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ECOLOGY
State of Washington

School Supplies 2018

Lead and Cadmium in School Supplies

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School Supplies 2018

Lead and Cadmium in School Supplies

by

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The following document is a technical memorandum originally sent to the Washington State Attorney General's Office on January 30, 2019. The technical memo is a non-standard report, and includes additional information and appendices not included in a standard report format. Data provided and summarized in this technical memo is publicly available from Ecology's Product Testing Database. The federal Consumer Product Safety Commission (CPSC) sets limits on lead and cadmium. Data and product information for those products identified in this study to contain levels of lead and/or cadmium exceeding federal limits were submitted to the CPSC.

Table of Contents

Overview.....	4
Methods	4
Methods for Selecting Products.....	4
Sample Processing.....	6
Project Manager Data Entry Review.....	7
Laboratory Analysis	7
Data Quality	7
Data Usability	8
Results and Discussion.....	8
Summary of Results for 2018	8
2018 Study Results Compared to Previous Results for Selected Products	9
Minor Edits to Data Presented in the Preliminary Data Set	12
Study Files (sent separately).....	12
References	13
Appendix A. Quality Assurance Project Plan	14
3.0 Background.....	16
4.0 Study Description.....	16
5.0 Organization and Schedule.....	17
6.0 Quality Objectives	19
7.0 Study Design.....	20
8.0 Field Procedures	21
9.0 Laboratory Procedures	21
10.0 Quality Control Procedures	22
11.0 Management Procedures	22
12.0 Audits and Reports.....	22
15.0 References	23
Appendix B. Data Summaries	24
Appendix C. Case Narratives from Manchester Environmental Laboratory	46

Overview

Washington State Department of Ecology (Ecology) frequently performs studies to support the Children's Safe Products Act (CSPA), RCW 70.240. Studies are designed to select, purchase, and analyze children's products for the presence of toxic chemicals and chemicals of high concern to children (CHCCs). CSPA sets limits on the use of lead, cadmium, and six phthalates in children's products sold in or to those residing in Washington.^{2,3}

In 2017, Ecology partnered with the Washington State Attorney General's Office (AGO) to test for lead and cadmium in pencil pouches/cases and book covers. In the summer of 2018, Ecology again partnered with the AGO to perform follow-up testing on products tested in the 2017 study. The 2018 study design prioritized follow-up testing on pencil pouches/cases and book covers that (1) previously were found to contain lead above 90 parts per million (ppm)⁴ or cadmium above 40 ppm, and (2) were still available for sale to Washington State residents in 2018 through Amazon.com.

This memo describes the purchasing process, discusses data quality, and summarizes the data. Product information, photos, web screen recordings, and test data will be transferred to the AGO at delivery of this memo. As agreed, Ecology will not release this memo, its associated project plan, collected product information, photos, web screen recordings, or test data to the public. Any requests Ecology receives for information pertaining to this study will be reported to the AGO.

Methods

A Quality Assurance (QA) Project Plan Addendum was written and approved before products were purchased (Appendix A). The plan outlines the purchasing strategy, methods of processing and analysis, quality objectives, quality control, study timeline, budget, and method of data reporting. Procedures, standard operating procedures, and methods were followed as referenced in the QA Project Plan for the final data discussed in this report. Minor deviations from the plan are noted in the following discussion. Deviations mostly occurred around product availability and product purchasing process and did not adversely affect the reported study data quality.

Methods for Selecting Products

Data from the 2017 study were used to prioritize the product selection for the 2018 study. The 2018 study was designed to purchase the same products tested in 2017⁵ that contained

² Under CSPA, manufacturers are also required to report to Ecology if any of their children's products contain CHCCs. In 2017 CSPA was amended to include limits on five flame retardants in children's and residential upholstered furniture.

³ When federal law violations are suspected, data and product information from Ecology-tested products are forwarded to the United States Consumer Product Safety Commission (CPSC) for review under the Consumer Product Safety Improvement Act (CPSIA).

⁴ Hereinafter the report will use milligrams per kilogram (mg/kg) in place of ppm.

⁵ The 2017 study included products similar to those collected in the 2014 and 2015 study.

quantifiable lead or cadmium. Branding, Universal Product Codes (UPCs), unique product item numbers, unique naming, and/or design schemes and color patterns were used to determine products for follow-up testing.

All online products were purchased through Amazon.com. The study's purchasing strategy was to purchase products from third-party sellers with Fulfillment by Amazon. Purchasing staff encountered some difficulties in navigating and understanding Amazon's organization of multiple sellers of the same product. This may have led to missed purchasing opportunities for some follow-up products. Therefore, some additional products were purchased from third-party Amazon sellers and fulfilled directly by the third party, and some were purchased from Amazon and fulfilled by Amazon.

