

Test report

T-24339734-15-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® SE 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
Report date: 10-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.



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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 Total Elements Screening in Paint and Similar Surface Coatings	Pass
ASTM F2923-20 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, Item 23 – Total Heavy Metal Screening 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, Total Elements Screening from Toys and School Supplies	Pass



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Detailed results

CPSIA Section 106 & ASTM F963-23 Toy Safety, Clause 4.3.5 Total Elements Screening in Paint and Similar 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	13+14+15	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	ND	ND	ND	ND	60
Total Arsenic (As)	ND	ND	ND	ND	ND	25
Total Barium (Ba)	ND	ND	ND	56.6	ND	1000
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Total Chromium (Cr)	ND	ND	ND	ND	ND	60
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Total Mercury (Hg)	ND	ND	ND	ND	ND	60
Total 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: 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

CPSIA Section 106 & ASTM F963-23 Toy Safety, Clause 4.3.5 Total Elements Screening in Paint and Similar Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.1
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	16+17+18	---	---	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	---	---	---	---	60
Total Arsenic (As)	ND	---	---	---	---	25
Total Barium (Ba)	32.5	---	---	---	---	1000
Total Cadmium (Cd)	ND	---	---	---	---	75
Total Chromium (Cr)	ND	---	---	---	---	60
Total Lead (Pb)	ND	---	---	---	---	90
Total Mercury (Hg)	ND	---	---	---	---	60
Total Selenium (Se)	ND	---	---	---	---	500
Conclusion	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 F2923-20 Consumer Product Safety for Children’s Jewelry, Clause 8 Total Elements Screening in Paint 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	13+14+15	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	ND	ND	ND	ND	60
Total Arsenic (As)	ND	ND	ND	ND	ND	25
Total Barium (Ba)	ND	ND	ND	56.6	ND	1000
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Total Chromium (Cr)	ND	ND	ND	ND	ND	60
Total Mercury (Hg)	ND	ND	ND	ND	ND	60
Total 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: 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

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

Test Method: ASTM F963-23 Clause 8.3.1
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	16+17+18	---	---	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	---	---	---	---	60
Total Arsenic (As)	ND	---	---	---	---	25
Total Barium (Ba)	32.5	---	---	---	---	1000
Total Cadmium (Cd)	ND	---	---	---	---	75
Total Chromium (Cr)	ND	---	---	---	---	60
Total Mercury (Hg)	ND	---	---	---	---	60
Total Selenium (Se)	ND	---	---	---	---	500
Conclusion	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

ASTM F2999-19 Adult Jewelry, Clause 5 & 7 Total Elements Screening in Paint 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	13+14+15	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	ND	ND	ND	ND	60
Total Arsenic (As)	ND	ND	ND	ND	ND	25
Total Barium (Ba)	ND	ND	ND	56.6	ND	1000
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Total Chromium (Cr)	ND	ND	ND	ND	ND	60
Total Lead (Pb)	ND	ND	ND	ND	ND	600*
Total Mercury (Hg)	ND	ND	ND	ND	ND	60
Total 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: 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:

*Total limit

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





Detailed results

ASTM F2999-19 Adult Jewelry, Clause 5 & 7 Total Elements Screening in Paint and Surface Coatings

Test Method: ASTM F963-23 Clause 8.3.1
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Specimen No.	16+17+18	---	---	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	---	---	---	---	60
Total Arsenic (As)	ND	---	---	---	---	25
Total Barium (Ba)	32.5	---	---	---	---	1000
Total Cadmium (Cd)	ND	---	---	---	---	75
Total Chromium (Cr)	ND	---	---	---	---	60
Total Lead (Pb)	ND	---	---	---	---	600*
Total Mercury (Hg)	ND	---	---	---	---	60
Total Selenium (Se)	ND	---	---	---	---	500
Conclusion	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:

*Total limit

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



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



Verify Report



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



Verify Report



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	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	---	---	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	---	---	---	---	75
Conclusion	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.



Verify Report



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	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	---	---	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	---	---	---	---	75
Conclusion	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.



Verify Report



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	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	---	---	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Cadmium (Cd)	ND	---	---	---	---	75
Conclusion	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.



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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	

Specimen No.		13+14+15	16+17+18	---	---	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	---	---	0.1
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	---	---	0.1
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	---	---	0.1
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	---	---	0.1
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	---	---	0.1
Di-n-hexyl phthalate (DnHP)	84-75-3	ND	ND	---	---	0.1
Conclusion		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.



Verify Report



Detailed results

Washington Revised Code Section 70.240.020, Phthalates in Children's Product

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

Specimen No.		13+14+15	16+17+18	---	---	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	---	---	0.1
Benzyl butyl phthalate (BBP)	85-68-7	ND	ND	---	---	0.1
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7	ND	ND	---	---	0.1
Di-n-octyl phthalate (DnOP)	117-84-0	ND	ND	---	---	0.1
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	ND	ND	---	---	0.1
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	ND	ND	---	---	0.1
Sum		ND	ND	---	---	0.1
Conclusion		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 – Total Heavy Metal Screening 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	13+14+15	Leachable Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	ND	ND	ND	ND	1000
Total Arsenic (As)	ND	ND	ND	ND	ND	1000
Total Barium (Ba)	ND	ND	ND	56.6	ND	1000
Total Cadmium (Cd)	ND	ND	ND	ND	ND	1000
Total Lead (Pb)	ND	ND	ND	ND	ND	90*
Total Mercury (Hg)	ND	ND	ND	ND	ND	10*
Total 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: 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 total heavy metals screening results do not exceed the soluble heavy metal limits, therefore, further soluble analyses were not conducted.





