

## TEST REPORT

Applicant: Lion Pencil Co., Ltd.  
No 186 Sec 1 Chung Shan Rd  
Pan Chiao, New Taipei City,  
Taiwan 22065

Number : TWNH00087449

Issue Date : Dec 17, 2020

### Sample Description:

One (1) Groups of Submitted Samples Said To Be :  
Item Name : Ceramic Marker  
Quantity : 1 Group  
Date Sample Received : Dec 09, 2020  
Date Test Started : Dec 09, 2020

### Test Conducted:

As requested by the applicant, for details please refer to attached pages.

### Conclusion:

<u>Tested sample</u>	<u>Standard</u>	<u>Result</u>
Submitted Samples	Mechanical and physical properties – As per applicant's request with reference to European standard on safety of toys EN 71 part 1:2014 + A1 : 2018	Pass
	Flammability test – As per applicant's request with reference to European standard on safety of toys EN 71 part 2: 2011+A1:2014	Pass
Tested Components of Submitted Samples	19 Toxic Element Migration Test – As per applicant's request with reference to European standard on safety of toys EN71-3:2019	Pass

Authorized By:  
On behalf of Intertek Testing Services  
Taiwan Limited

Matt Wang  
Sr. Manager



Signed by:

Thomas Chou

Thomas Chou  
Manager



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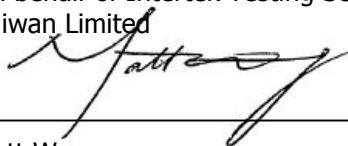
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- Note : The attention of the applicant is drawn to the need for the item to be labeled as below
- Toys made available on the market shall bear the CE marking. The CE marking shall be subject to the general principles set out in Article 30 of Regulation (EC) No 765/2008. The CE marking shall be affixed visibly, legibly and indelibly to the toy, to an affixed label or to the packaging. In the case of small toys and toys consisting of small parts, the CE marking may alternatively be affixed to a label or an accompanying leaflet. Where, in the case of toys sold in counter displays, that is not technically possible, and on condition that the counter display was originally used as packaging for the toy, the CE marking may be affixed to the counter display. Where the CE marking is not visible from outside the packaging, if any, it shall as a minimum be affixed to the packaging. Where specific legislation does not impose specific dimensions, the CE marking shall be at least 5 mm high.
  - The manufacturer's name, registered trade name or registered trade mark and the address at which the manufacturer can be contacted shall be indicated on the toy or, where that is not possible, on its packaging or in a document accompanying the toy. This requirement applies also to the name and address etc. of any importer.
  - Manufacturers shall ensure that their toys bear a type, batch, serial or model number or other element allowing their identification, or where the size or nature of the toy does not allow it, that the required information is provided on the packaging or in a document accompanying the toy.
  - Manufacturers and importers shall ensure that the toy is accompanied by instructions and safety information in a language or languages easily understood by consumers, as determined by the Member State concerned.
  - A Member State may, within its territory, stipulate that warnings and safety instructions shall be written in a language or languages easily understood by consumers, as determined by that Member State.

If this information is not fixed to the toy itself, it should be accompanied by a notice in advising the purchaser to retain it.

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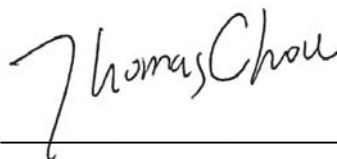
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Sr. Manager



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Manager



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Test Conducted

## 1. Mechanical and Physical Properties

As per applicant's request with reference to European standard on safety of toys EN 71 part 1:2014 + A1 : 2018

Appropriate age group for testing # : For ages over 3 years

<u>Clause</u>	<u>Testing item</u>	<u>Assessment</u>
4*	General requirements	P
5	Toys intended for children under 36 months	NA
6	Packaging	NA
7*	Warnings, markings and instructions for use	P# (See Note)

Remarks : P = Pass ; NA = Not applicable  
 # = The applicant has certified that proper age grading, label and marking will put on the final product, and the age grading, label and marking certified meet the requirement of this standard. It is applicant's responsibility to make sure the final product with the age grading, label and marking as certified.  
 \* = The following subclauses of the standard are found applicable :

- 1) 4.1 Material cleanliness
- 2) 4.7 Edges
- 3) 4.8 Points and metallic, wires
- 4) 7.1 General
- 5) 7.2 Toys not intended for children under 36 months

## 2. Flammability Test

As per applicant's request with reference to European standard on safety of toys EN 71 part 2 : 2011+A1:2014.

