Test report

T-24339755-15-R1

Verify Report

Overall result

Pass

Please refer to the following pages for test result summary and notes.

Client information

Client: Boston Industrial Solutions, Inc.
Address: 165 New Boston St. Suite 243, Woburn, 01801, United States

Sample information

Description: Natron® BX Series inks
Manufacturer / factory: Boston Industrial Solutions, Inc.
Country of origin: United States
Country of distribution: -
Quantity submitted: 1 pc per style
Labeled age grade: -
Tested age grade: -

General information

Sample receipt date: 02-Dec-2024
Testing period: 03-Dec-2024 to 10-Dec-2024
11-Dec-2024 to 12-Dec-2024
Report date: 12-Dec-2024

QIMA Testing (HK) Limited

Simon Kwan Chung Man
Manager, Chemical Laboratory

The test(s) reported herein is/are accredited under the laboratory's ISO/IEC 17025 accreditation issued by the ANSI National Accreditation Board (ANAB) according to certificate and scope of accreditation (Certificate # AT-1500.) Test(s) marked with '#' is/are not covered under the scope of accreditation. ANAB is recognized by ILAC, APAC and IAAC as a signatory of multilateral recognition arrangements that facilitate acceptance of test internationally.

Result summary

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

Test(s) conducted	Conclusion
CPSIA Section 106 & ASTM F963-23 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings	Pass
ASTM F2923-20 Consumer Product Safety for Children's Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings	Pass
ASTM F2999-19 Adult Jewelry, Clause 7 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
ASTM F2999-19 Adult Jewelry, Clause 5 Total Lead in Paints & Surface Coatings	Pass
ASTM F2923-20 Consumer Product Safety for Children's Jewelry, Clause 5 Total Lead in Paint and Surface Coatings	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, Item 23 – Total Heavy Metal Screening in Stickers, Films and Surface Coating Materials	Pass
Canadian Toys Regulations SOR/2011-17 as Amended, Item 23 – Leachable Elements in Stickers, Films and Surface Coating Materials	Pass
Canadian Toys Regulations SOR/2011-17 as Amended, Item 23 – Total Lead and Mercury in Stickers, Films and Surface Coating Materials	Pass
Canadian Surface Coating Materials Regulations SOR/2016-193, Total Lead in Stickers, Films and Surface Coating Materials	Pass
Canadian Surface Coating Materials Regulations SOR/2016-193, Total Mercury in Paints and Surface Coatings	Pass
Mexican Environmental Health NOM-252-SSA1-2011, Soluble Elements from Toys and School Supplies	Pass

Remark:
The total heavy metals screening results of Specimen No. 1~ 12 exceeded the soluble heavy metal limits, therefore a separate soluble analysis was conducted.

Detailed results

CPSIA Section 106 & ASTM F963-23 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or 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)	71.1	ND	124	123	37.3	**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 = 5 ppm)
Results are adjusted according to ASTM F963-23 Toy Safety, Section 8.3.4.3. Materials are deemed to conform with the requirements if the adjusted analytical result for the migrated element is less than or equal to the permissible limit.
The decision rule for stating conformity is based on ASTM F963-23 Toy Safety.

Analytical correction								
Soluble Element(s)	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Analytical Correction (%)	60	60	30	30	30	30	50	60

Detailed results

CPSIA Section 106 & ASTM F963-23 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or 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)	598	36.1	94.0	39.2	87.1	**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 = 5 ppm)
Results are adjusted according to ASTM F963-23 Toy Safety, Section 8.3.4.3. Materials are deemed to conform with the requirements if the adjusted analytical result for the migrated element is less than or equal to the permissible limit.
The decision rule for stating conformity is based on ASTM F963-23 Toy Safety.

