



Test Report

Report No. A2180211302120

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Applicant
Address

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

Sample Name
Item No.
Supplier
Country of Origin CHINA
Exported to Europe/U.S.A
Quantity Of Sample 3Pcs/color
Sample Received Date Dec. 5, 2018
Sample Resubmitted Date Dec. 24, 2018
Testing Period Dec. 5, 2018 to Dec. 28, 2018

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



Victor Wang
Victor Wang
Authorized Signatory

Chen Kaimin
Chen Kaimin
Authorized Signatory

Date Dec. 28, 2018

No. T291792017

Centre Testing International Pinbiao(Shanghai) Co., Ltd. No.1996,Xinjinqiao Road, Pudong New District,Shanghai,China

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Executive Summary:

TEST REQUEST

CONCLUSION

- | | |
|---|---------------------|
| 1) British Standard BS7272-1:2008 – Writing and Marking instruments: | |
| - Part 1: Specification for Caps to reduce the risk of asphyxiation | PASS |
| (As per client's request, the tests were conducted on the fuchsia fineliner sample only.) | |
| 2) British Standard BS7272-2:2008+A1:2014 – Writing and Marking instruments: | |
| - Part 2: Specification for End Closures to reduce the risk of asphyxiation | PASS |
| (As per client's request, the tests were conducted on the fuchsia fineliner sample only.) | |
| 3) European Standard on Safety of Toys | |
| - EN71-3:2013+A3:2018 Migration of certain elements | See Page 4-8 |
| 4) Annex XVII of European regulation (EC) No. 1907/2006 (REACH) with Amendment(s) | |
| - Cadmium and its compounds | PASS |

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

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1) **BRITISH STANDARD BS7272 (2008) – WRITING AND MARKING INSTRUMENTS**

- Part 1: Specification for caps to reduce the risk of asphyxiation.

<u>Clause</u>	<u>Description</u>	<u>Result</u>
3	Requirements	
3.1	General..... Caps shall conform to at least one of the following: 3.2 or 3.3	Pass
3.2	Cap size.....	N/T
3.3	Ventilated caps air flow.....	Pass
4	Identification.....	Pass

N/T = Not tested, meaning that the other clause will not done if the first clause is PASS.

2) **British Standard BS7272-2:2008+A1:2014 – Writing and Marking Instruments**

▼ **Part 2: Specification for end closures to reduce the risk of asphyxiation.**

<u>Clause</u>	<u>Description</u>	<u>Result</u>
4	Requirements	
4.1	General..... Except for cap-like end closures and those secured by thread. Which shall conform to 4.7, other end closures shall conform to at least one of the following requirements.	Pass
4.2	Size.....	N/T
4.3	Security.....	Pass
4.4	Inaccessibility.....	N/T
4.5	Minimal protrusion.....	N/T
4.6	Air flow.....	N/T
4.7	Additional safeguard.....	N/T
5	Identification.....	Pass

N/T = Not tested, meaning that the following clause will not be done if one of the clause is PASS.

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3) European Standard on Safety of Toys

▼ EN71-3:2013+A3:2018 Migration of certain elements

Method(s) EN71-3:2013+A3:2018 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)
	001	002	003	004	005	006		
Aluminium (Al)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	70000
Antimony (Sb)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5	560
Arsenic (As)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5	47
Barium (Ba)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	18750
Boron (B)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	15000
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1	17
Chromium (Cr) ^{#1}	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.2	--
Chromium (III) ^{#2}	--	--	--	--	--	--	--	460
Chromium (VI)	--	--	--	--	--	--	0.005	0.2
Cobalt (Co)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5	130
Copper (Cu)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	7700
Lead (Pb)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5	23
Manganese (Mn)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	15000
Mercury (Hg)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5	94
Nickel (Ni)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5	930
Selenium (Se)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5	460
Strontium (Sr)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	56000
Tin (Sn)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	2	180000
Organic tin (TBT) ^{#4}	--	--	--	--	--	--	1	12
Zinc (Zn)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	46000

