

# TEST REPORT

The report shall not be reproduced without written approval from Intertek  
The results relate only to the item tested.

Number: BKKH19014470

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

Issued Date: Dec 12, 2019

## Sample description:

Quantity of sample:	One (1) set
Sample description:	Wooden toy
Date sample received:	October 18, 2019
Date information received:	November 26, 2019

## Client Information:

One (1) set of submitted sample said to be LUCAS TOWER

Item Name:	LUCAS TOWER
Item Number:	5393



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**Test conducted:**

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

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To be continued

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



Ladtaka Wongwiboornporn  
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>		
LACQUER COATING ON WOOD	BKKH19007792S1	Jul 15, 2019
BROWN COATING ON WOOD	BKKH19007791S1	Jul 15, 2019
WARM GRAY SAWDUST	BKKH18016828	Dec 26, 2018
BLACK SAWDUST	BKKH19009832	Aug 15, 2019
SAWDUST WOOD	BKKH19015542	Nov 20, 2019
GRAY SAWDUST	BKKH19009003	Jul 19, 2019
<u>Lead in surface coating</u>		
LACQUER COATING ON WOOD	BKKH19007792S1	Jul 15, 2019
BROWN COATING ON WOOD	BKKH19007791S1	Jul 15, 2019
<u>Lead in substrate</u>		
WARM GRAY SAWDUST	BKKH18016828	Dec 26, 2018
BLACK SAWDUST	BKKH19009832	Aug 15, 2019
SAWDUST WOOD	BKKH19015542	Nov 20, 2019
GRAY SAWDUST	BKKH19009003	Jul 19, 2019
<u>Phthalate content</u>		
LACQUER COATING ON WOOD	BKKH19007792S1	Jul 15, 2019
BROWN COATING ON WOOD	BKKH19007791S1	Jul 15, 2019
WARM GRAY SAWDUST	BKKH18016828	Dec 26, 2018
BLACK SAWDUST	BKKH19009832	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.

Applicant's specified testing age : For age over 3 years.

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 1500.53(b)	4 x 3.0 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)	NA
4.6.2 <sup>▲</sup>	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	P
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 <sup>▲</sup> )	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 <sup>▲</sup> )	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 <sup>▲</sup>	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

# = Only artwork of packaging was provided for review.

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 : October 22, 2019 to December 02, 2019

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Number: BKKH19014470

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 : October 22, 2019 to December 02, 2019

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Number: BKKH19014470

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.

	(1)	(2)	<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>
Sol. Barium (Ba)	ND	ND		1	5	1000
Sol. Lead (Pb)	ND	ND		1	5	90
Sol. Cadmium (Cd)	ND	ND		1	5	75
Sol. Antimony (Sb)	ND	ND		2	5	60
Sol. Selenium (Se)	ND	ND		1	5	500
Sol. Chromium (Cr)	ND	ND		2	5	60
Sol. Mercury (Hg)	ND	ND		1	5	60
Sol. Arsenic (As)	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)

Tested components:

- (1) = LACQUER COATING ON WOOD                      Refer    BKKH19007792S1
- (2) = BROWN COATING ON WOOD                      Refer    BKKH19007791S1

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

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Number: BKKH19014470

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.

	(3)	(4)	Result mg/kg (5)	(6)	LOD mg/kg	LOQ mg/kg	Limit mg/kg
Sol. Barium (Ba)	ND	<5	<5	ND	1	5	1000
Sol. Lead (Pb)	ND	ND	<5	ND	1	5	90
Sol. Cadmium (Cd)	ND	ND	ND	ND	1	5	75
Sol. Antimony (Sb)	ND	ND	ND	ND	2	5	60
Sol. Selenium (Se)	ND	ND	ND	ND	1	5	500
Sol. Chromium (Cr)	ND	ND	ND	ND	2	5	60
Sol. Mercury (Hg)	ND	ND	ND	ND	1	5	60
Sol. Arsenic (As)	ND	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:

(3) = WARM GRAY SAWDUST	Refer	BKKH18016828
(4) = BLACK SAWDUST	Refer	BKKH19009832
(5) = SAWDUST WOOD	Refer	BKKH19015542
(6) = GRAY SAWDUST	Refer	BKKH19009003