Products purchased from retail stores consisted of those targeted for follow-up testing and some new products not previously tested. When new products were purchased, Ecology followed the children's product selection process approach used in 2017.⁶ New products purchased had designs, themes, or bright colors appealing to children or were packaged or marketed in a manner indicating that they were designed for a child 12 years of age or younger.

Online Purchases

A total of 55 products were purchased through Amazon.com during five purchasing events during the month of August, 2018 (Appendix B, Table B-1). Screen-recording videos were taken for four of the five purchasing events.

Two products ordered online were backordered and subsequently canceled after several weeks of delay. No payments were made for those products. All other product orders arrived at the Ecology Headquarters (HQ) via the United States Postal Service or United Parcel Service in intact packaging between the dates of August 9 and August 30, 2018.

Online products were reconciled with order records upon delivery to confirm receipt and approve payables. The outermost packaging information was copied or cut from the shipping box or bag and stored with the product. The product and all accompanying product-specific information were placed in clean, labeled zip-top bags and stored in plastic totes. Totes were labeled according to purchase event and stored in restricted-access, locked cabinets in Ecology's HQ product testing room.

Store Purchases

A total of 63 products were purchased at five retail stores between August 7 and August 31, 2018 (Appendix B, Table B-1).

During retail store purchasing events, photos were taken to document store marketing. All retail stores visited in 2018 had sections or aisles dedicated to school supplies, many displaying

⁶ Both the CSPA and CPSIA guidance were employed. We deferred to the broadest definition when the criteria differed. For example, when applying age determination, we used the CPSIA "12 years of age or younger" (16 CFR § 1200.2) criteria versus CSPA's "under the age of 12."

signage reading “Back to School” or “School Supplies.”

Upon return to Ecology HQ, the chain-of-custody log was closed and receipts copied for attachment to the Product Testing Database (PTDB). Individual products were separated into labeled zip-top bags and stored in labeled totes in the restricted-access, locked cabinets.

Sample Processing

All study products were stored in locked, restricted-access cabinets when not being processed. Products and accompanying product information were cataloged in the PTDB. Unique Product IDs, generated by the PTDB, were used to label the zip-top bags containing the product or products (for sets or packs). When available, product packaging, packing slips, and online order records were stored with the products. Photos were taken of the product, product packaging and some individual product components. Scanned copies of packaging, packing slips, receipts, and product photos were cataloged in the PTDB.

Individual product components were identified and cataloged in the PTDB before screening or processing commenced. X-Ray Fluorescence (XRF) screening was performed primarily on new products to rank additional components for potential analysis. XRF screening was conducted following the standard operating procedure cited within the QA Project Plan (Sekerak 2018; see Appendix A).

Product components selected for laboratory analysis were prioritized in the following order: 1) previously tested (follow-up) product components that contained lead or cadmium above CSPA limits in 2017, 2) product components from the same brand of a follow-up product but in a different style, 3) product components from the same manufacturer, and 4) XRF-screened components from completely new products.

Seventy-six product component samples (32 fabric,⁷ 26 plastic, and 18 metal) were size-reduced and placed in precleaned certified glass jars for transport to the laboratory. Sixteen samples consisted of composited material of similar matrix. Composite samples were prepared to replicate processing done in the previous study or were necessary to meet minimum mass requirements for laboratory preparation and analysis.

Samples were delivered to Ecology’s Manchester Environmental Laboratory (MEL) in two initial delivery groups occurring on October 9 and October 16, 2018.

The cooler containing the October 9 sample delivery group did not have the proper chain-of-custody seal tape affixed.⁸ These sample data were later rejected, as discussed in the *Data Usability* section below. Product components from this rejected group were resampled from archived products (in locked storage) and hand-delivered for analysis by the project manager on November 14 and November 28, 2018.

Sample delivery batches on October 16, November 14, and November 28, 2018, met all chain-

⁷ Components cataloged as fabric mostly appear to be made of woven synthetic polymers rather than natural-fiber fabrics.

⁸ While not all of Ecology chain-of-custody sampling protocols require affixed seal tape, the project manager determined seal tape was essential for this study.

of custody requirements for this study.

All study products and accompanying product information will remain in locked restricted-access cabinets for the duration of the study.⁹

Project Manager Data Entry Review

The project manager conducted the data entry review on all PTDB entries. When additional product information was identified and available, it was added to the database. These items included additional product or component photos, product-specific Amazon Standardized Identification Numbers (ASINs), and copies of packing slips that displayed the source of information entered into the database. ASINs were pulled from the screen recordings that were collected during the purchasing events. ASINs were listed in the web address, or Uniform Resource Locator (URL), for each purchased product. The “Your Orders” list on Ecology’s Amazon.com account was used to locate the ASINs for the August 6, 2018, purchase event that was not recorded. The “Your Orders” list was also used to confirm the ASINs appearing in the web screen recordings and review potential discrepancies between products purchased and products received.

