



中国认可
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检测
TESTING
CNAS L1114

TEST REPORT

Client: ThinkFun Inc.
Address: 1321 Cameron St, Alexandria Virginia
USA 22314

REPORT NO: C80041987
DATE: March 4, 2019

Attn: Natalie Tapia

Sample Description: Circuit Maze
Quantity Submitted: 7 pieces
Style No.: 1008
PO No.: Not provided
Labeled Age Grade: 8-108
Appropriate Age Grade: Ages 8+
Tested Age Grade: Ages 8+
Destination: USA, Europe, Canada
Country of Origin: China
Date(s) of samples received: January 21, 2019
Date of Test Period: January 21, 2019 – March 4, 2019

TEST METHOD & RESULTS: Please refer to next page(s)

CONCLUSION: Please refer to page two and three (2 and 3)

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CONCLUSION:

ASTM F963-17 Physical & Mechanical Requirements	PASS
16 CFR 1500 Physical & Mechanical Requirements	PASS
Canada Toys Regulations SOR/2011-17 And Regulations Amending Toys Regulations SOR/2016-195, SOR/2016-302 & SOR/2018-138 Physical And Mechanical Requirements	PASS
EN 71-1:2014 Mechanical & Physical Properties	PASS
EN71-1:2014+A1:2018 Mechanical & Physical Properties	PASS
ASTM F963-17 Flammability Requirements	PASS
16 CFR 1500.3 (c) (6) (vi) /1500.44 Flammability Requirements	PASS
Canada Toys Regulations SOR/2011-17 And Regulations Amending Toys Regulations SOR/2016-195, SOR/2016-302 & SOR/2018-138 Flammability Requirements (Cellulose Nitrate And Celluloid)	PASS
Flammability Requirements For Textile Fibres: SOR/2016-194	NOT APPLICABLE#
EN 71-2:2011 + A1:2014 Flammability Test	PASS
Total Heavy Metals In Packaging [NERC Heavy Metals in Packaging Wastes]	PASS
Soluble Migrated Elements [ASTM F963-17 Section 4.3.5.1 (2), 4.3.5.2 (2)(b) & 8.3]	PASS
Total Lead Content In Paints And Surface Coatings [ASTM F963-17 Section 4.3.5.1(1)]	PASS
Total Lead Content In Substrates [ASTM F963-17 Section 4.3.5.2 (2)(a)]	PASS
Total Lead Content In Paints And Surface Coatings [16 CFR 1303]	PASS
Total Lead Content In Paints And Surface Coatings [Consumer Product Safety Improvement Act Of 2008 Section 101]	PASS
Total Lead Content In Substrates [Consumer Product Safety Improvement Act Of 2008 Section 101]	PASS
Total Lead Content In Paint And Surface Coatings [California Proposition 65 Settlements Of Alameda Superior Court, RG07356892]	PASS
Total Lead Content In Substrates [California Proposition 65 Settlements Of Alameda Superior Court, RG 07356892]	PASS
Prohibition Of Children's Toys And Child Care Articles Containing Specified Phthalates [16 CFR 1307.3]	PASS
Total Phthalates Content [California Proposition 65 Settlements Of County Of Sacramento Case Number 07AS04683, And The Alameda Superior Court Case Numbers BG07350969, RG08367601, RG07351032 And RG08378050]	NOT APPLICABLE#
Total Lead And Mercury In Surface Coatings [Canada Toys Regulations (SOR/2011-17) With SOR/2016-195 & SOR/2016-302 & SOR/2018-138 Amendment, Toxicological Hazards, Section 23 And SOR/2016-193 Surface Coating Materials Regulations]	PASS
Specific Substance In Surface Coatings [Canada Toys Regulations (SOR/2011-17), Toxicological Hazards, Section 23 With SOR/2016-195 & SOR/2016-302 & SOR/2018-138 Amendment]	PASS
Total Lead Content [Canada Consumer Products Containing Lead Regulations (SOR/2018-83)]	PASS
Total Phthalates Content In Toys And Child Care Articles [Phthalates Regulation SOR/2016-188 Phthalates Content]	PASS
Total Phthalates Content In Toys And Child Care Articles [Point 51, 52 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) And Amending Commission Regulation (EU) 2018/2005]	PASS
Total Heavy Metals In Packaging [94/62/EC]	PASS
Total Cadmium Content In Plastic [Point 23 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]	PASS
Total Cadmium Content In Surface Coating [Point 23 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]	PASS

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CONCLUSION:

Determination of Azo Colorants [Regulation (EC) No. 1907/2006 on REACH Annex XVII Item No. 43 And Appendix 8 As Amended By Commission Regulation (EC) No. 552/2009]	NOT APPLICABLE#
Migration Of Certain Elements [EN71-3: 2013 + A3:2018 Under 2009/48/EC Toy Safety Directive]	NOT APPLICABLE#
Determination Of Polycyclic Aromatic Hydrocarbon [Point 50 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]	PASS
Determination Of Pentachlorophenol [Point 22 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]	PASS
Determination Of Pentachlorophenol[German Ordinance on Prohibition of Chemical (ChemVerbotsV) Attachment 15]	PASS
Determination Of Benzene Content [Point 5 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) And Further Amendment]	PASS
Determination Of HBCDD As Per Client's Specification.	PASS
Determination Of PBBs & PBDEs Content As Per Client's Specification [(EU) No. 757/2010 And (EU) No.2016/293 Amending Regulation (EC) No 850/2004 On Persistent Organic Pollutants]	NOT APPLICABLE#
Determination Of Flame Retardant Content [Bedarfsgegenständeverordnung Annex 1 (to § 3) Substances which may not be used in the manufacture or treatment of certain consumer goods]	NOT APPLICABLE#
Flame Retardant (PBBs & PBDES) As Per Client's Specification with Reference to ChemVerbotsV Regulation.	NOT APPLICABLE#
Determination Of Flame Retardant Content [Point 4,7,8,44,45 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]	NOT APPLICABLE#

#: There is no component on the submitted test samples under the testing scopes.

