



TEST REPORT

Test Report # 18H-001192 Date of Report Issue: March 1, 2018
 Date of Sample Received: February 13, 2018 Pages: Page 1 of 48

CLIENT INFORMATION:

Company: Marabu North America LP
 Recipient: Bob Keller
 Recipient Email: BKeller@marabu.com



SAMPLE INFORMATION:

Description:	UVGL Ink Series	Purchase Order Number:	-
Assortment:	-	Toy Co./Agency:	-
SKU/style No.:	-	Country of Origin:	Germany
Factory/Supplier/Vendor:	-	Labeled Age Grade:	-
Country of Distribution:	United States, Canada	Recommended Age Grade:	-
Quantity Submitted:	1 lot	Tested Age Grade:	-
Testing Period:	02/14/2018 – 02/26/2018 02/28/2018 – 03/01/2018		

OVERALL RESULT:

PASS

Refer to page 2 for test result summary and appropriate notes.

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The test result(s) and conclusion(s) in this report relate to the sample(s) tested as described herein.

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**TEST RESULTS SUMMARY:**

At the request of the client, the following tests were conducted:

CONCLUSION	TEST(S) CONDUCTED
PASS	CPSIA Section 106 & ASTM F963-16 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings
PASS	ASTM F2923-14 Consumer Product Safety for Children's Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings
PASS	CPSIA Section 101 & 16 CFR 1303, Total Lead in Paints and Surface Coatings
PASS	The Illinois Lead Poisoning Prevention Act (LPPA) (410 ILCS 45/6), Total Lead in Paints and Surface Coatings of Children's Jewelry and Childcare Articles
PASS	Connecticut General Statutes Title 21a Chapter 416, Section 21a-12d Total Cadmium in Children's Jewelry
PASS	Maryland Chapter 578 (House Bill 145), Total Cadmium in Children's Jewelry
PASS	Minnesota Chapter 347-S.F. No. 2510, Total Cadmium Screening in Children's Jewelry
PASS	CPSIA Section 108, Phthalates – Mouthable (DBP, BBP, DEHP, DnOP, DINP, DIDP)
PASS	California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)
PASS	CPSC 16 CFR 1307 Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates (DBP, BBP, DEHP, DINP, DHEXP / DnHP, DCHP, DIBP, DPENP)#
PASS	Washington Revised Code Section 70.240.020, Phthalates in Children's Product
PASS	Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23 Leachable Elements in Paints and Surface Coatings
PASS	Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23 Total Lead and Mercury in Paints and Surface Coatings
PASS	Canadian Surface Coating Materials Regulations SOR/2016-193, Total Lead and Mercury in Paints and Surface Coatings
PASS	Mexican Environmental Health NOM-252-SSA1-2011, Soluble Elements from Toys and School Supplies

**DETAILED RESULTS:****CPSIA Section 106 & ASTM F963-16 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings**

Test Method: ASTM F963-16 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	1	2	3	4	5	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	7	5	8	4	4	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 1, 2, 3, 4 and 5 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****CPSIA Section 106 & ASTM F963-16 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings**

Test Method: ASTM F963-16 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	6	7	8	9	10	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	5	5	5	8	11	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 6, 7, 8, 9 and 10 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****CPSIA Section 106 & ASTM F963-16 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings**

Test Method: ASTM F963-16 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	11	12	13	14	15	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	6	6	7	3	5	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 10, 11, 12, 13, 14 and 15 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****CPSIA Section 106 & ASTM F963-16 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings**

Test Method: ASTM F963-16 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	16	17	18	19	20	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	5	6	8	8	8	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 16, 17, 18, 19 and 20 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****CPSIA Section 106 & ASTM F963-16 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings**

Test Method: ASTM F963-16 Clause 8.3.2
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	21	22	23	24	25	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	11	5	6	8	6	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 21, 22, 23, 24 and 25 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****CPSIA Section 106 & ASTM F963-16 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings**

Test Method: ASTM F963-16 Clause 8.3.2
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	26	27	28	29	30	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	9	7	6	6	6	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 26, 27, 28, 29 and 30 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****ASTM F2923-14 Consumer Product Safety for Children’s Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings**

Test Method: ASTM F963-11 Clause 8.3.2
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	1	2	3	4	5	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	7	5	8	4	4	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 1, 2, 3, 4 and 5 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****ASTM F2923-14 Consumer Product Safety for Children’s Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings**