Laboratory Analysis

MEL prepared samples in three work order (WO) batches by microwave acid-assisted (less hydrofluoric acid) digestion by U.S. Environmental Protection Agency (EPA) Method 3052. Analyses were performed on the inductively coupled plasma mass spectrometer (ICP-MS) following EPA Method 6020B. Instruments were calibrated with National Institute of Standards and Technology (NIST) traceable standards and were verified with a second-source NIST traceable standard. All standard residuals and instrument calibration (initial and continuing) verification checks were within acceptance limits.

Data Quality

Written case narratives and data were received by the project manager on November 5, November 26, and December 3, 2018, and were identified as WO 1810044, WO 1811033, and WO 1811050, respectively. Table B-2 summarizes the final data, and the MEL case narratives are presented in Appendix C.

MEL case narratives provide a discussion of the quality of the data, methods of analysis, instrument calibration, and quality control (QC). All analyses were in accordance with the technical specifications, methods, and QA/QC requirements of MEL methods and the study’s QA Project Plan Addendum (Appendix A).

⁹ Products will remain in this condition until approval is given by the AGO for transfer or disposal.

Data Usability

The project manager performed the final assessment of the laboratory data upon receipt of the MEL case narratives and data.

The case narrative for WO 1810044 (Appendix C) was amended on November 29, 2018, to reflect rejection of some sample data not meeting usability requirements for this study. The rejected data were from all samples delivered to MEL on October 9, 2018. Archived products in locked storage were resampled to replace the rejected samples (see *Sample Processing* section). These new samples were hand-delivered to MEL on November 14 and 28, 2018, for analysis under WO 1811033 and WO 1811050, respectively. Only those data meeting usability requirements are further discussed and summarized in this report.

The WO 1811033 case narrative was amended by the project manager to fix a product component ID transcribed in error by MEL at sample login. The section *Minor Edits to Data Presented in the Preliminary Data Set* further details this edit.

Sample results with “U” qualifiers indicate that concentrations were not quantified above the adjacent numeric reported concentration. Most “U” sample results occurred when concentrations were not found above the reporting limit (RL) of 1.00 mg/kg. Four cadmium sample results on WO 1811050 were reported with “U” qualifiers above 1.00 mg/kg. These elevated RLs were due to limited amounts of sample available for analysis preparation (<0.25 grams).

All final data from WOs 1810044, 1811033, and 1811050 were analyzed appropriately and met all data quality objectives outlined in the QA Project Plan. These final data were verified as valid and deemed usable for all purposes.

Results and Discussion

Summary of Results for 2018

All 76 product component samples contained either lead, cadmium, or both metals above the quantitation limit (1.0 mg/kg) or adjusted RL concentration. Detected concentrations of lead ranged from 1.24 to 8,560 mg/kg, and cadmium concentrations ranged from 1.69 to 1,270 mg/kg.

A total of 88% (67 of 76) of the samples contained either lead, cadmium, or both metals above the respective CSPA limits¹⁰ of 90 mg/kg for lead and 40 mg/kg for cadmium.

In all, product component samples from 47 products were tested in this study. Forty-three of the products were pencil pouches/cases (either purchased as the pouch/case alone or purchased as a part of a set), one was a single backpack, and three were book covers. All but one pencil pouch/case tested had detections of lead, cadmium, or both metals above their

¹⁰ The lower CSPA limits are used in the discussion instead of the CPSIA limits of 100 ppm and 75 ppm, for lead and cadmium, respectively.

respective CSPA limits.

Amazon Products

Forty-one products purchased through Amazon were tested for this study, with 85% (35 of 41) of the products found to contain one or both metals over the CSPA limit. The frequency of one or both metals over the CSPA limits at the product component level was 89% (62 of 70 product component samples).

The study's highest detection of lead (8,560 mg/kg) was found in the Plush Green Frog Pencil Pouch – Frog Eye (Component ID: AM-24-7-2; Table B-2). The highest detection of cadmium (1,270 mg/kg) was in the Barbie 7-Piece Stationary Set – Printed Plastic Material (Component ID: AM-28-7-1; Table B-2). Figure B-1 displays the detections of lead and cadmium in all Amazon product components. Comparisons of selected 2017 and 2018 product results are in the following section.

Six of the 41 Amazon-purchased products were multipacks or sets, purchased with the intention of testing multiple subproducts. Two or three subproducts were tested for each of those six Amazon products when it was identified that the subproducts shared similar product components. For example, for Product ID AM-25-10 (Trolls Family Backpack with Pencil Case), component (subproduct) samples consisting of seam tape were submitted from the backpack, pencil case, and lunch bag. All 15 of the subproduct samples tested contained lead over 90 mg/kg. Twelve samples also contained cadmium above 40 mg/kg. Table B-3 summarizes the results for the subproducts tested in this study.

