

## TEST REPORT

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

Number: BKKH18000288

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

Date: Feb 15, 2018

### Sample description:

Quantity of sample:	One (1) set
Sample description:	Wooden toy
Date sample received:	January 11, 2018
Date information received:	February 14, 2018

### Client Information:

One (1) set of submitted sample said to be SOLITAIRE

Item Name:	SOLITAIRE
Item Number:	4621



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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

Authorized by :  
For Intertek Testing Services (Thailand) Ltd.,  
Hardlines Laboratory

*Ladtaka*

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 F963-16 for Physical and mechanical tests	Pass
	U.S. ASTM F963-16 for Flammability test of materials other than textile materials	Pass
	U.S. ASTM F963-11 and ASTM F963-16 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
	U.S. Consumer product safety improvement Act 2008(H.R. 4040) Title I, Section 108 Requirement on 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

Remark: As requested by the applicant, the test was conducted only on components listed in this report.  
Other components were not tested.

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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 F963-16: Heavy metal</u>		
ORANGE COATING ON WOOD	BKKH17015570	Dec 25, 2017
GREEN RUBBER	BKKH17008825	Jul 24, 2017
DARK GREEN SAWDUST	BKKH18001625	Feb 12, 2018
<u>Lead in surface coating</u>		
ORANGE COATING ON WOOD	BKKH17015570	Dec 25, 2017
<u>Lead in substrate</u>		
GREEN RUBBER	BKKH17008825	Jul 24, 2017
DARK GREEN SAWDUST	BKKH18001625	Feb 12, 2018
<u>Phthalate content</u>		
GREEN RUBBER	BKKH17008825	Jul 24, 2017
ORANGE COATING ON WOOD	BKKH17015570	Dec 25, 2017
DARK GREEN SAWDUST	BKKH18001625	Feb 12, 2018

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Test conducted:

1 Physical And Mechanical Tests

Test Standard : ASTM Standard Consumer Safety Specification for Toy Safety F963-16.

Age group for testing : 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

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	Mouth-actuated toys	NA
4.6.3	Toys and games for 36 months to 72 months (small part warning)	P
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	Pacifiers	NA
4.21 <sup>▲</sup>	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	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

Testing period : January 11, 2018 to January 21, 2018

### 2 Flammability Test

Test Standard : Clause 4.2 of the ASTM Standard Consumer Safety Specification for Toy Safety F963-16.

Sample	Ignition point	Burn length (inch)	Time (sec)	Actual burn rate (inch/sec)	Rounded burn rate (inch/sec)	Limit (inch/sec)
Carrot	Leaf to root	0.5	60	0.01	--	0.10

The above result only showed the most severe burn rate of the samples and components.

Testing period : January 11, 2018 to January 21, 2018

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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 F963-16, 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)				
Sol. Barium (Ba)	ND	1	5	1000
Sol. Lead (Pb)	ND	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 LOQ = Limit of Quantitation  
ND = Not detected (Less than LOD) < = Less than

Tested components:

(1) = ORANGE COATING ON WOOD Refer BKKH17015570

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

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Number: BKKH18000288

Test conducted:

### Heavy Elements Analysis

As per clause 4.3.5.2(2)(b) of the ASTM Standard Consumer Safety Specification on Toy Safety F963-16, 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>
	(2)	(3)			
Sol. Barium (Ba)	ND	<5	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  
ND = Not detected (Less than LOD)

LOQ = Limit of Quantitation  
< = Less than

Tested components:

(2) =	GREEN RUBBER	Refer	BKKH17008825
(3) =	DARK GREEN SAWDUST	Refer	BKKH18001625

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

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Test conducted:

### Total Lead (Pb) Content

As per clause 4.3.5.1(1) of the ASTM Standard Consumer Safety Specification on Toy Safety F963-16, 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)	<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 BKKH17015570

### Total Lead (Pb) Content

As per clause 4.3.5.2(2)(a) of the ASTM Standard Consumer Safety Specification on Toy Safety F963-16, 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>
(2)	ND	1	13	100
(3)	<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:

(2) = GREEN RUBBER Refer BKKH17008825  
(3) = DARK GREEN SAWDUST Refer BKKH18001625

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Test conducted:

4 Total Lead (Pb) content<sup>▲</sup>

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)	<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 BKKH17015570

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 mg/kg</u>	<u>LOD mg/kg</u>	<u>LOQ mg/kg</u>	<u>Limit mg/kg</u>
(1)	<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 BKKH17015570

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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>mg/kg</u>	<u>LOD</u> <u>mg/kg</u>	<u>LOQ</u> <u>mg/kg</u>	<u>Limit mg/kg</u>
(1)	ND	1	13	100
(2)	<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) = GREEN RUBBER Refer BKKH17008825  
(2) = DARK GREEN SAWDUST Refer BKKH18001625

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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>Limit</u> (%, w/w)	<u>NPR</u> (%, w/w)
	(1)	(2)	(3)				
Dibutyl Phthalate (DBP)	ND	ND	ND	0.0015	0.0030	0.1	0.1
Diethyl hexyl Phthalate (DEHP)	0.0147	ND	ND	0.0015	0.0030	0.1	0.1
Benzyl butyl Phthalate (BBP)	ND	ND	ND	0.0015	0.0030	0.1	0.1
Di-iso-nonyl Phthalate (DINP)	ND	ND	ND	0.0015	0.0090	0.1	0.1
Di-n-octyl Phthalate (DNOP)	ND	ND	ND	0.0015	0.0030	0.1	--
Di-iso-decyl Phthalate (DIDP)	ND	ND	ND	0.0015	0.0090	0.1	--
Di-isobutyl phthalate (DIBP)▲	ND	ND	ND	0.0015	0.0090	--	0.1
Di-n-pentyl phthalate (DPENP)▲	ND	ND	ND	0.0015	0.0090	--	0.1
Di-n-hexyl phthalate (DHEXP)▲	ND	ND	ND	0.0015	0.0090	--	0.1
Di-cyclohexyl phthalate (DCHP)▲	ND	ND	ND	0.0015	0.0090	--	0.1
Diisooctyl phthalate (DIOP)▲	ND	ND	ND	0.0015	0.0090	--	--

Remark : The above limit was quoted according to US Consumer Product Safety Improvement Act 2008 for prohibition on sale of certain products containing specified phthalates.

The Phthalate no.7-11 are not included in US Consumer Product Safety Improvement Act 2008 and 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) =	GREEN RUBBER	Refer	BKKH17008825
(2) =	ORANGE COATING ON WOOD	Refer	BKKH17015570
(3) =	DARK GREEN SAWDUST	Refer	BKKH18001625

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Test conducted:

### 8 Phthalate content test<sup>▲</sup>

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

	<u>Result</u> (%, w/w)			<u>LOD</u> (%, w/w)	<u>LOQ</u> (%, w/w)	<u>Limit</u> (%, w/w)
	(1)	(2)	(3)			
Dibutyl Phthalate (DBP)	ND	ND	ND	0.0015	0.0030	0.1
Diethyl hexyl Phthalate (DEHP)	0.0147	ND	ND	0.0015	0.0030	0.1
Benzyl butyl Phthalate (BBP)	ND	ND	ND	0.0015	0.0030	0.1
Di-iso-nonyl Phthalate (DINP)	ND	ND	ND	0.0015	0.0090	0.1
Dioctyl Phthalate (DNOP)	ND	ND	ND	0.0015	0.0030	0.1
Di-iso-decyl Phthalate (DIDP)	ND	ND	ND	0.0015	0.0090	0.1
Di-n-hexyl Phthalate (DnHP)	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) =	GREEN RUBBER	Refer	BKKH17008825
(2) =	ORANGE COATING ON WOOD	Refer	BKKH17015570
(3) =	DARK GREEN SAWDUST	Refer	BKKH18001625

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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> <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)	<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 BKKH17015570

#### 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>
(2)	ND	1	13	100
(3)	<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.

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Test conducted:

Tested components:

(2)	=	GREEN RUBBER	Refer	BKKH17008825
(3)	=	DARK GREEN SAWDUST	Refer	BKKH18001625

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

\*\*\*\*\*END\*\*\*\*\*/KS/ST

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