Detailed results

Canadian Toys Regulations SOR/2011-17 as Amended, Item 23 – Total Heavy Metal Screening 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.	16+17+18	---	---	---	---	Leachable Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	---	---	---	---	1000
Total Arsenic (As)	ND	---	---	---	---	1000
Total Barium (Ba)	ND	---	---	---	---	1000
Total Cadmium (Cd)	ND	---	---	---	---	1000
Total Lead (Pb)	ND	---	---	---	---	90*
Total Mercury (Hg)	ND	---	---	---	---	10*
Total Selenium (Se)	ND	---	---	---	---	1000
Conclusion	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 total heavy metals screening results do not exceed the soluble heavy metal limits, therefore, further soluble analyses were not conducted.





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	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	---	---	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	---	---	---	---	90
Total Mercury (Hg)	ND	---	---	---	---	10
Conclusion	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	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	---	---	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Lead (Pb)	ND	---	---	---	---	90
Conclusion	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	13+14+15	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Mercury (Hg)	ND	ND	ND	ND	ND	10
Conclusion	Pass	Pass	Pass	Pass	Pass	

Specimen No.	16+17+18	---	---	---	---	Total Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Mercury (Hg)	ND	---	---	---	---	10
Conclusion	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.



Verify Report



Detailed results

Mexican Environmental Health NOM-252-SSA1-2011, Total Elements Screening from Toys and School Supplies

Test Method: ASTM F963-23 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+8+9	10+11+12	13+14+15	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	ND	ND	ND	ND	60
Total Arsenic (As)	ND	ND	ND	ND	ND	25
Total Barium (Ba)	ND	ND	ND	56.6	ND	1000
Total Cadmium (Cd)	ND	ND	ND	ND	ND	75
Total Chromium (Cr)	ND	ND	ND	ND	ND	60
Total Lead (Pb)	ND	ND	ND	ND	ND	90
Total Mercury (Hg)	ND	ND	ND	ND	ND	60
Total 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: 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.





Detailed results

Mexican Environmental Health NOM-252-SSA1-2011, Total Elements Screening from Toys and School Supplies

Test Method: ASTM F963-23 Clause 8.3.1
Analytical Method: Inductively Coupled Plasma-Optical Emission Spectrometry

Toy Material except Modelling Clay

Specimen No.	16+17+18	---	---	---	---	Soluble Limit (ppm)
Test Item	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	Result (ppm)	
Total Antimony (Sb)	ND	---	---	---	---	60
Total Arsenic (As)	ND	---	---	---	---	25
Total Barium (Ba)	32.5	---	---	---	---	1000
Total Cadmium (Cd)	ND	---	---	---	---	75
Total Chromium (Cr)	ND	---	---	---	---	60
Total Lead (Pb)	ND	---	---	---	---	90
Total Mercury (Hg)	ND	---	---	---	---	60
Total Selenium (Se)	ND	---	---	---	---	500
Conclusion	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 #	Specimen description	Location
1	Black ink	Ink (Natron® SE Series inks - SE 300 Black style)
2	White ink	Ink (Natron® SE Series inks - SE 310 White style)
3	Yellow ink	Ink (Natron® SE Series inks - SE 315 Yellow style)
4	Orange ink	Ink (Natron® SE Series inks - SE 322 Orange style)
5	Light blue ink	Ink (Natron® SE Series inks - SE 330 Light Blue style)
6	Blue ink	Ink (Natron® SE Series inks - SE332 True Blue style)
7	Bright blue ink	Ink (Natron® SE Series inks - SE 336 Reflex Blue style)
8	Purple ink	Ink (Natron® SE Series inks - SE 341 Violet style)
9	Aqua green ink	Ink (Natron® SE Series inks - SE 346 Mixing Green style)
10	Green ink	Ink (Natron® SE Series inks - SE 348 Dark Green style)
11	Coral red ink	Ink (Natron® SE Series inks - SE 350 Bright Red style)
12	Deep pink ink	Ink (Natron® SE Series inks - SE 351 Rubine style)
13	Red ink	Ink (Natron® SE Series inks - SE 352 Red style)
14	Magenta ink	Ink (Natron® SE Series inks - SE 355 Magenta style)
15	Bright red ink	Ink (Natron® SE Series inks - SE 358 Signal Red style)
16	Clear ink	Ink (Natron® SE Series inks - SE 370 Clear style)
17	Golden ink	Ink (Natron® SE Series inks - SE 371 Gold style)
18	Silvery ink	Ink (Natron® SE Series inks - SE 377 Silver style)





Pictures

Sample photo:



End of the report

The test result(s) and conclusion(s) in this report relate only to the sample(s) as received and the method /regulation section(s) tested as described herein. If it is not further specified in the report, the decision rule for stating conformity is based on the QIMA decision rule. (<https://www.qima.com/conditions-of-service#decisionRule>). This test report may not be reproduced in whole or in part, without the written approval of QIMA Testing (HK) Limited.



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