<u>Clause</u>	<u>Testing item</u>	<u>Assessment</u>
4.1	General	
	– Cellulose nitrate	P
	– Pile surface	NA
	– Flammable gas and liquid	NA
4.2	Toys to be worn on the head (5.2/5.3/5.4)	NA
4.3	Toy disguise costumes and toys intended to be worn by a child in play (5.4)	NA
4.4	Toys intended to be entered by a child (5.4)	NA
4.5	Soft-filled toys(5.5)	NA

Remarks : P = Pass  
 NA = Not applicable



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### 3. 19 Toxic Element Migration Test

As per applicant's request with reference to EN 71-3: 2019 and followed by High Performance Liquid Chromatography-Photodiode Array Detector (HPLC-DAD), Liquid Chromatography /Inductively Coupled Plasma Mass Spectrometer (LC/ICP-MS), Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES), Inductively Coupled Plasma Mass Spectrometer (ICP-MS) and Gas Chromatography-Mass Spectrometer (GC-MS), if necessary.

Category II: Liquid or sticky

Element	Result (mg/kg)						Detection limit (mg/kg)	Limit (mg/kg)
	(1)	(2)	(3)	(4)	(5)	(6)		
Aluminium (Al)	ND	ND	ND	ND	ND	ND	100	1406
Antimony (Sb)	ND	ND	ND	ND	ND	ND	1.0	11.3
Arsenic (As)	ND	ND	ND	ND	ND	ND	0.1	0.9
Barium (Ba)	ND	ND	ND	ND	ND	ND	10	375
Boron (B)	ND	ND	ND	ND	ND	ND	50	300
Cadmium (Cd)	ND	ND	ND	ND	ND	ND	0.1	0.3
Chromium (III) (Cr(III))	ND	ND	ND	ND	ND	ND	2.5	9.4
Chromium (VI) (Cr(VI))	ND	ND	ND	ND	ND	ND	0.0025	0.005
Cobalt (Co)	ND	ND	ND	ND	ND	ND	1.0	2.6
Copper (Cu)	ND	ND	ND	ND	ND	ND	10	156
Lead (Pb)	ND	ND	ND	ND	ND	ND	0.1	0.5
Manganese (Mn)	ND	ND	ND	ND	ND	ND	10	300
Mercury (Hg)	ND	ND	ND	ND	ND	ND	0.75	1.9
Nickel (Ni)	ND	ND	ND	ND	ND	ND	1.0	18.8
Selenium (Se)	ND	ND	ND	ND	ND	ND	1.0	9.4
Strontium (Sr)	ND	ND	ND	ND	ND	ND	100	1125
Tin (Sn)	ND	ND	ND	ND	ND	ND	10	3750
Organic tin	ND	ND	ND	ND	ND	ND	0.15	0.2
Zinc (Zn)	ND	ND	ND	ND	ND	ND	100	938



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### 3. 19 Toxic Element Migration Test