For and on behalf of :

UL VS Shanghai Limited Shenzhen Branch

David Mo

Lulu Yang

David Mo
Assistant Manager- Toys Department

Lulu Yang
Senior Technical Officer
Chemical Department

Important Notes :

The results relate only to the samples tested.

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TEST RESULTS

1. MECHANICAL AND PHYSICAL TEST

1.1 AS PER ASTM STANDARD CONSUMER SAFETY SPECIFICATION FOR TOYS SAFETY F963-17

The following clauses are identified to be applicable:

Age grading for testing : Ages 8+
Samples Quantity : 1 piece(s) x 1 style(s)

Clause	Test Items	Assessment
4.1	Material(visual check on cleanness)	P
4.3.7	Stuffing Materials (Visual Check On Contaminations)	NA
4.5	Sound producing toys	NA
4.6	Small Objects	NA
4.7	Accessible Edges	P
4.8	Projections	NA
4.9	Accessible Points	P
4.10	Wires Or Rods	NA
4.11	Nails And Fasteners	P
4.12	Plastic Film	P
4.13	Folding Mechanisms And Hinges	NA
4.14	Cords, Straps And Elastics	NA
4.15	Stability And Over-Load Requirements	NA
4.16	Confined Spaces	NA
4.17	Wheels, Tires And Axles	NA
4.18	Holes, Clearance, And Accessibility Of Mechanisms	NA
4.19	Simulated Protective Devices, Such As Helmets, Hats And Goggles	NA
4.20	Pacifiers	NA
4.21	Projectile Toys	NA
4.22	Teethers And Teething Toys	NA
4.23	Rattles	NA
4.24	Squeeze Toys	NA
4.25	Battery Operated Toys	P
4.26	Toys Intended To Be Attached To A Crib Or Playpen	NA
4.27	Stuffed And Beanbag-Type Toys	NA
4.28	Stroller And Carriage Toys	NA
4.29	Art Materials	NA

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Clause	Test Items	Assessment
4.30	Toy Gun Marking	NA
4.31	Balloons	NA
4.32	Certain Toys With Nearly Spherical Ends	NA
4.33	Marbles	NA
4.34	Balls	NA
4.35	Pompoms	NA
4.36	Hemispheric-Shaped Objects	NA
4.37	Yoyo Elastic Tether Toys	NA
4.38	Magnets	NA
4.39	Jaw Entrapment In Handles And Steering Wheels	NA
4.40	Expanding Materials	NA
4.41	Toy Chests	NA
5	Safety Labeling Requirements	P
6	Instructional Literature	P
7	Producer's Markings	P

Remark: P = Pass NA = Not Applicable

#: Section 4.7 Accessible Edges and Section 4.9 Accessible Points are only applicable for toys for children under 96 months, and the assessment was for reference only.

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TEST RESULTS

1.2 AS PER 16 CFR 1500.50, THE HAZARDS OF SHARP POINTS, SHARP EDGE AND SMALL PARTS ARE ASSESSED BOTH BEFORE AND AFTER APPLICABLE USE AND ABUSE TESTS:

The following clauses are identified to be applicable:

Age grading for testing :Ages 8+
Samples Quantity :1 piece(s) x 1 style(s)

	<u>TEST ITEMS</u>	<u>SHARP POINT</u>	<u>SHARP EDGE</u>
		(1500.48)	(1500.49)
	As received	P#	P#
1500.121	Labeling requirements; prominence, placement, and conspicuousness		NA
1500.19	Misbranded toys and other articles intended for use by children		NA

REMARK: P = PASS

#: The Mechanical and Physical Tests Requirements of U.S. Consumer Products Safety Commission for Toys and Articles intended for use by the children Specified in U.S. Code of Federal Regulations Title 16, Part 1500.48 and 1500.49 are only for children under 8 years of age. Only As Received Sharp Point and Sharp Edge were assessed. and the assessment was for reference only.

