

Test Report

Report No.: ECL01G002083

Page 1 of 6

Applicant : Jinan Mingquan Writing Instrument Co.,Ltd

Address : East of Mingshui,Zhangqiu City,Shandong Province,China.

Report on the submitted sample(s) said to be:

Sample Name : color lead

Quantity of Sample : 5 sets

Exported to : Europe

Sample Received Date : Jul 3, 2014

Sample Tested Date : Jul 3, 2014 to Jul 8, 2014

Test Conducted:

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

Tested by

Verna chen.

Reviewed by

Hester Huang

Approved by

Victor Wang

Victor Wang
Lab Manager



Date

Jul 8, 2014

No. T145071562

Centre Testing International Co., Ltd.Shanghai Branch

No.1996,New Jinqiao Road, Pudong District,Shanghai,China

Test Report

Report No.: ECL01G002083

Page 2 of 6

Executive Summary:

TEST REQUEST

European Standard on Safety of Toys:

- EN 71-3:2013 Migration of certain elements

CONCLUSION

PASS

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

Test Report

Report No.: ECL01G002083

Page 3 of 6

EUROPEAN STANDARD ON SAFETY OF TOYS

▼ Migration of certain elements

As specified in European standard on safety of toys EN 71-3:2013 – Migration of certain elements, acid extraction method was used and toxic elements content were determined by ICP-OES, ICP-MS, IC-ICP-MS and GC-MS.

\ **Category I** : dry, brittle, powder-like or pliable toy material

Tested Item	Result (mg/kg)						MDL (mg/kg)	Limit (mg/kg)
	(1)	(2)	(3)	(4)	(5)	(6)		
Aluminium (Al)	635	956	614	418	449	457	50	5625
Antimony (Sb)	ND	ND	ND	ND	ND	ND	2	45
Arsenic (As)	ND	ND	ND	ND	ND	ND	0.1	3.8
Barium (Ba)	ND	ND	187	ND	129	129	50	1500
Boron (B)	ND	ND	ND	ND	ND	ND	50	1200
Cadmium (Cd)	ND	ND	ND	ND	ND	ND	0.2	1.3
Chromium (Cr) ^{#1}	0.15	0.17	0.11	0.08	0.11	0.13	0.004	--
Chromium (III) ^{#2}	0.15	0.17	0.11	0.08	0.11	0.13	--	37.5
Chromium (VI)	ND	ND	ND	ND	ND	ND	0.001	0.02
Cobalt (Co)	ND	ND	ND	ND	ND	ND	0.2	10.5
Copper (Cu)	ND	ND	ND	ND	ND	ND	50	622.5
Lead (Pb)	ND	ND	ND	4	4	ND	1	13.5
Manganese (Mn)	ND	ND	ND	ND	ND	ND	50	1200
Mercury (Hg)	ND	ND	ND	ND	ND	ND	0.6	7.5
Nickel (Ni)	ND	ND	ND	ND	ND	ND	5	75
Selenium (Se)	ND	ND	ND	ND	ND	ND	5	37.5
Strontium (Sr)	ND	ND	ND	ND	ND	ND	50	4500
Tin (Sn) ^{#3}	ND	ND	ND	ND	ND	ND	0.37	15000
Organic tin (TBT) ^{#4}	ND	ND	ND	ND	ND	ND	0.2	0.9
Zinc (Zn)	69	79	84	ND	ND	ND	50	3750