Retail Store Products

Six product components collected from retail stores were submitted for analysis. Five out of the six contained lead above 90 mg/kg. Concentrations ranged from 1.24 to 4,060 mg/kg, with the highest lead concentration found in the Green Magic Book Cover – Green Material (DT-22-3-1; Table B-2). Low levels of cadmium were detected (<1.0–18 mg/kg) in all retail products sampled.

2018 Study Results Compared to Previous Results for Selected Products

Disney/Pixar Cars-Themed Pencil Pouches

Six Cars-themed pencil pouches were purchased for the 2018 Study. Three pouches were marked only with “Disney/Pixar” branding, and the remaining three had attached tags showing “Mirage” along with the Disney/Pixar–licensed content (see Tables B-2 and B-4).

The three 2018 Mirage pouches appeared to share the same single-zipper design/style as those that were purchased in 2017. The 2018 products were purchased as three single-packs (two blue and one black pouch), while the 2017 product was a double-pack (one blue and one black

pouch). For all the 2017 and 2018 purchases, the individual products' attached tags showed the UPC as 6940127820102. However, different ASINs were associated with the 2018 products. For one of the blue pouches (AM-24-2) the ASIN was B00IQY9MC4. For the remaining two Mirage pouches (AM-24-3 [black], AM-24-4 [blue]), there were discrepancies between the style ordered and the style received (double versus single zippers), what the packing slip said was contained in the shipment, and the ASIN numbers at ordering. Ecology did not attach the ASINs shown on the packing slip to the individual products. No definitive connection could be made between the products and ASINs. The ASINs shown on the packing slip were B005BUI5YY and B00IQY9MC4.

For the 2018 Mirage products, the seam tape from each pouch was tested with methods similar to those used in 2017. Results were similar to 2017 levels (Table B-4). The white seam tape from the 2018-tested blue pouch, AM-24-2-3, had 538 mg/kg of lead and 137 mg/kg of cadmium. The white seam tape from the other 2018-tested blue pouch, AM-24-4-3, had 507 mg/kg lead and 135 mg/kg cadmium. Both of these results were similar to those found in the 2017 blue pouch's white seam tape, which had 474 mg/kg of lead and 137 mg/kg of cadmium (AM-16-7-13 in Table B-4). The 2018-tested black Cars pouch black seam tape (AM-24-3-3) contained 3,930 mg/kg of lead and 766 mg/kg of cadmium. These levels are much like the 2017-tested black seam tape (3,510 mg/kg lead and 736 mg/kg cadmium; AM-16-7-3 in Table B-4).

For the three other 2018-purchased Disney/Pixar Cars-themed double-zipper pouches, all attached UPCs were 4714670023905, with two ASINs for the separate colors: B00IQY9MC4 (blue) and B005BUI5YY (black).¹¹ For these products, the outer pouch material and zippers were tested instead of the seam tape.

The 2018-tested outer material for each Disney/Pixar Cars Double Zipper pouch contained lead at levels ranging from 2,580 mg/kg to 6,530 mg/kg lead. The zippers contained lead at levels ranging from 170 mg/kg and 203 mg/kg. Levels of cadmium ranged from 5.17 mg/kg to 29 mg/kg across both product components tested.

Inkology Pencil Pouches

The four Inkology pink pencil pouches with Dots and with Hearts – Pink Outer Material (UPC 838157004295/ASIN: B00LU0ZHPC) tested in 2018 showed trace levels of lead (Table B-5). These levels are consistent with those found in 2017.

However, the Round Pink Pencil Pouch with Hearts (AM-25-2; UPC 838157004288/ASIN: B014SYTNE20) contained elevated lead levels in both years. Those purchased in 2018 contained lead at 2,940 mg/kg in the pink outer material (AM-25-2-1) and 377 mg/kg lead in the zipper composite (AM-25-2-3). During the 2017 testing of the Round Pink Pencil Pouch with Hearts, lead was detected at 2,410 mg/kg in the pink outer material and 1,270 mg/kg in the zipper component (Table B-5).

¹¹ ASINs assigned for the single-zipper pouches and the double-zipper appeared to be shared, only differing when the pouch color/style was blue versus black.

For the 2018 study, one Inkology Sneaker Pencil Pouch 12-Pack (containing six colors in sneakers pairs) was purchased (ASIN: B014STYRXE). The zipper pulls from the Glitter Blue Sneaker (AM-24-18-3) and Green Sneaker (AM-24-18-9) were tested from this pack. The 2018 Glitter Blue Sneaker zipper pull contained lead at a level of 534 mg/kg, a slightly higher concentration than that found in 2017. The 2017 tested Glitter Blue Sneaker Pencil Pouch (AM-18-2-8) contained 361 mg/kg lead in the product's zipper pull component (Table B-5.) The Green Sneaker zipper pull tested in 2018 had a lead concentration of 616 mg/kg. For each zipper pull tested, low levels (<30 mg/kg) of cadmium were found.

