



TEST REPORT

Test Report # 18H-007740 Date of Report Issue: October 15, 2018
 Date of Sample Received: October 8, 2018 Pages: Page 1 of 17

CLIENT INFORMATION:

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



SAMPLE INFORMATION:

Description: DLE-A digital inks: cyan, magenta, yellow, black, white, primer, varnish (7 total samples)
 Assortment: - Purchase Order Number: -
 SKU/style No.: - Toy Co./Agency: -
 Factory/Supplier/Vendor: - Country of Origin: Germany
 Country of Distribution: United States, Canada Labeled Age Grade: -
 Quantity Submitted: 1 bottle per style + 1 lot Recommended Age Grade: -
 Parts
 Testing Period: 10/08/2018 – 10/15/2018 Tested Age Grade: -

OVERALL RESULT:

PASS

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

ANSECO GROUP (HK) LIMITED

Loska Yeung Lok Ka
 Assistant Manager, Chemical Laboratory

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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 F963-17 Toy Safety, Clause 4.3.5 Total Elements Screening in Paint and Similar Surface Coatings
PASS	ASTM F2923-14 Consumer Product Safety for Children's Jewelry, Clause 8 Total Elements Screening 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 Public Act 10-113 (Substituted House Bill 5314), Total Cadmium Content 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	California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)
PASS	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 Total Elements Screening 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, Total Elements Screening from Toys and School Supplies

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**DETAILED RESULTS:****CPSIA Section 106 & ASTM F963-17 Toy Safety, Clause 4.3.5 Total Elements Screening in Paint and Similar Surface Coatings**

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5	6+7	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	ND	ND	---	---	60
Total Arsenic (As)	ND	ND	ND	---	---	25
Total Barium (Ba)	ND	ND	ND	---	---	1000
Total Cadmium (Cd)	ND	ND	ND	---	---	75
Total Chromium (Cr)	ND	ND	ND	---	---	60
Total Lead (Pb)	ND	ND	ND	---	---	90
Total Mercury (Hg)	ND	ND	ND	---	---	60
Total Selenium (Se)	ND	ND	ND	---	---	500
Conclusion	PASS	PASS	PASS	---	---	

Note:

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

LT = Less than

ND = Not detected (Reporting Limit: Sb, As, Ba, Cd, Cr, Pb, Hg = 20ppm; Se = 50ppm)

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

Remark:

The total heavy metals screening results do not exceed the soluble heavy metal limits, therefore, further soluble analyses were not conducted.

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

Test Method: ASTM F963-11 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5	6+7	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	ND	ND	---	---	60
Total Arsenic (As)	ND	ND	ND	---	---	25
Total Barium (Ba)	ND	ND	ND	---	---	1000
Total Cadmium (Cd)	ND	ND	ND	---	---	75
Total Chromium (Cr)	ND	ND	ND	---	---	60
Total Mercury (Hg)	ND	ND	ND	---	---	60
Total Selenium (Se)	ND	ND	ND	---	---	500
Conclusion	PASS	PASS	PASS	---	---	

Note:

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

LT = Less than

ND = Not detected (Reporting Limit: Sb, As, Ba, Cd, Cr, Hg = 20 ppm; Se = 50 ppm)

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

Remark:

The total heavy metals screening results do not exceed the soluble heavy metal limits, therefore, further soluble analyses were not 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	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	---	---	90
Conclusion	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	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	---	---	40
Conclusion	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 Public Act 10-113 (Substituted House Bill 5314), Total Cadmium Content in Children's Jewelry**

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5	6+7	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	---	---	75
Conclusion	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 F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5	6+7	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	---	---	75
Conclusion	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 F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5	6+7	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	---	---	75
Conclusion	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:****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	---	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	---	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	---	1000
Di-n-hexyl phthalate (DnHP)	84-75-3	ND	ND	ND	---	1000
Conclusion		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:****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)[#]

Analytical Method: Gas Chromatography with Mass Spectrometry

Specimen No.		1+2+3	4+5	6+7	---	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	---	1000
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	ND	---	1000
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	ND	---	1000
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	ND	---	1000
Di-n-pentyl phthalate (DPENP)	131-18-0	ND	ND	ND	---	1000
Conclusion		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.		1+2+3	4+5	6+7	---	Limit (ppm)
Test Item	CAS No.	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	---	1000
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	---	1000
Di-n-octyl phthalate (DnOP)	117-84-0	ND	ND	ND	---	1000
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	---	1000
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	---	1000
Sum		ND	ND	ND	---	1000
Conclusion		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:****Canadian Toys Regulations SOR/2011-17 as Amended by SOR/2016-195 & SOR/2016-302, Item 23 Total Elements Screening in Paints and Surface Coatings**

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5	6+7	---	---	Leachable
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Limit (ppm)
Total Antimony (Sb)	ND	ND	ND	---	---	1000
Total Arsenic (As)	ND	ND	ND	---	---	1000
Total Barium (Ba)	ND	ND	ND	---	---	1000
Total Cadmium (Cd)	ND	ND	ND	---	---	1000
Total Lead (Pb)	ND	ND	ND	---	---	90*
Total Mercury (Hg)	ND	ND	ND	---	---	10*
Total Selenium (Se)	ND	ND	ND	---	---	1000
Conclusion	PASS	PASS	PASS	---	---	

Note:

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

LT = Less than

ND = Not detected (Reporting Limit: Pb, Hg = 10 ppm; Sb, As, Ba, Cd, Se = 50 ppm)

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

Remark:

*Total limit

The results of total elements screening did not exceed the limits of leachable elements, therefore further analysis of leachable elements was not conducted.

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

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	1+2+3	4+5	6+7	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	---	---	90
Total Mercury (Hg)	ND	ND	ND	---	---	10
Conclusion	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, Total Elements Screening from Toys and School Supplies**

Test Method: ASTM F963-17 Clause 8.3.1

Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Toy Material except Modelling Clay

Specimen No.	1+2+3	4+5	6+7	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	ND	ND	---	---	60
Total Arsenic (As)	ND	ND	ND	---	---	25
Total Barium (Ba)	ND	ND	ND	---	---	1000
Total Cadmium (Cd)	ND	ND	ND	---	---	75
Total Chromium (Cr)	ND	ND	ND	---	---	60
Total Lead (Pb)	ND	ND	ND	---	---	90
Total Mercury (Hg)	ND	ND	ND	---	---	60
Total Selenium (Se)	ND	ND	ND	---	---	500
Conclusion	PASS	PASS	PASS	---	---	

Note:

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

LT = Less than

ND = Not detected (Reporting Limit: Sb, As, Ba, Cd, Cr, Pb, Hg = 20 ppm; Se = 50 ppm)

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

Remark:

The total heavy metals screening results do not exceed the soluble heavy metal limits, therefore, further soluble analyses were not conducted.

**SPECIMEN DESCRIPTION:**

Specimen No.	Specimen Description	Location
1	Cyan ink	Ink (cyan style)
2	Magenta ink	Ink (magenta style)
3	Yellow ink	Ink (yellow style)
4	Black ink	Ink (black style)
5	White ink	Ink (white style)
6	Transparent ink	Ink (primer style)
7	Clear ink	Ink (varnish style)



SAMPLE PHOTO:



-End Report-