Test Method: ASTM F963-11 Clause 8.3.2
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	6	7	8	9	10	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	5	5	5	8	11	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 6, 7, 8, 9 and 10 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****ASTM F2923-14 Consumer Product Safety for Children's Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings**

Test Method: ASTM F963-11 Clause 8.3.2
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	11	12	13	14	15	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	6	6	7	3	5	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 11, 12, 13, 14 and 15 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****ASTM F2923-14 Consumer Product Safety for Children’s Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings**

Test Method: ASTM F963-11 Clause 8.3.2
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	16	17	18	19	20	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	5	6	8	8	8	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 16, 17, 18, 19 and 20 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****ASTM F2923-14 Consumer Product Safety for Children's Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings**

Test Method: ASTM F963-11 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	21	22	23	24	25	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	11	5	6	8	6	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of Specimen No. 21, 22, 23, 24 and 25 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****ASTM F2923-14 Consumer Product Safety for Children's Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings**

Test Method: ASTM F963-11 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	26	27	28	29	30	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	9	7	6	6	6	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 2 ppm)

Remark:

The total heavy metals screening results of 26, 27, 28, 29 and 30 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****CPSIA Section 101 & 16 CFR 1303, Total Lead in Paints and Surface Coatings**

Test Method: CPSC-CH-E-1003-09.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5+6	7+8+9	10+11+12	13+14+15	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	16+17+18	19+20+21	22+23+24	25+26+27	28+29+30	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 20 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****The Illinois Lead Poisoning Prevention Act (LPPA) (410 ILCS 45/6), Total Lead in Paints and Surface Coatings of Children’s Jewelry and Childcare Articles**

Test Method: CPSC-CH-E1003-09.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5+6	7+8+9	10+11+12	13+14+15	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	ND	40
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	16+17+18	19+20+21	22+23+24	25+26+27	28+29+30	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	ND	40
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 20 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****Connecticut General Statutes Title 21a Chapter 416, Section 21a-12d Total Cadmium in Children's Jewelry**

Test Method: ASTM F963-16 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5+6	7+8+9	10+11+12	13+14+15	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	16+17+18	19+20+21	22+23+24	25+26+27	28+29+30	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 20 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****Maryland Chapter 578 (House Bill 145), Total Cadmium in Children's Jewelry**

Test Method: ASTM F963-16 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5+6	7+8+9	10+11+12	13+14+15	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	16+17+18	19+20+21	22+23+24	25+26+27	28+29+30	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 20 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****Minnesota Chapter 347-S.F. No. 2510, Total Cadmium Screening in Children's Jewelry**

Test Method: ASTM F963-16 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5+6	7+8+9	10+11+12	13+14+15	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	16+17+18	19+20+21	22+23+24	25+26+27	28+29+30	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 20 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

Remark:

The total cadmium screening results did not exceed the soluble cadmium limit, therefore, further soluble analyses were not conducted.

**DETAILED RESULTS:****CPSIA Section 108, Phthalates – Mouthable (DBP, BBP, DEHP, DnOP, DINP, DIDP)**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		1+2+3	4+5+6	7+8+9	10+11+12	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Di-n-octyl phthalate (DnOP)	117-84-0	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****CPSIA Section 108, Phthalates – Mouthable (DBP, BBP, DEHP, DnOP, DINP, DIDP)**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		13+14+15	16+17+18	19+20+21	22+23+24	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Di-n-octyl phthalate (DnOP)	117-84-0	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****CPSIA Section 108, Phthalates – Mouthable (DBP, BBP, DEHP, DnOP, DINP, DIDP)**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		25+26+27	28+29+30	---	---	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	---	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	---	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	---	---	1000
Di-n-octyl phthalate (DnOP)	117-84-0	ND	ND	---	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	---	---	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	---	---	1000
Conclusion		PASS	PASS	---	---	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		1+2+3	4+5+6	7+8+9	10+11+12	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	1000
Di-n-hexyl phthalate (DnHP)	84-75-3	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

Remark:

The specification is quoted from client's requirement.

**DETAILED RESULTS:****California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		13+14+15	16+17+18	19+20+21	22+23+24	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	1000
Di-n-hexyl phthalate (DnHP)	84-75-3	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

Remark:

The specification is quoted from client's requirement.