Shark Pencil Pouches – Artone & Moon Love Brands

Seven separate shark pencil pouches that closely resembled the one purchased in 2017 were purchased in 2018 (Table B-6). The appearances of all of the shark pencil pouches were nearly identical, differing only by color. Two of the seven purchased for this study were marketed as Artone brand, which was also the brand of the 2017 shark pencil pouches. Artone products contained no affixed brand labels for either the 2017 or 2018 study products. The remaining five 2018-purchased shark pouches were by Moon Love and carried labels affixed to the product showing this branding, included a new combination lock on the zipper. No product ASINs were alike for any of the shark pencil pouch products. ASINs associated to these shark pencil pouches are listed in Table B-6.

The outer fabric (blue, gray, or black) was tested for each shark pencil pouch, with lead concentrations ranging from 894 to 2,620 mg/kg. The two highest lead levels were found in the blue outer material of the Moon Love brand AM-24-14-1 (2,620 mg/kg) and Artone brand AM-28-5-1 (2,580 mg/kg). For all outer materials tested, cadmium was found at levels ranging from 3.98 to 32.6 mg/kg. The outer black material in the 2017-tested shark similarly contained a lead concentration above the CSPA limit at 1,190 mg/kg and cadmium below the CSPA limit (10.7 mg/kg; Table B-6).

The red mouth material was tested from four of the Moon Love shark pencil pouches and two of the Artone shark pencil pouches. Concentrations ranged from 52.5 to 453 mg/kg for lead and 87.4 to 157 mg/kg for cadmium. The 2017-tested red mouth material contained 393 mg/kg of lead and 147 mg/kg of cadmium.

Zippers from four of the Moon Love products were tested. Each tested zipper product component was a composite of two zippers located on the same pouch. Zipper concentrations ranged from 725 to 2030 mg/kg for lead and 4.71 to 42.0 mg/kg for cadmium. In 2017 only one shark pencil pouch zipper-pull was tested, and it had lead and cadmium levels below the CSPA limits.

For the 2018 study, one additional shark pencil pouch product component was tested, based on XRF screening. The product component was an internal divider (AM-28-3-13) from a Moon Love gray pouch. It contained 53.9 mg/kg of lead and 89.7 mg/kg of cadmium (Table B-6).

Two backpacks showing a shark design similar to the pouches were also purchased. One backpack is by Artone (ASIN: B06XDFRLQJ) and one is sold by SAMAZ SUPER with SAMAZ branding (ASIN: B01JKTVL3G). The Artone backpack was found to contain 885 mg/kg lead in the

black outer backpack material (AM-28-1-1) and 842 mg/kg lead and 57.3 mg/kg cadmium the zipper pull (AM-28-1-23). The SAMAZ backpack contained lead at 2,780 mg/kg in the black outer backpack material (AM-28-6-1) and 2,030 mg/kg in the red mouth material (AM-28-6-3). See Table B-2 for details on these backpacks.

Magic Book Covers

In 2018, two Green Magic Book Cover products (DT-22-3-1 and DT-23-1-1; Table B-2) were again purchased and tested. The products were purchased from two separate Dollar Tree (DT) locations several weeks apart. All DT Magic Book Cover products, over all studies and regardless of color, share the same UPC. Similar to previous testing, the Green Magic Book Covers contained lead at levels of 4,060 mg/kg and 3,900 mg/kg. In the 2017 and 2015 studies this product had 5,510 mg/kg and 5,620 mg/kg of lead, respectively. The Orange Magic Book Cover (DT-22-4-1) tested in this study showed only trace levels of lead (1.24 mg/kg), whereas in 2017 lead was detected at 4,410 mg/kg. Only low levels of cadmium were found in these products in all years (<1.0–1.99 mg/kg).

Minor Edits to Data Presented in the Preliminary Data Set

Some minor edits to the data have occurred since the preliminary data were delivered. These include minor changes of product component descriptions, fixing typographical errors and ASIN numbers, and one change to a product component.

ASIN numbers associated with AM-24-6-15, AM-24-7-2, and AM-25-2-1 were corrected.

For AM-26-3-7 and AM-25-10-7, the product component names were changed from “White Internal Trim” to “White Seam Tape.” This change was necessary to maintain consistent naming conventions for product components.

The product component name for AM-24-18-3 was changed from “Blue Sparkly” to “Glitter Blue” to reflect its marketed name and to maintain name consistency with earlier studies. The product notes were also updated to show that the pink sneaker as well as the blue sneaker should have been identified as “Glitter Pink” and “Glitter Blue,” respectively.