Category III: Scraped-off toy material

Element	Result (mg/kg)					Detection limit (mg/kg)	Limit (mg/kg)
	(7)	(8)	(9)	(10)	(11)		
Aluminium (Al)	ND	ND	ND	ND	ND	300	70000
Antimony (Sb)	ND	ND	ND	ND	ND	10	560
Arsenic (As)	ND	ND	ND	ND	ND	10	47
Barium (Ba)	ND	ND	ND	ND	ND	10	18750
Boron (B)	ND	ND	ND	ND	ND	50	15000
Cadmium (Cd)	ND	ND	ND	ND	ND	5	17
Chromium (III) (Cr(III))	ND	ND	ND	ND	ND	10	460
Chromium (VI) (Cr(VI))	ND	ND	ND	ND	ND	0.025	0.053
Cobalt (Co)	ND	ND	ND	ND	ND	10	130
Copper (Cu)	ND	ND	ND	ND	ND	10	7700
Lead (Pb)	ND	ND	ND	ND	ND	10	23
Manganese (Mn)	ND	ND	ND	ND	ND	10	15000
Mercury (Hg)	ND	ND	ND	ND	ND	10	94
Nickel (Ni)	ND	ND	ND	ND	ND	10	930
Selenium (Se)	ND	ND	ND	ND	ND	10	460
Strontium (Sr)	ND	ND	ND	ND	ND	100	56000
Tin (Sn)	ND	ND	ND	ND	ND	10	180000
Organic tin	ND	ND	ND	ND	ND	3.0	12
Zinc (Zn)	ND	ND	ND	ND	ND	100	46000

Element	Result (mg/kg)				Detection limit (mg/kg)	Limit (mg/kg)
	(12)	(13)	(14)	(15)		
Aluminium (Al)	ND	ND	ND	2543	300	70000
Antimony (Sb)	ND	ND	ND	ND	10	560
Arsenic (As)	ND	ND	ND	ND	10	47
Barium (Ba)	ND	ND	ND	ND	10	18750
Boron (B)	ND	ND	ND	ND	50	15000
Cadmium (Cd)	ND	ND	ND	ND	5	17
Chromium (III) (Cr(III))	ND	ND	ND	ND	10	460
Chromium (VI) (Cr(VI))	ND	ND	ND	ND	0.025	0.053
Cobalt (Co)	ND	ND	ND	ND	10	130
Copper (Cu)	ND	ND	ND	ND	10	7700
Lead (Pb)	ND	ND	ND	ND	10	23
Manganese (Mn)	ND	ND	ND	12	10	15000
Mercury (Hg)	ND	ND	ND	ND	10	94
Nickel (Ni)	ND	ND	ND	ND	10	930
Selenium (Se)	ND	ND	ND	ND	10	460
Strontium (Sr)	ND	ND	ND	ND	100	56000
Tin (Sn)	ND	ND	ND	ND	10	180000
Organic tin	ND	ND	ND	ND	3.0	12
Zinc (Zn)	ND	ND	ND	ND	100	46000



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### **3. 19 Toxic Element Migration Test**

Remarks: ND = Not detected

- Organic tin test result was expressed as tributyl tin.
- The new aluminium (Al) migration limits [(2250 mg/kg for category (I), 560 mg/kg for category (II) and 28130 mg/kg for category (III)] were quoted from directive (EU) 2019/1922 amending 2009/48/EC effective from 20 May 2021.
- According to the annex F to EN 71-3: 2019, the content of chromium (III) from the migration solution was calculated through the formula: chromium (III) = total chromium – chromium(VI).
- The scope of confirmation test for organic tin includes methyl tin, butyl tin, dibutyl tin, tributyl tin, tetrabutyl tin, n-octyl tin, di-n-octyl tin, di-n-propyl tin, diphenyl tin, triphenyl tin, trimethyltin, dimethyltin, tricyclohexyltin and trioctyltin and reports the total value after converted to tributyl tin.

Tested Components:

- (1) Orange ink
  - (2) Yellow ink
  - (3) Green ink
  - (4) Sky blue ink
  - (5) Violet ink
  - (6) Magenta ink
  - (7) Semitransparent plastic cap/barrel
  - (8) White polymer fiber tip
  - (9) Orange plastic tip/top
  - (10) Yellow plastic tip/top
  - (11) Grass green plastic tip/top
  - (12) Sky blue plastic tip/top
  - (13) Violet plastic tip/top
  - (14) Magenta plastic tip/top
  - (15) Colorful paper box
- 



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Sample photo:



End of Report

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