

TEST REPORT

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The results relate only to the item tested.

Number: BKKH20005471

Applicant: PLAN CREATIONS CO., LTD.
8 MOO 8, TRANG-PALIAN RD.,
YANTAKAO, TRANG, THAILAND 92140
ATTN: K.NARONG, K.RATCHADA

Issued Date: Jul 22, 2020

Sample description:

Quantity of sample:	One (1) set
Sample description:	Wooden toy
Date sample received:	May 20, 2020
Date information received:	July 21, 2020

Client Information:

One (1) set of submitted sample said to be TRIANGLE MATCHING PUZZLE

Item Name:	TRIANGLE MATCHING PUZZLE
Item Number:	5389
Label Age grading:	12m+
Country of origin:	Thailand



BKKH20005471

Test conducted:

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

To be continued

For and on behalf of :
Intertek Testing Services (Thailand) Ltd.,
Hardlines Laboratory



Ladtaka Wongwiboonporn
Laboratory Manager
Hardlines Department

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Conclusion:

<u>Tested samples</u>	<u>Standard</u>	<u>Result</u>
Submitted sample	U.S. ASTM F963-17 for Physical and mechanical tests	Pass
	U.S. ASTM F963-17 for Flammability test of materials other than textile materials	Pass
	U.S. ASTM F963-17 for Heavy elements Test	Pass
	<u>Standard - U.S. CFR title 16</u> (CPSC regulations) Part 1303 total Lead content	Pass
	<u>Standard</u> U.S. Consumer product safety improvement Act 2008(H.R. 4040) Title I, Section 101 For total lead content in surface coating	Pass
	U.S. Consumer product safety improvement Act 2008(H.R. 4040) Title I, Section 101 For total lead content in non-surface coating material (substrate)	Pass
	US 16 CFR Part 1307 for Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates	Pass
	Phthalate Content Requirement base on the California Proposition 65	Pass
	Illinois Lead Poisoning Prevention Act 410 ILCS 45 section 6 (public act 095-1019)	Pass

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Remark:

The chemical test results was not conducted on the below components of samples. Applicant claimed the components were tested on our previous test report.

<u>Components</u>	<u>Report No.</u>	<u>Date</u>
<u>ASTM F963-17: Heavy metal</u>		
ORANGE COATING ON WOOD	BKKH19008028S1	Jul 18, 2019
ORANGE COATING ON WOOD	BKKH19008029S1	Jul 18, 2019
LIGHT ORANGE COATING ON WOOD	BKKH19009836	Aug 15, 2019
SAWDUST WOOD	BKKH19015542	Nov 20, 2019
<u>Lead in surface coating</u>		
ORANGE COATING ON WOOD	BKKH19008028S1	Jul 18, 2019
ORANGE COATING ON WOOD	BKKH19008029S1	Jul 18, 2019
LIGHT ORANGE COATING ON WOOD	BKKH19009836	Aug 15, 2019
<u>Lead in substrate</u>		
SAWDUST WOOD	BKKH19015542	Nov 20, 2019
<u>Phthalate content</u>		
ORANGE COATING ON WOOD	BKKH19008028S1	Jul 18, 2019
ORANGE COATING ON WOOD	BKKH19008029S1	Jul 18, 2019
LIGHT ORANGE COATING ON WOOD	BKKH19009836	Aug 15, 2019
SAWDUST WOOD	BKKH19015542	Nov 20, 2019

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Test conducted:

1 Physical And Mechanical Tests

Test Standard : ASTM Standard Consumer Safety Specification for Toy Safety F963-17.

Age group for testing : For age over 12 months.