The product component ID for lab sample 1811033-16 was entered in error by MEL as AM-28-2-3. The case narrative and all data records associated were updated to show the corrected product component ID of AM-28-2-13 – Shark Pencil Pouch – Red Mouth Material.

Lastly, all occurrences of “grey” were changed to “gray.”

Study Files (sent separately)

- Database Raw Data

- Web Screen Recordings¹²
- In-Store Photos
- Product Photos

References

See the *References* section in Appendix A.

¹² The August 3, 2018, web screen recording was cut at the 6:23 mark to remove the portion of the video that included the entry of Ecology's credit card information and should not have been recorded (6:24-10:49). No web screen recording was made for the August 6, 2018, purchase event.

Appendices

Appendix A. Quality Assurance Project Plan

School Supplies 2018

Addendum 3 to Quality Assurance Project Plan: Phthalates and Metals in Children's Products

June 2018

Approved by:

Signature:	Date:
William Sherman, Client / Assistant Attorney General, AGO	
Signature:	Date:
Tina Schaefer, RTT / CSPA Enforcement Lead, HWTR	
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Signature:	Date:
Alan Rue, Director, Manchester Environmental Laboratory, EAP	
Signature:	Date:
Tom Gries, <i>Acting</i> Quality Assurance Officer, EAP	

Signatures are not available on the Internet version.

Client: The party responsible for which professional services are rendered.

AGO: Washington State Attorney General's Office

CSPA: Children's Safe Products Act

EAP: Environmental Assessment Program (Department of Ecology)

HWTR: Hazardous Waste and Toxics Reduction Program (Department of Ecology)

RTT: Reducing Toxic Threats

3.0 Background

This document describes the 2018 plan to assess lead and cadmium in school supplies. It is the third addendum to the Quality Assurance Project Plan: Phthalates and Metals in Children's Products (Stone, 2012). This third addendum will follow a sampling design similar to that used in Addendum #1 to Quality Assurance Project Plan: Phthalates and Metals in Children's Products (Stone, 2014) and includes specific details employed during the 2017 study: School Supplies 2017, Addendum 2 to Quality Assurance Project Plan: Phthalates and Metals in Children's Products (Sekerak, 2017).

4.0 Study Description

Beginning in July 2018, Ecology will purchase school supplies for analysis of lead and cadmium. Ecology will focus most of the purchasing effort on pencil pouches and pencil cases¹³ tested in the 2015 (Trumbull et al., 2017) and 2017 studies. This 2018 study may also include investigations on a small number of book covers and other supplies marketed and sold as school supplies for use by a child 12 years old or younger. School supplies will be purchased both online and in retail stores.

4.1 Study goals

This study aims to assess lead and cadmium concentrations in school supplies.

The data from this study will serve to:

- Provide 2018 supplementary data on pencil pouches/cases and book covers previously tested in 2015 and 2017.
- Provide additional data on pencil pouches/cases and other products sold as school supplies not tested in an earlier study.

4.6 Tasks required

The study will include the following tasks:

- Purchase approximately 200 school supply products available online and in retail stores in Washington State.
- Screen products for lead and cadmium using the X-ray fluorescence (XRF) analyzer.
- Send 76 samples in four batches to Manchester Environmental Laboratory for analysis of lead and cadmium.
- Perform a quality assurance (QA) review on analytical data and database entries.
- Transfer initial findings to client.

¹³ Pencil pouches and pencil cases will be collectively referred to as pencil pouches/cases for the remainder of this document.

- Write a technical memo to accompany the final data set documenting methods and data quality assessment.

5.0 Organization and Schedule

5.1 Key individuals and their responsibilities

Table A-1. Organization of study staff and responsibilities.

Staff	Title	Responsibilities
William Sherman Attorney General's Office Phone: 206-442-4485	External Client	Along with other team staff, clarifies scope of the study. Provides review of the QAPP Addendum and approves the final QAPP Addendum.
Tina Schaefer RTT Unit HWTR Phone: 360-407-6997	CSPA Compliance Lead	Provides review of the QAPP Addendum and approves the final QAPP Addendum. Assists with purchasing, log-in, prioritizing samples for lab analysis and processing.
Sara Sekerak TS Unit EAP Phone: 360-407-6997	Project Manager	Writes the QAPP Addendum. Conducts QA review of PTDB and lab data, analyzes and interprets all data, and enters lab data into PTDB. Writes the draft and final Technical Memo.
Chrissy Wiseman RTT Unit HWTR Phone: 360-407-6492	Sampling Lead	Leads product sampling strategy and purchasing, sample screening, sample log-in and processing, chain-of-custody, and transport of samples to/from the laboratory.
Debby Sargeant TS Unit EAP Phone: 360-407-6965	Unit Supervisor for the Project Manager	Provides internal review of the QAPP Addendum, approves the budget, and approves the final QAPP Addendum.
Jessica Archer SCS EAP Phone: 360-407-6997	Section Manager for the Project Manager	Reviews the study scope and budget, tracks progress, reviews the draft QAPP Addendum, and approves the final QAPP Addendum.
Sean Smith RTT Unit HWTR Phone: 360-407-7609	Unit Supervisor for RTT Staff	Reviews the study scope, schedules assistant's time, reviews the draft QAPP Addendum, and approves the final QAPP Addendum.
Alan Rue Manchester Environmental Laboratory Phone: 360-871-8801	Acting Director	Reviews and approves the final QAPP Addendum.
Tom Gries Phone: 360-407-6964	Acting Ecology Quality Assurance Officer	Reviews draft QAPP Addendum and approves the final QAPP Addendum.