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TEST RESULTS

1.3 AS PER CANADA TOYS REGULATIONS SOR/2011-17 and REGULATIONS AMENDING TOYS REGULATION SOR/2016-195 & SOR/2016-302 & SOR/2018-138

The following clauses are identified to be applicable:

Age grading for testing : Ages 8+
Samples Quantity : 1 piece(s) x 1 style(s)

(A)	Test Items	Assessment
3	General -- English and French bilingual statement	P
4	Packaging	P
	<u>Mechanical hazard</u>	
7	Small parts	NA
8	Exposed Metal Edges	P
9	Ends	P
10	Exposed Plastic Parts	P
11	Exposed Wooden Surfaces, Edges And Corners	NA
12	Glass	NA
13	Fasteners	P
14	Folding Mechanisms, Bracket Or Bracing	NA
15	Spring-Wound Driving Mechanism	NA
16	Projectile Component, Other Than A Rocketry Component.	NA
17	Toys Which A Child Can Enter And Which Can Be Closed By A Lid Or Door	NA
18	Toys Which Are Stationary And Intended To Bear The Weight Of A Child	NA
19	Impulsive noise	NA
20	Thermal hazards	NA
	<u>Dolls and soft toys</u>	
28	Fastening to attach parts, clothing or ornamentation.	NA
29	Stuffing materials	NA
(A)	Clean And Free From Vermin	NA
(B)	Free From Hard And Sharp Foreign Matter	NA
30	Squeaker, reed, valve or other similar device	NA
31	Eyes or nose	NA
35	Plant seeds-Noise	NA
36	Plant seeds-Stuffing material	NA
37	Pull and push toys	NA
38	Toy steam engines	NA
40	Rattle	NA
41	Elastic	NA
42	Yo-yo type balls	NA
43	Magnetic Toys	NA
44	Warning for Magnet Kit	NA

Remark: P=Pass N/A=Not Applicable

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1.4 PHYSICAL AND MECHANICAL TESTS OF THE MOST STRINGENT REQUIREMENTS OF THE FOLLOWING STANDARDS:

A)EN71-1:2014

The following clauses are identified to be applicable:

Age grading for testing : Ages 8+
Samples Quantity : 1 piece(s) x 1 style(s)

Clause	Test Items	Assessment
4.1	Material	P
4.2	Assembly	NA
4.3	Flexible plastic sheeting	NA
4.4	Toy bags	NA
4.5	Glass	NA
4.6	Expanding materials	NA
4.7	Edges	P
4.8	Points and metallic wires	P
4.9	Protruding parts	NA
4.10.1	Folding and sliding mechanisms	NA
4.10.2	Driving mechanisms	NA
4.10.3	Hinges	NA
4.10.4	Springs	NA
4.11	Mouth-actuated toys and other toys intended to be put in the mouth	NA
4.12	Balloons	NA
4.13	Cords of toy kites and other flying toys	NA
4.14.1	Toys which a child can enter	NA
4.14.2	Masks and helmets	NA
4.15	Toys intended to bear the mass of a child	NA
4.16	Heavy immobile toys	NA
4.17	Projectiles	NA
4.18	Aquatic toys and inflatable toys	NA
4.19	Percussion caps specifically designed for use in toys and toys using percussion caps	NA
4.20	Acoustics	NA
4.21	Toys containing a non-electrical heat source	NA
4.22	Small balls	NA
4.23	Magnets	NA

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Clause	Test Items	Assessment
4.24	Yo-yo balls	NA
4.25	Toys attached to food	NA
5.1	General Requirements – Toys intended for children under 36 months	NA
5.2	Soft-filled toys and soft-filled parts of a toy	NA
5.3	Plastic sheeting	NA
5.4	Cords, chains and electrical cables in toys	NA
5.5	Liquid-filled toys	NA
5.6	Speed limitation of electrically driven ride-on toys	NA
5.7	Glass and porcelain	NA
5.8	Shape and size of certain toys	NA
5.9	Toys comprising monofilament fibres	NA
5.10	Small balls	NA
5.11	Play figures	NA
5.12	Hemispheric-shaped toys	NA
5.13	Suction cups	NA
5.14	Straps intended to be worn fully or partially around the neck	NA
6	Packaging	P
7	Warnings, markings and instructions for use	NA
7.1	General	NA
7.2	Warning on toys not intended for children under 36 months	NA
7.5	Warnings on functional toys and their packaging	NA

Remark: P = Pass NA = Not Applicable

Warnings and safety instructions shall be written in the languages easily understood by consumers of the country in which the toy is to be sold. Only English version was reviewed.

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CNAS L1114

TEST REPORT

Client: ThinkFun Inc.
Address: 1321 Cameron St, Alexandria Virginia
USA 22314

REPORT NO: C80041987
DATE: March 4, 2019

TEST RESULTS

1.5 PHYSICAL AND MECHANICAL TESTS OF THE MOST STRINGENT REQUIREMENTS OF THE FOLLOWING STANDARDS:

A)EN71-1:2014+A1:2018

The following clauses are identified to be applicable:

Age grading for testing : Ages 8+
Samples Quantity : 1 piece(s) x 1 style(s)

Clause	Test Items	Assessment
4.1	Material cleanliness	P
4.2	Assembly	NA
4.3	Flexible plastic sheeting	NA
4.4	Toy bags	NA
4.5	Glass	NA
4.6	Expanding materials	NA
4.7	Edges	P
4.8	Points and metallic wires	P
4.9	Protruding parts	NA
4.10.1	Folding and sliding mechanisms	NA
4.10.2	Driving mechanisms	NA
4.10.3	Hinges	NA
4.10.4	Springs	NA
4.11	Mouth-actuated toys and other toys intended to be put in the mouth	NA
4.12	Balloons	NA
4.13	Cords of toys kites and other flying toys	NA
4.14.1	Toys which a child can enter	NA
4.14.2	Masks and helmets	NA
4.15	Toys intended to bear the mass of a child	NA
4.16	Heavy immobile toys	NA
4.17	Projectiles toys	NA
4.18	Aquatic toys and inflatable toys	NA
4.19	Percussion caps specifically designed for use in toys and toy using percussion caps	NA
4.20	Acoustics	NA
4.21	Toys containing a non-electrical heat source	NA
4.22	Small balls	NA
4.23	Magnets	NA
4.24	Yo-yo balls	NA
4.25	Toys attached to food	NA
4.26	Toy disguise costumes	NA
4.27	Flying toys	NA