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Tested Item(s)	Result (mg/kg)					MDL	Limit
	007	008	009	010	011	(mg/kg)	(mg/kg)
Aluminium (Al)	N.D.	N.D.	N.D.	N.D.	N.D.	50	70000
Antimony (Sb)	N.D.	N.D.	N.D.	N.D.	N.D.	5	560
Arsenic (As)	N.D.	N.D.	N.D.	N.D.	N.D.	5	47
Barium (Ba)	N.D.	N.D.	N.D.	N.D.	N.D.	50	18750
Boron (B)	N.D.	N.D.	N.D.	N.D.	N.D.	50	15000
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	1	17
Chromium (Cr) ^{#1}	N.D.	N.D.	N.D.	N.D.	0.5	0.2	--
Chromium (III) ^{#2}	--	--	--	--	0.5	--	460
Chromium (VI)	--	--	--	--	N.D.	0.005	0.2
Cobalt (Co)	N.D.	N.D.	N.D.	N.D.	N.D.	5	130
Copper (Cu)	N.D.	N.D.	N.D.	N.D.	N.D.	50	7700
Lead (Pb)	N.D.	N.D.	N.D.	N.D.	N.D.	5	23
Manganese (Mn)	N.D.	N.D.	N.D.	N.D.	N.D.	50	15000
Mercury (Hg)	N.D.	N.D.	N.D.	N.D.	N.D.	5	94
Nickel (Ni)	N.D.	N.D.	N.D.	N.D.	N.D.	5	930
Selenium (Se)	N.D.	N.D.	N.D.	N.D.	N.D.	5	460
Strontium (Sr)	N.D.	N.D.	N.D.	N.D.	N.D.	50	56000
Tin (Sn)	N.D.	N.D.	N.D.	N.D.	N.D.	2	180000
Organic tin ^{#3} (TBT) ^{#4}	--	--	--	--	N.D.	1	12
Zinc (Zn)	N.D.	N.D.	N.D.	N.D.	N.D.	50	46000

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Category II : liquid or sticky toy material

Tested Item(s)	Result (mg/kg)					MDL (mg/kg)	Limit (mg/kg)
	012	013	014	015	016		
Aluminium (Al)	N.D.	N.D.	N.D.	N.D.	N.D.	50	1406
Antimony (Sb)	N.D.	N.D.	N.D.	N.D.	N.D.	2	11.3
Arsenic (As)	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.9
Barium (Ba)	N.D.	N.D.	N.D.	N.D.	N.D.	50	375
Boron (B)	N.D.	N.D.	N.D.	N.D.	N.D.	50	300
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	0.2	0.3
Chromium (Cr) ^{#1}	N.D.	N.D.	N.D.	N.D.	N.D.	0.004	--
Chromium (III) ^{#2}	--	--	--	--	--	--	9.4
Chromium (VI)	--	--	--	--	--	0.005	0.005
Cobalt (Co)	N.D.	N.D.	N.D.	N.D.	N.D.	0.2	2.6
Copper (Cu)	N.D.	N.D.	N.D.	N.D.	N.D.	50	156
Lead (Pb)	N.D.	N.D.	N.D.	N.D.	N.D.	0.2	0.5
Manganese (Mn)	N.D.	N.D.	N.D.	N.D.	N.D.	50	300
Mercury (Hg)	N.D.	N.D.	N.D.	N.D.	N.D.	0.6	1.9
Nickel (Ni)	N.D.	N.D.	N.D.	N.D.	N.D.	5	18.8
Selenium (Se)	N.D.	N.D.	N.D.	N.D.	N.D.	5	9.4
Strontium (Sr)	N.D.	N.D.	N.D.	N.D.	N.D.	50	1125
Tin (Sn) ^{#3}	N.D.	N.D.	N.D.	N.D.	N.D.	0.05	3750
Organic tin (TBT) ^{#4}	--	--	--	--	--	0.2	0.2
Zinc (Zn)	N.D.	N.D.	N.D.	N.D.	N.D.	50	938