Analytical correction								
Soluble Element(s)	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Analytical Correction (%)	60	60	30	30	30	30	50	60

Detailed results

CPSIA Section 106 & ASTM F963-23 Toy Safety, Clause 4.3.5 Soluble Elements in Paints and Similar Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	11	12	---	---	---	**Soluble Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	---	---	---	**60**
Soluble Arsenic (As)	ND	ND	---	---	---	**25**
Soluble Barium (Ba)	72.7	ND	---	---	---	**1000**
Soluble Cadmium (Cd)	ND	ND	---	---	---	**75**
Soluble Chromium (Cr)	ND	ND	---	---	---	**60**
Soluble Lead (Pb)	ND	ND	---	---	---	**90**
Soluble Mercury (Hg)	ND	ND	---	---	---	**60**
Soluble Selenium (Se)	ND	ND	---	---	---	**500**
Conclusion	Pass	Pass	---	---	---	

Note:
ppm (Parts per million) = mg/kg (Milligrams per kilogram)
LT = Less than
ND = Not detected (Reporting Limit = 5 ppm)
Results are adjusted according to ASTM F963-23 Toy Safety, Section 8.3.4.3. Materials are deemed to conform with the requirements if the adjusted analytical result for the migrated element is less than or equal to the permissible limit.
The decision rule for stating conformity is based on ASTM F963-23 Toy Safety.

Analytical correction								
Soluble Element(s)	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Analytical Correction (%)	60	60	30	30	30	30	50	60

Detailed results

ASTM F2923-20 Consumer Product Safety for Children's Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or 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)	71.1	ND	124	123	37.3	**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 = 5 ppm)

Detailed results

ASTM F2923-20 Consumer Product Safety for Children's Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	6	7	8	9	10	**Soluble**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	**Limit (ppm)**
Soluble Antimony (Sb)	ND	ND	ND	ND	ND	**60**
Soluble Arsenic (As)	ND	ND	ND	ND	ND	**25**
Soluble Barium (Ba)	598	36.1	94.0	39.2	87.1	**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 = 5 ppm)

Detailed results

ASTM F2923-20 Consumer Product Safety for Children's Jewelry, Clause 8 Soluble Elements in Paint and Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	11	12	---	---	---	**Soluble Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	---	---	---	**60**
Soluble Arsenic (As)	ND	ND	---	---	---	**25**
Soluble Barium (Ba)	72.7	ND	---	---	---	**1000**
Soluble Cadmium (Cd)	ND	ND	---	---	---	**75**
Soluble Chromium (Cr)	ND	ND	---	---	---	**60**
Soluble Mercury (Hg)	ND	ND	---	---	---	**60**
Soluble Selenium (Se)	ND	ND	---	---	---	**500**
Conclusion	Pass	Pass	---	---	---	

Note:
ppm (Parts per million) = mg/kg (Milligrams per kilogram)
LT = Less than
ND = Not detected (Reporting Limit = 5 ppm)

Detailed results

ASTM F2999-19 Adult Jewelry, Clause 7 Soluble Elements in Paint and Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or 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)	71.1	ND	124	123	37.3	**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 = 5 ppm)

Detailed results

ASTM F2999-19 Adult Jewelry, Clause 7 Soluble Elements in Paint and Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or 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)	598	36.1	94.0	39.2	87.1	**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 = 5 ppm)

Detailed results

ASTM F2999-19 Adult Jewelry, Clause 7 Soluble Elements in Paint and Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.2
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	11	12	---	---	---	**Soluble Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	---	---	---	**60**
Soluble Arsenic (As)	ND	ND	---	---	---	**25**
Soluble Barium (Ba)	72.7	ND	---	---	---	**1000**
Soluble Cadmium (Cd)	ND	ND	---	---	---	**75**
Soluble Chromium (Cr)	ND	ND	---	---	---	**60**
Soluble Mercury (Hg)	ND	ND	---	---	---	**60**
Soluble Selenium (Se)	ND	ND	---	---	---	**500**
Conclusion	Pass	Pass	---	---	---	

Note:
ppm (Parts per million) = mg/kg (Milligrams per kilogram)
LT = Less than
ND = Not detected (Reporting Limit = 5 ppm)

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	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	---	**90**
Conclusion	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-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	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	---	**40**
Conclusion	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

ASTM F2999-19 Adult Jewelry, Clause 5 Total Lead in Paints & 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	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	---	**600**
Conclusion	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

ASTM F2923-20 Consumer Product Safety for Children's Jewelry, Clause 5 Total Lead in Paint 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	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	---	**90**
Conclusion	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 Public Act 10-113 (Substituted House Bill 5314), Total Cadmium Content in Children's Jewelry