The submitted samples were undergone the use and abuse tests in accordance with the Federal Hazardous Substances Act (FHSA), Title 16, Code of Federal Regulations : -

Test	FHSA	Parameter
Drop test	Section 1500.51(b)	10 x 4.5 ft
Torque test	Section 1500.53(e)	4 in-lbf
Tension test	Section 1500.53(f)	15 lbf
Compression test	Section 1500.53(g)	30 lbf

Clause	Testing items	Assessment
4.1	Material quality	P
4.5	Sound-producing toys	NA
4.6.1	Toys intended for children under 36 months (small objects)	P
4.6.2 [▲]	Mouth-actuated toys	NA
4.6.3	Toys and games for 36 months to 72 months (small part warning)	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	NA
4.12	Plastic film	NA
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	NA
4.20(4.20.1 [▲])	Pacifiers	NA
4.21	Projectile toys	NA
4.22	Teethers and teething toys	NA

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Test conducted:

Clause	Testing items	Assessment
4.23	Rattles	NA
4.24	Squeeze toys	NA
4.25 (4.25.10, 4.25.11 [▲])	Battery-operated toys	NA
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
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	Labelling requirement	P
6	Instructional literature	P
7	Producer's markings - name of producer (toy and package) - address (package)	Yes Yes

Remark : P = Pass NA = Not applicable

▲ = Tested items are not included in the TISI Accreditation

The submitted samples were undergone the tests in accordance with clause 8.5 through clause 8.17 and 8.19 through 8.26 on normal use, abuse and specific tests for different types of toys whichever is applicable.

Testing period : May 22, 2020 to July 16, 2020

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Number: BKKH20005471

Test conducted:

2 Flammability Test

Test Standard : Clause 4.2 of the ASTM Standard Consumer Safety Specification for Toy Safety F963-17.

Results : Did not ignite

Testing period : May 22, 2020 to July 16, 2020



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Test conducted:

3 Heavy Elements Analysis

As per clause 4.3.5.1(2) of the ASTM Standard Consumer Safety Specification on Toy Safety F963-17, acid extraction method was used and heavy elements migration content were determined by ICP-OES analysis.

			<u>Result</u> <u>mg/kg</u>	<u>LOD</u> <u>mg/kg</u>	<u>LOQ</u> <u>mg/kg</u>	<u>Limit mg/kg</u>
	(1)	(2)	(3)			
Sol. Barium (Ba)	ND	ND	<5	1	5	1000
Sol. Lead (Pb)	ND	ND	<5	1	5	90
Sol. Cadmium (Cd)	ND	ND	ND	1	5	75
Sol. Antimony (Sb)	ND	ND	ND	2	5	60
Sol. Selenium (Se)	ND	ND	ND	1	5	500
Sol. Chromium (Cr)	ND	ND	ND	2	5	60
Sol. Mercury (Hg)	ND	ND	ND	1	5	60
Sol. Arsenic (As)	ND	ND	ND	2	5	25

Remark: Sol. = Soluble
mg/kg = Milligram per kilogram based on weight of sample; = ppm = Parts per million
LOD = Limit of Detection LOQ = Limit of Quantitation
ND = Not detected (Less than LOD) < = Less than

Tested components:

(1) =	ORANGE COATING ON WOOD	Refer	BKKH19008028S1
(2) =	ORANGE COATING ON WOOD	Refer	BKKH19008029S1
(3) =	LIGHT ORANGE COATING ON WOOD	Refer	BKKH19009836

Note: The results of soluble toxic elements were adjusted by subtracting the analytical correction factor.

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Number: BKKH20005471

Test conducted:

Heavy Elements Analysis

As per clause 4.3.5.2(2)(b) of the ASTM Standard Consumer Safety Specification on Toy Safety F963-17, acid extraction method was used and heavy elements migration content were determined by ICP-OES analysis.

	<u>Result</u> <u>mg/kg</u>	<u>LOD</u> <u>mg/kg</u>	<u>LOQ</u> <u>mg/kg</u>	<u>Limit mg/kg</u>
(4)				
Sol. Barium (Ba)	<5	1	5	1000
Sol. Lead (Pb)	<5	1	5	90
Sol. Cadmium (Cd)	ND	1	5	75
Sol. Antimony (Sb)	ND	2	5	60
Sol. Selenium (Se)	ND	1	5	500
Sol. Chromium (Cr)	ND	2	5	60
Sol. Mercury (Hg)	ND	1	5	60
Sol. Arsenic (As)	ND	2	5	25

Remark:

Sol. = Soluble
mg/kg = Milligram per kilogram based on weight of sample; = ppm = Parts per million
LOD = Limit of Detection
ND = Not detected (Less than LOD)

LOQ = Limit of Quantitation
< = Less than

Tested components:

(4) = SAWDUST WOOD

Refer BKKH19015542

Note: The results of soluble toxic elements were adjusted by subtracting the analytical correction factor.