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Tested Item(s)	Result (mg/kg)					MDL (mg/kg)	Limit (mg/kg)
	017	018	019	020	021		
Aluminium (Al)	N.D.	N.D.	N.D.	N.D.	N.D.	50	1406
Antimony (Sb)	N.D.	N.D.	N.D.	N.D.	N.D.	2	11.3
Arsenic (As)	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.9
Barium (Ba)	N.D.	N.D.	N.D.	N.D.	N.D.	50	375
Boron (B)	N.D.	N.D.	N.D.	N.D.	N.D.	50	300
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	0.2	0.3
Chromium (Cr) ^{#1}	1.073	N.D.	N.D.	N.D.	N.D.	0.004	--
Chromium (III) ^{#2}	1.073	--	--	--	--	--	9.4
Chromium (VI)	N.D.	--	--	--	--	0.005	0.005
Cobalt (Co)	N.D.	N.D.	N.D.	N.D.	N.D.	0.2	2.6
Copper (Cu)	N.D.	N.D.	N.D.	N.D.	N.D.	50	156
Lead (Pb)	N.D.	N.D.	N.D.	N.D.	N.D.	0.2	0.5
Manganese (Mn)	N.D.	N.D.	N.D.	N.D.	N.D.	50	300
Mercury (Hg)	N.D.	N.D.	N.D.	N.D.	N.D.	0.6	1.9
Nickel (Ni)	N.D.	N.D.	N.D.	N.D.	N.D.	5	18.8
Selenium (Se)	N.D.	N.D.	N.D.	N.D.	N.D.	5	9.4
Strontium (Sr)	N.D.	N.D.	N.D.	N.D.	N.D.	50	1125
Tin (Sn)	N.D.	N.D.	N.D.	N.D.	N.D.	0.05	3750
Organic tin (TBT) ^{#3}	N.D.	--	--	--	--	0.2	0.2
Zinc (Zn)	N.D.	N.D.	N.D.	N.D.	N.D.	50	938

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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 Chromium (Cr) content can be used for screen test for hexavalent chromium and trivalent chromium analysis and to show compliance with the requirement of EN71-3:2013+A3:2018.
- #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 EN71-3:2013+A3:2018.
- #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 EN71-3:2013+A3:2018
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)

- As specified by client, the test was conducted by mixing several samples together. The result(s) shown on this report may be different from the content of any homogeneous material.
- Result(s) shown of tested component(s) 012-015 is/are based on resubmitted parts materials.

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4) Annex XVII of European regulation (EC) No. 1907/2006 (REACH) with Amendment(s)

▼ Cadmium and its compounds

As specified in entry 23, annex XVII of European regulation (EC) No. 1907/2006 (REACH) with amendments No.552/2009 & No.494/2011 & No.835/2012 & No 2016/217, method(s) EN 1122:2001 Method B 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)
	001	002	003	004	005		
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	5	100

Tested Item(s)	Result (mg/kg)						MDL (mg/kg)	Limit (mg/kg)
	006	007	008	009	010	011		
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5	100

Tested Item(s)	Result (mg/kg)					MDL (mg/kg)	Limit (mg/kg)
	012	013	014	015	016		
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	5	100

Tested Item(s)	Result (mg/kg)					MDL (mg/kg)	Limit (mg/kg)
	017	018	019	020	021		
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	5	100

Remark:

- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg = ppm = parts per million
- The limit for composite test should be divided by the mixed number.
- Result(s) shown of tested component(s) 012-015 is/are based on resubmitted parts materials.

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Tested Sample/Part Description

- 001 Purple plastic(body)+Light purple plastic(body)+Dark purple plastic(body)
- 002 Blue plastic(body)+Light blue plastic(body)+Dark blue plastic(body)
- 003 Navy plastic(body)+Sky blue plastic(body)+Grey plastic(body)
- 004 Pink plastic(body)+Light pink plastic(body)+dark pink plastic(body)
- 005 Light brown plastic(body)+Brown plastic(body)+Black plastic(body)
- 006 Red plastic(body)+Light red plastic(body)+Amaranth plastic(body)
- 007 Orange plastic(body)+dark orange plastic(body)+Yellow plastic(body)
- 008 Dark yellow plastic(body)+Flesh-color plastic(body)+Dark flesh-color plastic(body)
- 009 Green plastic(body)+Light green plastic(body)+dark green plastic(body)
- 010 Grass green plastic(body)+Dull green plastic(body)+atrovirens plastic(body)
- 011 Black plastic+ Transparent palstic+ Transparent plastic(nib)
- 012 Purple ink+Light purple ink+Dark purple ink
- 013 Blue ink+Light blue ink+Dark blue ink
- 014 Navy ink+Sky blue ink+Grey ink
- 015 Pink ink+Light pink ink+dark pink ink
- 016 Light brown ink+Brown ink+Black ink
- 017 Red ink+Light red ink+Amaranth ink
- 018 Orange ink+dark orange ink+Yellow ink
- 019 Dark yellow ink+Flesh-color ink+Dark flesh-color ink
- 020 Green ink+Light green ink+dark green ink
- 021 Grass green ink+Dull green ink+atrovirens ink

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Photo(s) of the sample(s)



***** End of Report *****

Statement:

1. This report is considered invalidated without approval signature, special seal and the seal on the perforation;
2. The sample(s) and sample Information was/were provided by the client who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full.