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+8+9	10+11+12	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	---	**75**
Conclusion	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 F963-11 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	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	---	**75**
Conclusion	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 F963-11 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	---	**Soluble Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	ND	ND	ND	---	**75**
Conclusion	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

California Proposition 65, Phthalates (DBP, BBP, DEHP, DINP, DIDP, DnHP)

Test Method: CPSC-CH-C1001-09.4
Test Instrument: Gas Chromatography with Mass Spectrometry

Specimen No.		1+2+3	4+5+6	7+8+9	10+11+12	**Limit (% w/w)**
Test Item	CAS No.	Result (% w/w)	Result (% w/w)	Result (% w/w)	Result (% w/w)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	**0.1**
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	**0.1**
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	**0.1**
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	**0.1**
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	ND	ND	**0.1**
Di-n-hexyl phthalate (DnHP)	84-75-3	ND	ND	ND	ND	**0.1**
	Conclusion	Pass	Pass	Pass	Pass	

Note:
% w/w = Percent by weight
LT = Less than
ND = Not detected (Reporting Limit = 0.015 % w/w)
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-C1001-09.4
Test Instrument: Gas Chromatography with Mass Spectrometry

Specimen No.		1+2+3	4+5+6	7+8+9	10+11+12	**Limit (% w/w)**
Test Item	CAS No.	Result (% w/w)	Result (% w/w)	Result (% w/w)	Result (% w/w)	
Dibutyl phthalate (DBP)	84-74-2	ND	ND	ND	ND	**0.1**
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	ND	ND	**0.1**
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	ND	ND	**0.1**
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	ND	ND	**0.1**
Di-n-hexyl phthalate (DHEXP / DnHP)	84-75-3	ND	ND	ND	ND	**0.1**
Dicyclohexyl phthalate (DCHP)	84-61-7	ND	ND	ND	ND	**0.1**
Diisobutyl phthalate (DIBP)	84-69-5	ND	ND	ND	ND	**0.1**
Di-n-pentyl phthalate (DPENP)	131-18-0	ND	ND	ND	ND	**0.1**
	Conclusion	Pass	Pass	Pass	Pass	

Note:
% w/w = Percent by weight
LT = Less than
ND = Not detected (Reporting Limit = 0.015 % w/w)
Composite results are based on specimen of least mass resulting in highest potential concentration.

Detailed results

Canadian Toys Regulations SOR/2011-17 as Amended, Item 23 – Leachable Elements in Stickers, Films and Surface Coating Materials

Test Method: ASTM F963-23
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or 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)	71.1	ND	124	123	37.3	**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)

Results are adjusted according to ASTM F963-23 Toy Safety, Section 8.3.4.3. Materials are deemed to conform with the requirements if the adjusted analytical result for the migrated element is less than or equal to the permissible limit. The decision rule for stating conformity is based on ASTM F963-23 Toy Safety.

Analytical correction					
Soluble Element(s)	Sb	As	Ba	Cd	Se
Analytical Correction (%)	60	60	30	30	60

Detailed results

Canadian Toys Regulations SOR/2011-17 as Amended, Item 23 – Leachable Elements in Stickers, Films and Surface Coating Materials

Test Method: ASTM F963-23
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or 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)	598	36.1	94.0	39.2	87.1	**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)

Results are adjusted according to ASTM F963-23 Toy Safety, Section 8.3.4.3. Materials are deemed to conform with the requirements if the adjusted analytical result for the migrated element is less than or equal to the permissible limit. The decision rule for stating conformity is based on ASTM F963-23 Toy Safety.