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Number: BKKH20005471

Test conducted:

Total Lead (Pb) Content

As per clause 4.3.5.1(1) of the ASTM Standard Consumer Safety Specification on Toy Safety F963-17, test method CPSC-CH-E1003-09.1:2011 was used and total Lead content was determined by ICP-OES analysis.

(I) Surface coating

<u>Tested Component</u>	<u>Result</u> <u>mg/kg</u>	<u>LOD</u> <u>(mg/kg)</u>	<u>LOQ</u> <u>(mg/kg)</u>	<u>Limit</u> <u>(mg/kg)</u>
(1)	ND	2	13	90
(2)	<13	2	13	90
(3)	<13	2	13	90

Remark: mg/kg = Milligram per kilogram based on weight of sample; = ppm = Parts per million
LOD = Limit of Detection LOQ = Limit of Quantitation
ND = Not detected (Less than LOD) < = Less than

Tested components:

- | | |
|------------------------------------|----------------------|
| (1) = ORANGE COATING ON WOOD | Refer BKKH19008028S1 |
| (2) = ORANGE COATING ON WOOD | Refer BKKH19008029S1 |
| (3) = LIGHT ORANGE COATING ON WOOD | Refer BKKH19009836 |

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Number: BKKH20005471

Test conducted:

Total Lead (Pb) Content

As per clause 4.3.5.2(2)(a) of the ASTM Standard Consumer Safety Specification on Toy Safety F963-17, test method CPSC-CH-E1001-08.3:2012, CPSC-CH-E1002-08.3:2012 were used and total Lead content was determined by ICP-OES analysis.

(II) Non-surface coating

<u>Tested Component</u>	<u>Result</u> <u>mg/kg</u>	<u>LOD</u> <u>(mg/kg)</u>	<u>LOQ</u> <u>(mg/kg)</u>	<u>Limit</u> <u>(mg/kg)</u>
(4)	<13	1	13	100

Remark: mg/kg = Milligram per kilogram based on weight of sample; = ppm = Parts per million
LOD = Limit of Detection LOQ = Limit of Quantitation
ND = Not detected (Less than LOD) < = Less than

Tested components:

(4) = SAWDUST WOOD

Refer BKKH19015542



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Test conducted:

As per U.S. Code of Federal Regulations title 16 Part 1303. Acid digestion method was used and total Lead content was determined by Inductively Couple Plasma Optical Emission Spectrometry.

<u>Tested component</u>	<u>Result %</u>	<u>LOD %</u>	<u>LOQ %</u>	<u>Limit %</u>
(1)	ND	0.0002	0.0013	0.0090
(2)	<0.0013	0.0002	0.0013	0.0090
(3)	<0.0013	0.0002	0.0013	0.0090

Remark:

%	=	percentage	<	=	Less than
LOD	=	Limit of Detection	LOQ	=	Limit of Quantitation
ND	=	Not detected (Less than LOD)			
▲	=	Tested items are not included in the TISI Accreditation			

Tested components:

- | | | | |
|-------|------------------------------|-------|----------------|
| (1) = | ORANGE COATING ON WOOD | Refer | BKKH19008028S1 |
| (2) = | ORANGE COATING ON WOOD | Refer | BKKH19008029S1 |
| (3) = | LIGHT ORANGE COATING ON WOOD | Refer | BKKH19009836 |



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Number: BKKH20005471

Test conducted:

- 5 Total lead (Pb) content in surface coating
As per U.S. Consumer Product Safety Improvement Act of 2008 (H.R. 4040), Title I, Section 101 for children's products containing Lead, CPSC-CH-E1003-09.1:2011 method was used and total Lead content was determined by Inductively Couple Plasma Optical Emission Spectrometry.