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Clause	Test Items	Assessment
5.1	General Requirements – Toys intended for children under 36 months	NA
5.2	Soft-filled toys and soft-filled parts of a toy	NA
5.3	Plastic sheeting	NA
5.4	Cords, chains and electrical cables in toys	NA
5.5	Liquid-filled toys	NA
5.6	Speed limitation of electrically driven ride-on toys	NA
5.7	Glass and porcelain	NA
5.8	Shape and size of certain toys	NA
5.9	Toys comprising monofilament fibres	NA
5.10	Small balls	NA
5.11	Play figures	NA
5.12	Hemispheric-shaped toys	NA
5.13	Suction cups	NA
5.14	Straps intended to be worn fully or partially around the neck	NA
5.15	Sledges with cords for pulling	NA
6	Packaging	P
7	Warnings, markings and instructions for use	NA
7.1	General	NA
7.2	Warning on toys not intended for children under 36 months	NA

Remark: P = Pass NA = Not Applicable

Warnings and safety instructions shall be written in the languages easily understood by consumers of the country in which the toy is to be sold. Only English version was reviewed.

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2. FLAMMABILITY TEST

2.1 AS PER ASTM STANDARD ON SAFETY OF TOYS F963-17 ANNEX A5:

Samples Quantity: 1 piece(s) x 1 style(s)
Requirement: Burning rate should not exceed 0.1 inch per second along the major axis.

Results: The sample was tested to be ignited but extinguished.

2.2 AS PER U.S. CODE OF FEDERAL REGULATIONS TITLE 16 PART 1500.44 FOR RIGID AND PLIABLE SOLIDS DEFINED UNDER 16 CFR 1500.3 SECTION (C) (6) (VI):

Samples Quantity: 1 piece(s) x 1 style(s)
Requirement: Burning rate should not exceed 0.1 inch per second along the major axis.

Results: The sample was tested to be ignited but extinguished.

2.3 AS PER CANADA TOYS REGULATIONS SOR/2011-17 AND REGULATIONS AMENDING TOYS REGULATIONS SOR/2016-195, SOR/2016-302 & SOR/2018-138 SECTION 21 (CELLULOSE NITRATE AND CELLULOID)

Requirement: Celluloid (cellulose nitrate) and materials with the same behavior in fire (except when used in varnish or paint) shall not be used in the manufacture of toys.

Results: The submitted sample(s) complied with this requirement.

2.4 AS PER EUROPEAN STANDARD ON SAFETY OF TOYS EN 71-2:2011+ A1:2014 SECTION 4.1 GENERAL REQUIREMENT (CELLULOSE NITRATE):

Requirement: Celluloid (cellulose nitrate), except when used in varnish, paint or glue, or in balls of the type used for table tennis or similar games, and materials with the same behaviour in fire as celluloid, shall not be used in the manufacture of toys.

Results: The submitted sample(s) complied with this requirement.

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3. CHEMICAL TESTS:

Tested Sample ID	Product Description / Sample Group Desc.
001	Circuit Maze
002	Transparent plastic film(shrink wrap of box&challenge cards) (From 001)
003	White paper card with multicolor coatings(box) (From 001)
004	Black plastic(tray) (From 001)
005	Transparent plastic film with black printing(polybag of game grid) (From 001)
006	White/grey paper card (insert card) (From 001)
007	Multicolor coatings (all challenge cards&instruction manual&case of challenge cards) (From 001)
008	Black soft plastic(pad of game grid) (From 001)
009	Black soft plastic(wire of power supply) (From 001)
010	Black soft plastic(holder of wire on power supply) (From 001)
011	Deep blue plastic(game grid) (From 001)
012	Transparent plastic(battery case of power supply) (From 001)
013	Light blue plastic(power supply, switch token) (From 001)
014	Grey plastic(game tokens) (From 001)
015	Translucent plastic(beacon tokens) (From 001)
016	Yellow plastic (beacon token) (From 001)
017	Green plastic (beacon token) (From 001)
018	Red plastic (beacon token) (From 001)
019	Silvery metal(staple of instruction manual) (From 001)
020	Silvery metal(conducting plate of all game tokens) (From 001)
021	White paper card excluding coatings(all challenge cards) (From 001)
022	White paper sheet excluding coatings(instruction manual) (From 001)
023	White paper card excluding coatings(case of all challenge cards) (From 001)
024	Translucent yellow plastic(LED of yellow beacon token))(inaccessible) (From 001)
025	Translucent red plastic(LED of red beacon token))(inaccessible) (From 001)
026	Translucent green plastic(LED of green beacon token))(inaccessible) (From 001)

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3.1 Specific Substance In Surface Coatings [Canada Toys Regulations (SOR/2011-17), Toxicological Hazards, Section 23 With SOR/2016-195 & SOR/2016-302 & SOR/2018-138 Amendment] Test Method : Health Canada Product Safety Reference Manual, Book 5, Part B, Method C-03

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			007
Antimony (Sb)	1000	50	<50
Arsenic (As)	1000	50	<50
Barium (Ba)	1000	50	<50
Cadmium (Cd)	1000	50	<50
Selenium (Se)	1000	50	<50
Rating			PASS

Remark:
-All concentrations expressed in milligrams per kilogram
-“<” means less than
-Method for determination of each soluble element present: Antimony(Sb), Arsenic(As), Barium(Ba), Cadmium(Cd) and Selenium(Se) are determined by Inductively Coupled Plasma Spectroscopy.
-The test results only apply to the items tested.