Analytical correction					
Soluble Element(s)	Sb	As	Ba	Cd	Se
Analytical Correction (%)	60	60	30	30	60

Detailed results

Canadian Toys Regulations SOR/2011-17 as Amended, Item 23 – Leachable Elements in Stickers, Films and Surface Coating Materials

Test Method: ASTM F963-23
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry and/or Inductively Coupled Plasma-Mass Spectrometry

Specimen No.	11	12	---	---	---	**Leachable Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Leachable Antimony (Sb)	ND	ND	---	---	---	**1000**
Leachable Arsenic (As)	ND	ND	---	---	---	**1000**
Leachable Barium (Ba)	72.7	ND	---	---	---	**1000**
Leachable Cadmium (Cd)	ND	ND	---	---	---	**1000**
Leachable Selenium (Se)	ND	ND	---	---	---	**1000**
Conclusion	Pass	Pass	---	---	---	

Note:
ppm (Parts per million) = mg/kg (Milligrams per kilogram)
LT = Less than
ND = Not detected (Reporting Limit = 50 ppm)

Results are adjusted according to ASTM F963-23 Toy Safety, Section 8.3.4.3. Materials are deemed to conform with the requirements if the adjusted analytical result for the migrated element is less than or equal to the permissible limit. The decision rule for stating conformity is based on ASTM F963-23 Toy Safety.

Analytical correction					
Soluble Element(s)	Sb	As	Ba	Cd	Se
Analytical Correction (%)	60	60	30	30	60

Detailed results

Canadian Toys Regulations SOR/2011-17 as Amended, Item 23 – Total Lead and Mercury in Stickers, Films and Surface Coating Materials

Test Method: ASTM F963-23 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	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	---	**90**
Total Mercury (Hg)	ND	ND	ND	ND	---	**10**
Conclusion	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

Canadian Surface Coating Materials Regulations SOR/2016-193, Total Lead in Stickers, Films and Surface Coating Materials

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	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	ND	ND	ND	---	**90**
Conclusion	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

Canadian Surface Coating Materials Regulations SOR/2016-193, Total Mercury in Paints and Surface Coatings

Test Method: ASTM F963-23 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	---	**Total Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Mercury (Hg)	ND	ND	ND	ND	---	**10**
Conclusion	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-Optical Emission Spectrometry and/or 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)	71.1	ND	124	123	37.3	**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 = 5 mg/kg)

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-Optical Emission Spectrometry and/or 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)	598	36.1	94.0	39.2	87.1	**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 = 5 mg/kg)

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-Optical Emission Spectrometry and/or Inductively Coupled Plasma-Mass Spectrometry

Toy Material except Modelling Clay

Specimen No.	11	12	---	---	---	**Soluble Limit (ppm)**
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Soluble Antimony (Sb)	ND	ND	---	---	---	**60**
Soluble Arsenic (As)	ND	ND	---	---	---	**25**
Soluble Barium (Ba)	72.7	ND	---	---	---	**1000**
Soluble Cadmium (Cd)	ND	ND	---	---	---	**75**
Soluble Chromium (Cr)	ND	ND	---	---	---	**60**
Soluble Lead (Pb)	ND	ND	---	---	---	**90**
Soluble Mercury (Hg)	ND	ND	---	---	---	**60**
Soluble Selenium (Se)	ND	ND	---	---	---	**500**
Conclusion	Pass	Pass	---	---	---	

Note:
mg/kg = Milligrams per kilogram
LT = Less than
ND = Not detected (Reporting Limit = 5 mg/kg)

Specimen description

Specimen #	Specimen description	Location
1	Black ink	Ink (Natron® BX Series inks - BX 300 Black style)
2	White ink	Ink (Natron® BX Series inks - BX 310 White style)
3	Yellow ink	Ink (Natron® BX Series inks - BX 314 Lemon Yellow style)
4	Orange ink	Ink (Natron® BX Series inks - BX 318 Ochre style)
5	Deep blue ink	Ink (Natron® BX Series inks - BX 334 Ultramine style)
6	Deep purple ink	Ink (Natron® BX Series inks - BX 342 Deep Violet style)
7	Deep green ink	Ink (Natron® BX Series inks - BX 349 Deep Green style)
8	Bright orange ink	Ink (Natron® BX Series inks - BX 350 Bright Red style)
9	Wine red ink	Ink (Natron® BX Series inks - BX 351 Rubine style)
10	Deep red ink	Ink (Natron® BX Series inks - BX 357 Carmine Red style)
11	Red ink	Ink (Natron® BX Series inks - BX 358 Vermillion style)
12	Translucent yellow ink	Ink (Natron® BX Series inks - BX 370 Clear style)

Pictures

Sample photo:

End of the report