Test Report

Report No.: ECL01G002083

Page 4 of 6

Tested Item	Result (mg/kg)						MDL (mg/kg)	Limit (mg/kg)
	(7)	(8)	(9)	(10)	(11)	(12)		
Aluminium (Al)	829	528	1248	937	395	917	50	5625
Antimony (Sb)	ND	ND	ND	ND	ND	ND	2	45
Arsenic (As)	ND	ND	ND	ND	ND	ND	0.1	3.8
Barium (Ba)	ND	94	100	139	ND	164	50	1500
Boron (B)	ND	ND	ND	ND	ND	ND	50	1200
Cadmium (Cd)	ND	ND	ND	ND	ND	ND	0.2	1.3
Chromium (Cr) ^{#1}	0.09	0.11	0.27	0.10	0.19	0.10	0.004	--
Chromium (III) ^{#2}	0.09	0.11	0.27	0.10	0.19	0.10	--	37.5
Chromium (VI)	ND	ND	ND	ND	ND	ND	0.001	0.02
Cobalt (Co)	ND	ND	ND	ND	ND	ND	0.2	10.5
Copper (Cu)	ND	ND	ND	ND	ND	ND	50	622.5
Lead (Pb)	ND	ND	ND	ND	2	ND	1	13.5
Manganese (Mn)	ND	ND	ND	ND	ND	ND	50	1200
Mercury (Hg)	ND	ND	ND	ND	ND	ND	0.6	7.5
Nickel (Ni)	ND	ND	ND	ND	ND	ND	5	75
Selenium (Se)	ND	ND	ND	ND	ND	ND	5	37.5
Strontium (Sr)	ND	ND	ND	ND	ND	ND	50	4500
Tin (Sn) ^{#3}	ND	ND	ND	ND	ND	ND	0.37	15000
Organic tin (TBT) ^{#4}	ND	ND	ND	ND	ND	ND	0.2	0.9
Zinc (Zn)	ND	ND	ND	ND	ND	ND	50	3750

Tested Component(s):

- (1) Blue lead
- (2) Yellow lead
- (3) Green lead
- (4) Purple lead
- (5) Orange lead
- (6) Atrovirens lead
- (7) Dark pink lead
- (8) Dark blue lead

Test Report

Report No.: ECL01G002083

Page 5 of 6

- (9) Brown lead
- (10) Dark brown lead
- (11) Black lead
- (12) Red lead

Remark:

- mg/kg = milligram per kilogram = ppm
- ND = Not Detected (less than MDL)
- MDL = Method Detection Limit
- Filter paper was used instead of membrane filter in lab testing.
- ^{#1} Chromium (Cr) content can be used for screen test for hexavalent chromium and trivalent chromium analysis and to show compliance with the requirement of EN 71-3:2013.
- ^{#2} Chromium (Cr) = Hexavalent chromium (Cr (VI)) + Trivalent chromium (Cr (III)), 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.
- ^{#3} Tin (Sn) content can be used for screen test for organic tins analysis to show compliance with the requirement of EN 71-3:2013.
- ^{#4} 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

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)

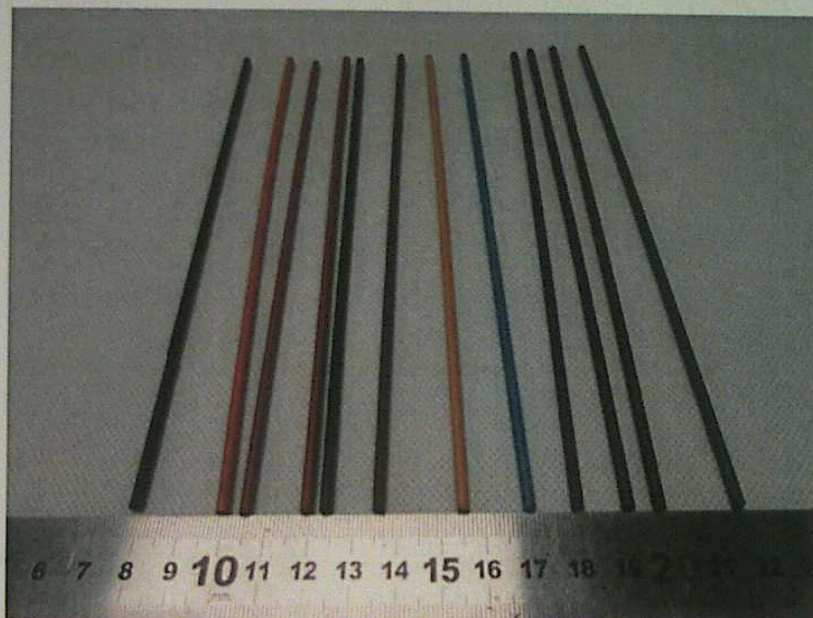
- Result shown of tested component (11) is copied from CTI test report TJD02G001863.

Test Report

Report No.: ECL01G002083

Page 6 of 6

Photo of the sample



*** End of Report ***

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