3.2 Soluble Migrated Elements [ASTM F963-17 Section 4.3.5.1 (2), 4.3.5.2 (2)(b) & 8.3] Test Method : ASTM F963-17 Section 8.3

Elements	Requirement (Max.)	Sample, mg/kg
		007
*Sample weight (g)		--
Antimony (Sb)	60	<6.0
Arsenic (As)	25	<2.5
Barium (Ba)	1000	<6.0
Cadmium (Cd)	75	<6.0
Chromium (Cr)	60	<6.0
Lead (Pb)	90	<6.0
Mercury (Hg)	60	<6.0
Selenium (Se)	500	<6.0
Rating		PASS

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TEST RESULTS

Remark:
 -All concentrations expressed in milligrams per kilogram and unadjusted unless otherwise stated
 -“<” means less than
 -Method for determination of each soluble element present: Antimony(Sb), Arsenic(As), Barium(Ba), Cadmium(Cd), Chromium(Cr), Lead(Pb), Mercury(Hg) and Selenium(Se) are determined by Inductively Coupled Plasma Spectroscopy.
 -*Sample weight between 0.01g - 0.1g should be reported in according to ASTM F963-17
 -** Test specimen less than 10 mg is not required to test soluble migrated elements according to ASTM F963-17 Section 8.3.3.6 (2).
 -The test results only apply to the items tested.
 -Any deviation from the standard method was specified as follow:

3.3 Total Heavy Metals In Packaging [NERC Heavy Metals in Packaging Wastes]

Test Method: In-house Method

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg		
			002+004+005	003	006
Lead (Pb)	100	10	<10	<10	<10
Cadmium (Cd)	100	5	<5	<5	<5
Chromium VI (Cr VI)	100	10	<10	<10	<10
Mercury (Hg)	100	5	<5	<5	<5
Sum	100	30	<30	<30	<30
Rating			PASS	PASS	PASS

Remark:
 -All concentrations expressed in milligrams per kilogram
 -“<” means less than
 -Method for determination of Lead (Pb), Cadmium(Cd), Chromium VI (Cr VI) and Mercury(Hg) are determined by Inductively Coupled Plasma Spectroscopy.
 -The test results only apply to the items tested.
 The test isn't in CNAS accreditation scope:

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3.4 Total Heavy Metals In Packaging [94/62/EC]

Test Method : In-house Method

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg		
			002+004+005	003	006
Lead (Pb)	100	10	<10	<10	<10
Cadmium (Cd)	100	5	<5	<5	<5
Chromium VI (Cr VI)	100	10	<10	<10	<10
Mercury (Hg)	100	5	<5	<5	<5
Sum	100	30	<30	<30	<30
Rating			PASS	PASS	PASS
<i>Remark:</i> -All concentrations expressed in milligrams per kilogram -“<” means less than -Method for determination of Lead (Pb), Cadmium(Cd), Chromium VI (Cr VI) and Mercury(Hg) are determined by Inductively Coupled Plasma Spectroscopy. -The test results only apply to the items tested. <i>The test isn't in CNAS accreditation scope:</i>					

3.5 Total Cadmium Content In Plastic [Point 23 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]

Test Method : EN 1122:2001 Method B

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg			
			008+009+010	011+012+013	014+015	016+017+018
Cadmium (Cd)	100	10	<10	<10	<10	<10
Rating			PASS	PASS	PASS	PASS

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			024+025+026
Cadmium (Cd)	100	10	<10
Rating			PASS

Remark:
 -All concentrations expressed in milligrams per kilograms
 -“<” means less than
 -Method for determination of cadmium (Cd) is determined by Inductively Coupled Plasma Spectroscopy.
 -The test results only apply to the items tested.

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3.6 Total Lead Content In Substrates [ASTM F963-17 Section 4.3.5.2 (2)(a)]

Test Method : CPSC-CH-E1001-08.3 (Metal Substrates) / CPSC-CH-E1002-08.3 Section IA & IIA (Non-Metal Substrates)

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg			
			008+009+010	011+012+013	014+015	016+017+018
Lead (Pb)	100	10	<10	<10	<10	<10
Rating			PASS	PASS	PASS	PASS

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			019+020
Lead (Pb)	100	10	<10
Rating			PASS

Remark:
-All concentrations expressed in milligrams per kilogram of Tested Parts
-“<” means less than
-Method for determination of Lead (Pb) is determined by Inductively Coupled Plasma Spectroscopy.
-The test results only apply to the items tested.