<u>Tested component</u>	<u>Result</u> <u>mg/kg</u>	<u>LOD</u> <u>mg/kg</u>	<u>LOQ</u> <u>mg/kg</u>	<u>Limit mg/kg</u>
(1)	ND	2	13	90
(2)	<13	2	13	90
(3)	<13	2	13	90

Remark: mg/kg = Milligram per kilogram based on weight of sample; = ppm = Parts per million
LOD = Limit of Detection LOQ = Limit of Quantitation
ND = Not detected (Less than LOD) < = Less than

Tested components:

- | | |
|------------------------------------|----------------------|
| (1) = ORANGE COATING ON WOOD | Refer BKKH19008028S1 |
| (2) = ORANGE COATING ON WOOD | Refer BKKH19008029S1 |
| (3) = LIGHT ORANGE COATING ON WOOD | Refer BKKH19009836 |

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Test conducted:

6 Total lead (Pb) content in substrate material- non-metal children's product

As per U.S. Consumer product safety improvement Act of 2008 (H.R. 4040), Title I, Section 101 for children's products containing lead, CPSC-CH-E1002-08.3:2012 method was used and total lead content was determined by Inductively Couple Plasma Optical Emission Spectrometry.

<u>Tested component</u>	<u>Result</u>	<u>LOD</u>	<u>LOQ</u>	<u>Limit mg/kg</u>
	<u>mg/kg</u>	<u>mg/kg</u>	<u>mg/kg</u>	
(1)	<13	1	13	100

Remark: mg/kg = Milligram per kilogram based on weight of sample; = ppm = Parts per million
LOD = Limit of Detection LOQ = Limit of Quantitation
ND = Not detected (Less than LOD) < = Less than

Tested components:

(1) = SAWDUST WOOD

Refer BKKH19015542



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Number: BKKH20005471

Test conducted:

7 Phthalate content

As per CPSC-CH-C1001-09.3:2010 and U.S. Consumer Product Safety Improvement Act 2008 (H.R. 4040), Title I, Section 108 requirement on Phthalates, solvent extraction method was used and Phthalate content was determined by Gas Chromatographic-Mass Spectrometric (GC-MS) analysis.

	<u>Result</u> (%, w/w)				<u>LOD</u> (%, w/w)	<u>LOQ</u> (%, w/w)	<u>(16CFR1307)</u> Limit (%, w/w)	<u>NPR</u> (%, w/w)
	(1)	(2)	(3)	(4)				
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di(2-ethylhexyl) phthalate (DEHP)	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Benzyl butyl Phthalate (BBP)	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-iso-nonyl Phthalate (DINP)	ND	ND	ND	ND	0.0015	0.0090	0.1	0.1
Di-n-octyl Phthalate (DNOP)	ND	ND	ND	ND	0.0015	0.0030	--	--
Di-iso-decyl Phthalate (DIDP)	ND	ND	ND	ND	0.0015	0.0090	--	--
Di-isobutyl phthalate (DIBP) ▲	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-n-pentyl phthalate (DPENP) ▲	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-n-hexyl phthalate (DHEXP) ▲	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-cyclohexyl phthalate (DCHP) ▲	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Diisooctyl phthalate (DIOP) ▲	ND	ND	ND	ND	0.0015	0.0090	--	--

Remark : The above limit was quoted according to US 16 CFR Part 1307 for Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates except the Phthalate no.5-6,11 was conducted as per applicant requested only.

NPR = Notice of proposed rulemaking
%, w/w = Percentage weight by weight
LOD = Limit of Detection
LOQ = Limit of Quantitation
ND = Not detected (Less than LOD)
▲ = Tested items are not included in the TISI Accreditation

Tested components:

(1) = ORANGE COATING ON WOOD	Refer	BKKH19008028S1
(2) = ORANGE COATING ON WOOD	Refer	BKKH19008029S1
(3) = LIGHT ORANGE COATING ON WOOD	Refer	BKKH19009836
(4) = SAWDUST WOOD	Refer	BKKH19015542

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Test conducted:

8 Phthalate content test [▲]

By solvent extraction and Gas Chromatographic-Mass Spectrometric (GC-MS) analysis.