**DETAILED RESULTS:****California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		25+26+27	28+29+30	---	---	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	---	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	---	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	---	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	---	---	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	---	---	1000
Di-n-hexyl phthalate (DnHP)	84-75-3	ND	ND	---	---	1000
Conclusion		PASS	PASS	---	---	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

Remark:

The specification is quoted from client's requirement.

**DETAILED RESULTS:****CPSC 16 CFR 1307 Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates (DBP, BBP, DEHP, DINP, DHEXP / DnHP, DCHP, DIBP, DPENP)**Test Method: CPSC-CH-C1001-09.3 (Modified)[#], In-House Method[#]

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		1+2+3	4+5+6	7+8+9	10+11+12	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	ND	ND	1000
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	ND	ND	1000
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	ND	ND	1000
Di-n-pentyl phthalate (DPENP)	131-18-0	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****CPSC 16 CFR 1307 Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates (DBP, BBP, DEHP, DINP, DHEXP / DnHP, DCHP, DIBP, DPENP)**Test Method: CPSC-CH-C1001-09.3 (Modified)[#], In-House Method[#]

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		13+14+15	16+17+18	19+20+21	22+23+24	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	ND	ND	1000
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	ND	ND	1000
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	ND	ND	1000
Di-n-pentyl phthalate (DPENP)	131-18-0	ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****CPSC 16 CFR 1307 Prohibition of Children’s Toys and Child Care Articles Containing Specified Phthalates (DBP, BBP, DEHP, DINP, DHEXP / DnHP, DCHP, DIBP, DPENP)**Test Method: CPSC-CH-C1001-09.3 (Modified)[#], In-House Method[#]

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		25+26+27	28+29+30	---	---	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	---	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	---	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	---	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	---	---	1000
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	---	---	1000
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	---	---	1000
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	---	---	1000
Di-n-pentyl phthalate (DPENP)	131-18-0	ND	ND	---	---	1000
Conclusion		PASS	PASS	---	---	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****Washington Revised Code Section 70.240.020, Phthalates in Children's Product**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		1+2+3	4+5+6	7+8+9	10+11+12	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Di-n-octyl phthalate (DnOP)	117-84-0	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	1000
Sum		ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****Washington Revised Code Section 70.240.020, Phthalates in Children's Product**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		13+14+15	16+17+18	19+20+21	22+23+24	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	1000
Di-n-octyl phthalate (DnOP)	117-84-0	ND	ND	ND	ND	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	1000
Sum		ND	ND	ND	ND	1000
Conclusion		PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****Washington Revised Code Section 70.240.020, Phthalates in Children's Product**

Test Method: CPSC-CH-C1001-09.3

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		25+26+27	28+29+30	---	---	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	---	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	---	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	---	---	1000
Di-n-octyl phthalate (DnOP)	117-84-0	ND	ND	---	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	---	---	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	---	---	1000
Sum		ND	ND	---	---	1000
Conclusion		PASS	PASS	---	---	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram) = 0.0001 % m/m (Percent by mass)

LT = Less than

ND = Not detected (Reporting Limit = 120 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23
Leachable Elements in Paints and Surface Coatings**

Test Method: Health Canada Method C-03 (Effective 2014-02-20)

Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	1	2	3	4	5	Leachable Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Leachable Antimony (Sb)	ND	ND	ND	ND	ND	1000
Leachable Arsenic (As)	ND	ND	ND	ND	ND	1000
Leachable Barium (Ba)	750	700	310	200	250	1000
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	1000
Leachable Selenium (Se)	ND	ND	ND	ND	ND	1000
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 50 ppm)

Remark:

The total heavy metals screening results of Specimen No. 1, 2, 3, 4 and 5 exceeded the leachable heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23
Leachable Elements in Paints and Surface Coatings**

Test Method: Health Canada Method C-03 (Effective 2014-02-20)

Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	6	7	8	9	10	Leachable Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Leachable Antimony (Sb)	ND	ND	ND	ND	ND	1000
Leachable Arsenic (As)	ND	ND	ND	ND	ND	1000
Leachable Barium (Ba)	90	220	230	230	440	1000
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	1000
Leachable Selenium (Se)	ND	ND	ND	ND	ND	1000
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 50 ppm)

Remark:

The total heavy metals screening results of Specimen No. 6, 7, 8, 9 and 10 exceeded the leachable heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23
Leachable Elements in Paints and Surface Coatings**

Test Method: Health Canada Method C-03 (Effective 2014-02-20)

Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	11	12	13	14	15	Leachable Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Leachable Antimony (Sb)	ND	ND	ND	ND	ND	1000
Leachable Arsenic (As)	ND	ND	ND	ND	ND	1000
Leachable Barium (Ba)	460	400	320	190	260	1000
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	1000
Leachable Selenium (Se)	ND	ND	ND	ND	ND	1000
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 50 ppm)

Remark:

The total heavy metals screening results of Specimen No. 11, 12, 13, 14 and 15 exceeded the leachable heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23
Leachable Elements in Paints and Surface Coatings**

Test Method: Health Canada Method C-03 (Effective 2014-02-20)

Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	16	17	18	19	20	Leachable Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Leachable Antimony (Sb)	ND	ND	ND	ND	ND	1000
Leachable Arsenic (As)	ND	ND	ND	ND	ND	1000
Leachable Barium (Ba)	110	100	110	150	180	1000
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	1000
Leachable Selenium (Se)	ND	ND	ND	ND	ND	1000
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 50 ppm)

Remark:

The total heavy metals screening results of Specimen No. 16, 17, 18, 19 and 20 exceeded the leachable heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23
Leachable Elements in Paints and Surface Coatings**

Test Method: Health Canada Method C-03 (Effective 2014-02-20)

Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	21	22	23	24	25	Leachable Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Leachable Antimony (Sb)	ND	ND	ND	ND	ND	1000
Leachable Arsenic (As)	ND	ND	ND	ND	ND	1000
Leachable Barium (Ba)	100	140	150	150	210	1000
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	1000
Leachable Selenium (Se)	ND	ND	ND	ND	ND	1000
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 50 ppm)

Remark:

The total heavy metals screening results of Specimen No. 21, 22, 23, 24 and 25 exceeded the leachable heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23
Leachable Elements in Paints and Surface Coatings**

Test Method: Health Canada Method C-03 (Effective 2014-02-20)

Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	26	27	28	29	30	Leachable Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Leachable Antimony (Sb)	ND	ND	ND	ND	ND	1000
Leachable Arsenic (As)	ND	ND	ND	ND	ND	1000
Leachable Barium (Ba)	190	100	ND	250	260	1000
Leachable Cadmium (Cd)	ND	ND	ND	ND	ND	1000
Leachable Selenium (Se)	ND	ND	ND	ND	ND	1000
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 50 ppm)

Remark:

The total heavy metals screening results of Specimen No. 26, 27, 28, 29 and 30 exceeded the leachable heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23 Total Lead and Mercury in Paints and Surface Coatings**

Test Method: ASTM F963-16 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5+6	7+8+9	10+11+12	13+14+15	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Total Mercury (Hg)	ND	ND	ND	ND	ND	10
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	16+17+18	19+20+21	22+23+24	25+26+27	28+29+30	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Total Mercury (Hg)	ND	ND	ND	ND	ND	10
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 10 ppm)

Composite results are based on specimen of least mass res

**DETAILED RESULTS:****Canadian Surface Coating Materials Regulations SOR/2016-193, Total Lead and Mercury in Paints and Surface Coatings**

Test Method: ASTM F963-16 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5+6	7+8+9	10+11+12	13+14+15	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Total Mercury (Hg)	ND	ND	ND	ND	ND	10
Conclusion	PASS	PASS	PASS	PASS	PASS	

Specimen No.	16+17+18	19+20+21	22+23+24	25+26+27	28+29+30	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Total Mercury (Hg)	ND	ND	ND	ND	ND	10
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

ppm (Parts per million) = mg/kg (Milligrams per kilogram)

LT = Less than

ND = Not detected (Reporting Limit = 10 ppm)

Composite results are based on specimen of least mass resulting in highest potential concentration.

**DETAILED RESULTS:****Mexican Environmental Health NOM-252-SSA1-2011, Soluble Elements from Toys and School Supplies**

Test Method: NOM-252-SSA1-2011 Appendix A
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Toy Material except Modelling Clay

Specimen No.	1	2	3	4	5	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	7	5	8	4	4	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 2 mg/kg)

Remark:

The total heavy metals screening results of Specimen No. 1, 2, 3, 4 and 5 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Mexican Environmental Health NOM-252-SSA1-2011, Soluble Elements from Toys and School Supplies**

Test Method: NOM-252-SSA1-2011 Appendix A
Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Toy Material except Modelling Clay

Specimen No.	6	7	8	9	10	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	5	5	5	8	11	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 2 mg/kg)

Remark:

The total heavy metals screening results of Specimen No. 6, 7, 8, 9 and 10 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Mexican Environmental Health NOM-252-SSA1-2011, Soluble Elements from Toys and School Supplies**

Test Method: NOM-252-SSA1-2011 Appendix A
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Toy Material except Modelling Clay

Specimen No.	11	12	13	14	15	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	6	6	7	3	5	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 2 mg/kg)

Remark:

The total heavy metals screening results of Specimen No. 11, 12, 13, 14 and 15 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Mexican Environmental Health NOM-252-SSA1-2011, Soluble Elements from Toys and School Supplies**

Test Method: NOM-252-SSA1-2011 Appendix A
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Toy Material except Modelling Clay

Specimen No.	16	17	18	19	20	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	5	6	8	8	8	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 2 mg/kg)

Remark:

The total heavy metals screening results of Specimen No. 16, 17, 18, 19 and 20 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Mexican Environmental Health NOM-252-SSA1-2011, Soluble Elements from Toys and School Supplies**

Test Method: NOM-252-SSA1-2011 Appendix A
Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Toy Material except Modelling Clay

Specimen No.	21	22	23	24	25	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	11	5	6	8	6	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 2 mg/kg)

Remark:

The total heavy metals screening results of Specimen No. 21, 22, 23, 24 and 25 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**DETAILED RESULTS:****Mexican Environmental Health NOM-252-SSA1-2011, Soluble Elements from Toys and School Supplies**

Test Method: NOM-252-SSA1-2011 Appendix A
 Analytical Method: Inductively Coupled Plasma-Mass Spectrometry

Toy Material except Modelling Clay

Specimen No.	26	27	28	29	30	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	60
Soluble Arsenic (As)	ND	ND	ND	ND	ND	25
Soluble Barium (Ba)	9	7	6	6	6	1000
Soluble Cadmium (Cd)	ND	ND	ND	ND	ND	75
Soluble Chromium (Cr)	ND	ND	ND	ND	ND	60
Soluble Lead (Pb)	ND	ND	ND	ND	ND	90
Soluble Mercury (Hg)	ND	ND	ND	ND	ND	60
Soluble Selenium (Se)	ND	ND	ND	ND	ND	500
Conclusion	PASS	PASS	PASS	PASS	PASS	

Note:

mg/kg = Milligrams per kilogram

LT = Less than

ND = Not detected (Reporting Limit = 2 mg/kg)

Remark:

The total heavy metals screening results of Specimen No. 26, 27, 28, 29 and 30 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

**SPECIMEN DESCRIPTION:**

Specimen No.	Specimen Description	Location
1	Black ink (UVGL 950)	Raw material
2	White ink (UVGL 914)	Raw material
3	Dull white ink (UVGL 409)	Raw material
4	Red ink (UVGL 934)	Raw material
5	Yellow ink (UVGL 922)	Raw material
6	Brown ink (UVGL PG)	Raw material
7	Blue ink (UVGL455)	Raw material
8	Matt white ink (UVGL 170)	Raw material
9	Dull black ink (UVGL 980)	Raw material
10	Silvery ink (UVGL 291)	Raw material
11	Dull yellow ink (UVGL 425)	Raw material
12	Dark red ink (UVGL 936)	Raw material
13	Dull blue ink (UVGL 152)	Raw material
14	Green ink (UVGL 960)	Raw material
15	Matt black ink (UVGL 180)	Raw material
16	Dull green ink (UVGL 962)	Raw material
17	Matt green ink (UVGL 162)	Raw material
18	Bright black ink (UVGL 485)	Raw material
19	Soft white ink (UVGL 904)	Raw material
20	Grey ink (UVGL PS)	Raw material
21	Bright white ink (UVGL 970)	Raw material
22	Soft black ink (UVGL 952)	Raw material
23	Dull red ink (UVGL 132)	Raw material
24	Matt red ink (UVGL 932)	Raw material
25	Orange ink (UVGL 926)	Raw material
26	Matt yellow ink (UVGL 924)	Raw material
27	Matt blue ink (UVGL 956)	Raw material

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The test result(s) and conclusion(s) in this report relate to the sample(s) tested as described herein.

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**SPECIMEN DESCRIPTION:**

Specimen No.	Specimen Description	Location
28	Soft red ink (UVGL 435)	Raw material
29	Bright yellow ink (UVGL 122)	Raw material
30	Off white ink (UVGL 913)	Raw material



SAMPLE PHOTO:



-End Report-