3.7 Total Lead Content In Substrates [Consumer Product Safety Improvement Act Of 2008 Section 101]

Test Method: CPSC-CH-E1001-08.3 (Metal Substrates) / CPSC-CH-E1002-08.3 Section IA & IIA (Non-Metal Substrates)

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg			
			008+009+010	011+012+013	014+015	016+017+018
Lead (Pb)	100	10	<10	<10	<10	<10
Rating			PASS	PASS	PASS	PASS

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			019+020
Lead (Pb)	100	10	<10
Rating			PASS

Remark:
-All concentrations expressed in milligrams per kilogram of Tested Parts
-“<” means less than
-Method for determination of Lead (Pb) is determined by Inductively Coupled Plasma Spectroscopy.
-The test results only apply to the items tested.

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3.8 Total Lead Content In Substrates [California Proposition 65 Settlements Of Alameda Superior Court, RG07356892]
Test Method: CPSC-CH-E1001-08.3 (Metal Substrates) / CPSC-CH-E1002-08.3 Section IA & IIA (Non-Metal Substrates)

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg			
			008+009+010	011+012+013	014+015	016+017+018
Lead (Pb)	100	10	<10	<10	<10	<10
Rating			PASS	PASS	PASS	PASS

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			019+020
Lead (Pb)	100	10	<10
Rating			PASS

Remark:
-All concentrations expressed in milligrams per kilogram of Tested Parts
-“<” means less than
-Method for determination of Lead (Pb) is determined by Inductively Coupled Plasma Spectroscopy.
-The test results only apply to the items tested.

3.9 Total Lead Content [Canada Consumer Products Containing Lead Regulations (SOR/2018-83)]
Test Method : In-house method reference with CPSC-CH-E1001-08.3 (Metal Substrates) / CPSC-CH-E1002-08.3 Section IA & IIA (Non-Metal Substrates) / CPSC-CH-E1003-09.1 (Paints and Surface Coatings)

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg			
			007	008+009+010	011+012+013	014+015
Lead (Pb)	90	10	< 10	< 10	< 10	< 10
Rating			PASS	PASS	PASS	PASS

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg		
			016+017+018	019+020	021+022+023
Lead (Pb)	90	10	< 10	< 10	< 10
Rating			PASS	PASS	PASS

Remark:
-All concentrations expressed in milligrams per kilogram
-“<” means less than
-Method for determination of each element present: Lead (Pb) is determined by Inductively Coupled Plasma Spectroscopy.
-The test results only apply to the items tested.
The test isn't in CNAS accreditation scope:

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DATE: March 4, 2019

TEST RESULTS

3.10 Determination Of Polycyclic Aromatic Hydrocarbon [Point 50 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]
Test Method : AfPS GS 2014:01 PAK

Analyte	CAS No.	Requirement (Max)	Reporting Limit	Sample, mg/kg	
				008+009+010	011+012+013
Benzo[a]pyrene	50-32-8	0.5	0.1	<0.1	<0.1
Benzo[e]pyrene	192-97-2	0.5	0.1	<0.1	<0.1
Benzo[a]anthracene	56-55-3	0.5	0.1	<0.1	<0.1
Chrysene	218-01-9	0.5	0.1	<0.1	<0.1
Benzo[b]fluoranthene	205-99-2	0.5	0.1	<0.1	<0.1
Benzo[j]fluoranthene	205-82-3	0.5	0.1	<0.1	<0.1
Benzo[k]fluoranthene	207-08-9	0.5	0.1	<0.1	<0.1
Dibenzo[a,h]anthracene	53-70-3	0.5	0.1	<0.1	<0.1
Rating				PASS	PASS

Analyte	CAS No.	Requirement (Max)	Reporting Limit	Sample, mg/kg	
				014+015	016+017+018
Benzo[a]pyrene	50-32-8	0.5	0.1	<0.1	<0.1
Benzo[e]pyrene	192-97-2	0.5	0.1	<0.1	<0.1
Benzo[a]anthracene	56-55-3	0.5	0.1	<0.1	<0.1
Chrysene	218-01-9	0.5	0.1	<0.1	<0.1
Benzo[b]fluoranthene	205-99-2	0.5	0.1	<0.1	<0.1
Benzo[j]fluoranthene	205-82-3	0.5	0.1	<0.1	<0.1
Benzo[k]fluoranthene	207-08-9	0.5	0.1	<0.1	<0.1
Dibenzo[a,h]anthracene	53-70-3	0.5	0.1	<0.1	<0.1
Rating				PASS	PASS

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DATE: March 4, 2019

TEST RESULTS

Remark:
 -All concentrations expressed in milligrams per kilogram
 -“<” means less than
 -Method for determination of analyte are determined by GC-MSD
 -The test results only apply to the items tested.
 -Articles shall not be placed on the market for supply to the general public, if any of their rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use, contain more than 1 mg/kg (0,0001 % by weight of this component) of any of the listed PAHs
 -Toys, including activity toys, and childcare articles, shall not be placed on the market, if any of their rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use, contain more than 0,5 mg/kg (0,00005 % by weight of this component) of any of the listed PAHs.