CSPA: Children's Safe Products Act; EAP: Environmental Assessment Program; PTDB: Product Testing Database; RTT: Reducing Toxics Threats; SCS: Statewide Coordination Section; TS: Toxic Studies

5.4 Study schedule

Table A-2. Schedule for completing product collection and laboratory work, data reviews, data entry into Product Testing Database (PTDB), and final Technical Memo.

Product Collection and Processing	Due Date	Lead Staff
Product purchase complete	8/17/2018	Chrissy Wiseman
Product logging complete	8/24/2018	Chrissy Wiseman
Product screening complete	9/07/2018	Chrissy Wiseman
Internal login data QA complete	10/15/2018	Chrissy Wiseman
Sample to Lab and Lab Analyses		
Samples sent to lab in batches	9/7–9/21/2018	
All laboratory analyses complete	10/24/2018	
Data		
Lab data QA reviewed	11/07/2018	Sara Sekerak
Lab data loaded into PTDB	11/07/2018	Sara Sekerak
PTDB data QA review complete	11/09/2018	Sara Sekerak
Data Transfer to Client		
Preliminary Data Transfer to Client	11/09/2018	Sara Sekerak
Final Technical Memo		
Author lead	Sara Sekerak	
Draft due to supervisor/peer reviewer	1/1/2019	
Draft due to publications coordinator	1/20/2019	
Technical Memo due to AGO	2/10/2019	

QA: Quality Assurance; PTDB: Product Testing Database

5.6 Budget and funding

The estimated study budget is displayed in Table 3. Funding for this study is provided by the AGO.

Table A-3. Study budget.

	No. Purchased	QC Samples	\$ per Sample	Subtotal
Products	200	—	\$10.00	\$2,000
Lab Analysis	No. of Samples	QC Samples*		
Metals (lead, cadmium)	76	12	\$90.00	\$7,920
Study Total:				\$9,920**

*Quality Control (QC) samples in this table are those not provided free of charge (matrix spike, matrix spike duplicate, duplicate)

Estimate based up to 200 purchased products and 76 samples + QC.

* Not to exceed \$10,000

6.0 Quality Objectives

All laboratory measurement quality objectives (MQOs) are as established in the original QAPP (Stone, 2012) and are restated below (Table 4).

Table A-4. Laboratory Measurement Quality Objectives.

Analyte	Bias		Precision		Sensitivity
	LCS (% recov.)	Matrix Spikes (% recov.)	Lab Duplicates (RPD)	Matrix Spike Duplicates (RPD)	Lowest Concentration of Interest (ppm)*
Metals (lead, cadmium)	85–115%	75–125%	≤20%	≤20%	1.0

LCS: Laboratory control sample

RPD: Relative percent difference.

Ppm: parts per million.

*Cited as “Method Blanks” in original QAPP.

7.0 Study Design

Product selection

Online purchases

- Approximately 110 children's school supply products will be purchased from online sources.
- Priority targets for purchase include any school supply product that was found to contain lead or cadmium¹⁴ in the previous study.

Retail store purchases

- Approximately 90 children's school supplies will be purchased from retail stores visited in the 2017 study. Collection of products from retail stores is planned to occur in the weeks immediately following the July 4th holiday when retail stores increase types of merchandise geared toward the upcoming school year. For chain-type stores the location of the store does not need to be consistent with those visited in the 2017 study.
- Priority targets for purchase include any school supply products where lead or cadmium¹⁴ were previously detected.
- Other school supplies products not investigated previously may be included after a reasonable effort has been made to collect the priority targets. Additional school supply products will be minimal and will not exceed 20% of the total store purchased products.

In all cases, product selection of children's school supplies will remain consistent with the strategy used in 2017. Products will be considered for purchase when they are brightly colored, decorated or embellished with features that might appeal to a child (age 12 years or younger), contain childish themes, or are sized more appropriately for use by a child.

Product screening

Products will be screened for lead and cadmium using a portable X-Ray Fluorescence (XRF) analyzer.

