1) ASTM F963-11 Standard Consumer Safety Specification for Toy Safety

▼Clause 4.3.5 Heavy elements – Migration of certain elements

Method(s) ASTM F963-11 Clause 8.3 was/were used, and the item(s) was/were analyzed by ICP-OES.

Tested Item(s)	Result (mg/kg)	MDL (mg/kg)	Limit (mg/kg)
Soluble Antimony (Sb)	N.D.	5	60
Soluble Arsenic (As)	N.D.	2.5	25
Soluble Barium (Ba)	16	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+A1:2014 Migration of certain elements

Method(s) EN 71-3:2013+A1:2014 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

Tested Item(s)	Result (mg/kg)	MDL(mg/kg)	Limit(mg/kg)
Aluminium (Al)	153	50	70000
Antimony (Sb)	N.D.	5	560
Arsenic (As)	N.D.	5	47
Barium (Ba)	N.D.	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+A1:2014.
- [#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+A1:2014
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 Blue ink