3.11 Determination Of Pentachlorophenol [German Ordinance on Prohibition of Chemical (ChemVerbotsV Attachment 15)]
Test Method : EN ISO 17070:2015

Analyte	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			021+022+023
PCP	5	1	<1.0
Rating			PASS

Remark:
 -All concentrations expressed in milligrams per kilogram of Tested Parts
 -“<” means less than; PCP denotes as pentachlorophenol (87-86-5)
 -Method for determination of PCP is determined by GC-MSD
 -The test results only apply to the items tested.
The test isn't in CNAS accreditation scope:

3.12 Determination Of Pentachlorophenol [Point 22 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]
Test Method : EN ISO 17070:2015

Analyte	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			021+022+023
PCP	1000	1	<1.0
Rating			PASS

Remark:
 -All concentrations expressed in milligrams per kilogram of Tested Parts
 -“<” means less than; PCP denotes as pentachlorophenol (87-86-5)
 -Method for determination of PCP is determined by GC-MSD
 -The test results only apply to the items tested.
The test isn't in CNAS accreditation scope:

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3.13 Total Cadmium Content In Surface Coating [Point 23 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) With Further Amendment]
Test Method : In-house method reference with CPSC-CH-E1003-09.1

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			007
Cadmium (Cd)	1000	10	<10
Rating			PASS
<i>Remark:</i> -All concentrations expressed in milligrams per kilograms -“<” means less than -Method for determination of cadmium (Cd) is determined by Inductively Coupled Plasma Spectroscopy. -The test results only apply to the items tested. <i>The test isn't in CNAS accreditation scope:</i>			

3.14 Total Lead And Mercury In Surface Coatings [Canada Toys Regulations (SOR/2011-17) With SOR/2016-195 & SOR/2016-302 & SOR/2018-138 Amendment, Toxicological Hazards, Section 23 And SOR/2016-193 Surface Coating Materials Regulations]
Test Method : Health Canada Product Safety Reference Manual, Book 5, Part B, Method C-02.2 & C-07

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			007
Lead (Pb)	90	10	< 10
Mercury (Hg)	10	10	< 10
Rating			PASS
<i>Remark:</i> -All concentrations expressed in milligrams per kilogram -“<” means less than -Method for determination of each element present: Lead (Pb) and Mercury (Hg) are determined by Inductively Coupled Plasma Mass Spectrometry. -The test results only apply to the items tested. <i>The test isn't in CNAS accreditation scope:</i>			

3.15 Total Lead Content In Paints And Surface Coatings [ASTM F963-17 Section 4.3.5.1(1)]
Test Method : CPSC-CH-E1003-09.1 (Paints and Surface Coatings)

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			007
Lead (Pb)	90	10	<10
Rating			PASS
<i>Remark:</i> -All concentrations expressed in milligrams per kilogram of Tested Parts -“<” means less than -Method for determination of Lead (Pb) is determined by Inductively Coupled Plasma Spectroscopy. -The test results only apply to the items tested.			

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TEST RESULTS

3.16 Total Lead Content In Paints And Surface Coatings [Consumer Product Safety Improvement Act Of 2008 Section 101]

Test Method : CPSC-CH-E1003-09.1 (Paints and Surface Coatings)

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			007
Lead (Pb)	90	10	<10
Rating			PASS
<i>Remark:</i> -All concentrations expressed in milligrams per kilogram of Tested Parts -“<” means less than -Method for determination of Lead (Pb) is determined by Inductively Coupled Plasma Spectroscopy. -The test results only apply to the items tested.			

3.17 Total Lead Content In Paints And Surface Coatings [16 CFR 1303]

Test Method: CPSC-CH-E1003-09.1 (Paints and Surface Coatings)

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			007
Lead (Pb)	90	10	<10
Rating			PASS
<i>Remark:</i> -All concentrations expressed in milligrams per kilogram of Tested Parts -“<” means less than -Method for determination of Lead (Pb) is determined by Inductively Coupled Plasma Spectroscopy. -The test results only apply to the items tested.			

3.18 Total Lead Content In Paint And Surface Coatings [California Proposition 65 Settlements Of Alameda Superior Court, RG07356892]

Test Method: CPSC-CH-E1003-09.1 (Paint or Surface Coatings)

Elements	Requirement (Max.)	Reporting Limit	Sample, mg/kg
			007
Lead (Pb)	90	10	<10
Rating			PASS
<i>Remark:</i> -All concentrations expressed in milligrams per kilogram of Tested Parts -“<” means less than -Method for determination of Lead (Pb) is determined by Inductively Coupled Plasma Spectroscopy. -The test results only apply to the items tested.			

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TEST RESULTS

3.19 Total Phthalates Content In Toys And Child Care Articles [Point 51, 52 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) And Amending Commission Regulation (EU) 2018/2005]
Test Method : CPSC-CH-C1001-09.4

Analyte	CAS No.	Requirement (Max.)	Reporting Limit	Sample,%	
				007	008+009+010
Dibutyl Phthalate, DBP	84-74-2	0.1	0.005	<0.005	<0.005
Benzyl Butyl Phthalate, BBP	85-68-7		0.005	<0.005	<0.005
Diethylhexyl Phthalate, DEHP	117-81-7		0.005	<0.005	<0.005
Diisobutyl Phthalate, DIBP	84-69-5		0.005	<0.005	<0.005
Sum of DBP, BBP, DEHP & DIBP			0.005	<0.005	<0.005
Diisononyl Phthalate, DINP	28553-12-0 /68515-48-0	0.1	0.005	<0.005	<0.005
Di-n-octyl Phthalate, DNOP	117-84-0		0.005	<0.005	<0.005
Diisodecyl Phthalate, DIDP	26761-40-0/68515-49-1		0.005	<0.005	<0.005
Sum of DINP, DNOP & DIDP			0.005	<0.005	<0.005
Rating				PASS	PASS
<p><i>Remark:</i> -All concentrations expressed in percentage (%) -“<” means less than -Method for determination of Phthalates are determined by Gas Chromatography Mass Selective Detector (GC-MSD) -Toys and child care articles need to determine DEHP, DBP, BBP or DIBP. Component in any part of a toy or child care article that can be placed in the mouth of a child: DINP, DIDP, or DNOP -The test results only apply to the items tested.</p>					