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

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Number: BKKH19014470

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>					<u>LOD</u>	<u>LOQ</u>	<u>(16CFR1307)</u>	<u>NPR</u>
	(1)	(2)	(3)	(4)	(5)	(%, w/w)	(%, w/w)	Limit (%, w/w)	(%, w/w)
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di(2-ethylhexyl) phthalate (DEHP)	ND	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Benzyl butyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-iso-nonyl Phthalate (DINP)	ND	ND	ND	ND	ND	0.0015	0.0090	0.1	0.1
Di-n-octyl Phthalate (DNOP)	ND	ND	ND	ND	ND	0.0015	0.0030	--	--
Di-iso-decyl Phthalate (DIDP)	ND	ND	ND	ND	ND	0.0015	0.0090	--	--
Di-isobutyl phthalate (DIBP) ▲	ND	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-n-pentyl phthalate (DPENP) ▲	ND	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-n-hexyl phthalate (DHEXP) ▲	ND	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-cyclohexyl phthalate (DCHP) ▲	ND	ND	ND	ND	ND	0.0015	0.0030	0.1	0.1
Diisooctyl phthalate (DIOP) ▲	ND	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) = LACQUER COATING ON WOOD	Refer	BKKH19007792S1
(2) = BROWN COATING ON WOOD	Refer	BKKH19007791S1
(3) = WARM GRAY SAWDUST	Refer	BKKH18016828
(4) = BLACK SAWDUST	Refer	BKKH19009832
(5) = SAWDUST WOOD	Refer	BKKH19015542

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Number: BKKH19014470

Test conducted:

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> <u>(%, w/w)</u>	<u>LOD</u> <u>(%, w/w)</u>	<u>LOQ</u> <u>(%, w/w)</u>	<u>(16CFR1307)</u> <u>Limit (%, w/w)</u>	<u>NPR</u> <u>(%, w/w)</u>
(6)					
Dibutyl Phthalate (DBP)	ND	0.0015	0.0030	0.1	0.1
Di(2-ethylhexyl) phthalate (DEHP)	ND	0.0015	0.0030	0.1	0.1
Benzyl butyl Phthalate (BBP)	ND	0.0015	0.0030	0.1	0.1
Di-iso-nonyl Phthalate (DINP)	ND	0.0015	0.0090	0.1	0.1
Di-n-octyl Phthalate (DNOP)	ND	0.0015	0.0030	--	--
Di-iso-decyl Phthalate (DIDP)	ND	0.0015	0.0090	--	--
Di-isobutyl phthalate (DIBP)▲	ND	0.0015	0.0030	0.1	0.1
Di-n-pentyl phthalate (DPENP)▲	ND	0.0015	0.0030	0.1	0.1
Di-n-hexyl phthalate (DHEXP)▲	ND	0.0015	0.0030	0.1	0.1
Di-cyclohexyl phthalate (DCHP)▲	ND	0.0015	0.0030	0.1	0.1
Diisooctyl phthalate (DIOP)▲	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)
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Tested components:

(6) = GRAY SAWDUST

Refer BKKH19009003

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Number: BKKH19014470

Test conducted:

8 Phthalate content test<sup>▲</sup>

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)	(5)			
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.0015	0.0030	0.1
Di(2-ethylhexyl) phthalate (DEHP)	ND	ND	ND	ND	ND	0.0015	0.0030	0.1
Benzyl butyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.0015	0.0030	0.1
Di-iso-nonyl Phthalate (DINP)	ND	ND	ND	ND	ND	0.0015	0.0090	0.1
Diocetyl Phthalate (DNOP)	ND	ND	ND	ND	ND	0.0015	0.0030	0.1
Di-iso-decyl Phthalate (DIDP)	ND	ND	ND	ND	ND	0.0015	0.0090	0.1
Di-n-hexyl Phthalate (DnHP)	ND	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) = LACQUER COATING ON WOOD	Refer	BKKH19007792S1
(2) = BROWN COATING ON WOOD	Refer	BKKH19007791S1
(3) = WARM GRAY SAWDUST	Refer	BKKH18016828
(4) = BLACK SAWDUST	Refer	BKKH19009832
(5) = SAWDUST WOOD	Refer	BKKH19015542

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Number: BKKH19014470

Test conducted:

9 Total Lead (Pb) Content<sup>▲</sup>

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> mg/kg	<u>LOD</u> mg/kg	<u>LOQ</u> mg/kg	<u>Limit</u> mg/kg
(1)	ND	2	13	90
(2)	ND	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)  
 ▲ = 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) = LACQUER COATING ON WOOD	Refer	BKKH19007792S1
(2) = BROWN COATING ON WOOD	Refer	BKKH19007791S1

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Number: BKKH19014470

Test conducted:

II Non-surface coating material (substrate)

<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>
(3)	<13	1	13	100
(4)	ND	1	13	100
(5)	<13	1	13	100
(6)	<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:

(3) = WARM GRAY SAWDUST	Refer	BKKH18016828
(4) = BLACK SAWDUST	Refer	BKKH19009832
(5) = SAWDUST WOOD	Refer	BKKH19015542
(6) = GRAY SAWDUST	Refer	BKKH19009003

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

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

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