	<u>Result</u>				<u>LOD</u>	<u>LOQ</u>	<u>Limit</u>
	<u>(%, w/w)</u>				<u>(%, w/w)</u>	<u>(%, w/w)</u>	<u>(%, w/w)</u>
	(1)	(2)	(3)	(4)			
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	0.0015	0.0030	0.1
Di(2-ethylhexyl) phthalate (DEHP)	ND	ND	ND	ND	0.0015	0.0030	0.1
Benzyl butyl Phthalate (BBP)	ND	ND	ND	ND	0.0015	0.0030	0.1
Di-iso-nonyl Phthalate (DINP)	ND	ND	ND	ND	0.0015	0.0090	0.1
Di-octyl Phthalate (DNOP)	ND	ND	ND	ND	0.0015	0.0030	0.1
Di-iso-decyl Phthalate (DIDP)	ND	ND	ND	ND	0.0015	0.0090	0.1
Di-n-hexyl Phthalate (DnHP)	ND	ND	ND	ND	0.0015	0.0030	0.1

Remark : % , w/w = Percentage weight by weight

LOD = Limit of Detection

LOQ = Limit of Quantitation

ND = Not detected (Less than LOD)

[▲] = Tested items are not included in the TISI Accreditation

Note : The above limit was quoted according to the California Proposition 65

Tested components:

(1) = ORANGE COATING ON WOOD	Refer	BKKH19008028S1
(2) = ORANGE COATING ON WOOD	Refer	BKKH19008029S1
(3) = LIGHT ORANGE COATING ON WOOD	Refer	BKKH19009836
(4) = SAWDUST WOOD	Refer	BKKH19015542

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Number: BKKH20005471

Test conducted:

9 Total Lead (Pb) Content ▲

As per Illinois Lead poisoning prevention act 410 ILCS 45 section 6 (public act 095-1019), acid digestion method was used and total Lead content was determined by Inductively Couple Plasma Optical Emission Spectrometry.

I Surface coating material

<u>Tested component</u>	<u>Result</u> <u>mg/kg</u>	<u>LOD</u> <u>mg/kg</u>	<u>LOQ</u> <u>mg/kg</u>	<u>Limit</u> <u>mg/kg</u>
(1)	ND	2	13	90
(2)	<13	2	13	90
(3)	<13	2	13	90

Remark: < = Less than
mg/kg = Milligram per kilogram based on weight of sample; = ppm = Parts per million
LOD = Limit of Detection
LOQ = Limit of Quantitation
ND = Not detected (Less than LOD)
▲ = Tested items are not included in the TISI Accreditation

Requirement: According to Illinois Lead poisoning prevention act 410 ILCS 45 section 6 (public act 095-019), appropriate warning statement is required when the Lead content of the submitted sample is more than 40 ppm but less than 90 ppm for surface coatings and less than 100 ppm for substrates by total weight or a lower standard for Lead content as may be established by federal or state law or regulation.

Tested components:

(1) = ORANGE COATING ON WOOD	Refer	BKKH19008028S1
(2) = ORANGE COATING ON WOOD	Refer	BKKH19008029S1
(3) = LIGHT ORANGE COATING ON WOOD	Refer	BKKH19009836



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Test conducted:

II Non-surface coating material (substrate)

<u>Tested component</u>	<u>Result</u>	<u>LOD</u>	<u>LOQ</u>	<u>Limit</u>
	<u>mg/kg</u>	<u>mg/kg</u>	<u>mg/kg</u>	<u>mg/kg</u>
(4)	<13	1	13	100

Remark: < = Less than
mg/kg = Milligram per kilogram based on weight of sample; = ppm = Parts per million
LOD = Limit of Detection
LOQ = Limit of Quantitation
ND = Not detected (Less than LOD)

Requirement: According to Illinois Lead poisoning prevention act 410 ILCS 45 section 6 (public act 095-019), appropriate warning statement is required when the Lead content of the submitted sample is more than 40 ppm but less than 90 ppm for surface coatings and less than 100 ppm for substrates by total weight or a lower standard for Lead content as may be established by federal or state law or regulation.

Tested components:

(4) = SAWDUST WOOD

Refer BKKH19015542

Note: LOD and LOQ value in this test report were effective since October, 2014

*****END*****/KS/NK

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