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3.20 Prohibition Of Children's Toys And Child Care Articles Containing Specified Phthalates [16 CFR 1307.3] Test Method : CPSC-CH-C1001-09.4

Analyte	CAS No.	Requirement (Max.)	Reporting Limit	Sample. %	
				007	008+009+010
Dibutyl Phthalate, DBP	84-74-2	0.1	0.005	<0.005	<0.005
Benzyl Butyl Phthalate, BBP	85-68-7	0.1	0.005	<0.005	<0.005
Diethylhexyl Phthalate, DEHP	117-81-7	0.1	0.005	<0.005	<0.005
Diisononyl Phthalate, DINP	28553-12-0 /68515-48-0	0.1	0.005	<0.005	<0.005
Diisobutyl Phthalate, DIBP	84-69-5	0.1	0.005	<0.005	<0.005
Dipentyl Phthalate, DPENP	131-18-0	0.1	0.005	<0.005	<0.005
Di-n-hexyl Phthalate, DHEXP	84-75-3	0.1	0.005	<0.005	<0.005
Dicyclohexyl Phthalate, DCHP	84-61-7	0.1	0.005	<0.005	<0.005
Rating				PASS	PASS
Remark: -All concentrations expressed in percentage (%) -"<" means less than -Method for determination of Phthalates are determined by Gas Chromatography Mass Selective Detector (GC-MSD) -The test results only apply to the items tested.					

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TEST RESULTS

3.21 Total Phthalates Content In Toys And Child Care Articles [Phthalates Regulation SOR/2016-188 Phthalates Content]
Test Method : CPSC-CH-C1001-09.4

Analyte	CAS No.	Requirement (Max.)	Reporting Limit	Sample,%	
				007	008+009+010
Dibutyl Phthalate, DBP	84-74-2	0.1	0.005	<0.005	<0.005
Benzyl Butyl Phthalate, BBP	85-68-7	0.1	0.005	<0.005	<0.005
Diethylhexyl Phthalate, DEHP	117-81-7	0.1	0.005	<0.005	<0.005
Diisononyl Phthalate, DINP	28553-12-0/ 68515-48-0	0.1	0.005	<0.005	<0.005
Di-n-octyl Phthalate, DNOP	117-84-0	0.1	0.005	<0.005	<0.005
Diisodecyl Phthalate, DIDP	26761-40-0/ 68515-49-1	0.1	0.005	<0.005	<0.005
Rating				PASS	PASS
<p><i>Remark:</i> -All concentrations expressed in percentage (%) -“<” means less than -Method for determination of Phthalates are determined by Gas Chromatography Mass Selective Detector (GC-MSD) -Vinyl in toys and child care articles need to determine DEHP, DBP, or BBP. Vinyl in any part of a toy or child care article that can be placed in the mouth of a child under four years of age: DINP, DIDP, or DNOP -The test results only apply to the items tested. The test isn't in CNAS accreditation scope:</p>					

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3.22 Determination Of Benzene Content [Point 5 Of The Annex XVII Of The Regulation (EC) No. 1907/2006 (REACH) And Further Amendment]

Test Method : Headspace followed GC-MSD analysis

Analyte	CAS No.	Requirement (Max)	Reporting Limit	Sample, mg/kg			
				007	008+009+010	011+012+013	014+015
Benzene	71-43-2	5	1	<1.0	<1.0	<1.0	<1.0
Rating				PASS	PASS	PASS	PASS

Analyte	CAS No.	Requirement (Max)	Reporting Limit	Sample, mg/kg	
				016+017+018	024+025+026
Benzene	71-43-2	5	1	<1.0	<1.0
Rating				PASS	PASS

Remark:
-All concentrations expressed in milligrams per kilogram of tested parts
-“<” means less than
-Method for determination of analyte are determined by GC-MSD
-The test results only apply to the items tested.
The test isn't in CNAS accreditation scope:

3.23 Determination Of HBCDD As Per Client's Specification.

Test Method : In-house method

Analyte	Client's Requirement (Max.)	Reporting Limit	Sample, mg/kg			
			008+009+010	011+012+013	014+015	016+017+018
HBCDD	Not Detected	5	< 5.0	< 5.0	< 5.0	< 5.0
Rating			PASS	PASS	PASS	PASS

Analyte	Client's Requirement (Max.)	Reporting Limit	Sample, mg/kg
			024+025+026
HBCDD	Not Detected	5	< 5.0
Rating			PASS

Remark:
-All concentrations expressed in milligrams per kilogram of Tested Parts
-“<” means less than
-Method for determination of analyte is determined by GC-MSD
- hexabromocyclododecane (HBCDD)
The test isn't in CNAS accreditation scope:

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SZ-FAF-001 (2017-10-12)



中国认可
国际互认
检测
TESTING
CNAS L1114

TEST REPORT

Client: ThinkFun Inc.
Address: 1321 Cameron St, Alexandria Virginia
USA 22314

REPORT NO: C80041987
DATE: March 4, 2019

Product Photo:



***** THE END *****

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