XRF screening will follow the PT Program SOP:

- PTP003 Standard Operating Procedure for the Operation of the Thermo Fisher Scientific Niton XL3t 700 X-Ray Fluorescence Analyzer (Sekerak, 2018).

In March 2018 the PTP003 SOP was updated to broaden the scope to allow for titanium screening and to add a titanium check standard. Minor edits to format and spelling were also made during this update. None of the 2018 updates adversely affect the method process, or the ability to generate screening results for lead and cadmium comparable to those obtained previously.

XRF results will be used to prioritize specific component samples (e.g., metal zipper, fabric case

¹⁴ Detections above the Children's Safe Products Act limits of 90 ppm for lead and 40 ppm for cadmium are used to characterize a product as a priority target product.

material) to be sent for laboratory analysis. Multiple component samples, representing different components from one product, may be submitted to the laboratory for testing.

Component samples will be prioritized based on XRF-confirmed lead or cadmium over component samples with no detected levels of lead and cadmium.

8.0 Field Procedures

8.2 Measurement and sampling procedures

Product collection and processing will follow the Product Testing Program SOP:

- PTP001 Sample Collection and Processing, Version 2.0 (Wiseman, 2018a)

This version of the SOP identifies the new processing and primary sample storage room (OL-21), defines a few more commonly used terms, makes minor changes to the SOP format, and condenses relevant sections of Ecology's Chemical Safety and Hygiene Manual (Appendix G). These differences from the original (SOP PTP001 version 1.0) do not substantively alter product or sample processing and consequently do not affect data quality (e.g., comparability).

The 2017 study samples were processed in OL-21 after a cleaning and wipe test determined the space was free from the study target contaminants. All future sample processing will occur in OL-21.

8.8 Other activities

Web screen captures and web screen recordings will be collected during online purchasing. This strategy is consistent with previous documentation during the 2017 study.

9.0 Laboratory Procedures

The procedures described below are consistent with those used in the 2017 study.

Samples for this study will be prepared by the U.S. Environmental Protection Agency (EPA) method EPA 3052, less the addition of hydrofluoric acid. Analysis of lead and cadmium will be performed in accordance with EPA 6020B. This method will be in place of EPA 6020A, which was used in the original study.

In 2015 guidance was developed by the EPA for SW-846 analytical methods replacing the MDL methodology with a Lower Limit of Quantitation (LLOQ) methodology. The LLOQ is defined as the lowest point of quantitation and is in most cases the lowest concentration on the calibration curve. In early 2017, Manchester Environmental Laboratory (MEL) implemented this guidance and adopted the latest version of EPA method 6020: EPA 6020B, for the analysis of metals. The lowest concentration of interest (reporting limit; 1 ppm) for this study will not be adversely affected by this change in methodology.

10.0 Quality Control Procedures

10.1 Laboratory quality control

Table 5 displays the types, numbers, and frequency of quality control. This table is consistent with the 2017 study.

Table A-5. Quality control.

Analyte	Method Blank	Laboratory Duplicate	Laboratory Control Sample	Matrix Spike	Matrix Spike Duplicate
Metals (lead, cadmium)	1/batch	1/batch	1/batch	1/batch	1/batch

Batch = 19 product samples¹⁵

11.0 Management Procedures

11.1 Data recording and reporting requirements

Product login will follow the PT SOP:

- PTP002 Data Entry and Database Use, Version 2.0 (Wiseman, 2018b)

The 2018 version includes formatting edits and minimal administrative updates that will not adversely affect the consistency of data collected between the 2017 study (using the 2016 PTP002 SOP) and the 2018 study.

12.0 Audits and Reports

12.4 Responsibility for reports

At the earliest point possible after completion of the laboratory data review and the QA review of the PTDB data, the project manager will compile and send an initial preliminary data set, in CSV format, to the client.

A Technical Memo discussing the methods, data quality, and usability of the data will accompany the final data set transferred to the AGO. The data set will include spreadsheets of data, photos of products, screen captures, and screen-recording videos.

¹⁵ Batch sizes will be reduced to 19 client product samples to adjust for microwave prep method size limitations.

15.0 References

- Sekerak, S. 2017. School Supplies 2017, Addendum 2 to Quality Assurance Project Plan: Phthalates and Metals in Children’s Products. Publication 17-03-114. Washington State Department of Ecology, Olympia.
- Sekerak, S., 2018. Standard Operating Procedures for the Operation of the Thermo Fisher Scientific Niton XL3t 700 X-Ray Fluorescence Analyzer (XRF), Version 1.1. Internal Document No. PTP003. Washington State Department of Ecology, Olympia, WA.
- Stone, A. 2012. Quality Assurance Project Plan: Phthalates and Metals in Children’s Products. Publication No. 12-07-023. Washington State Department of Ecology, Olympia.
- Stone, A. 2014. Addendum #1 to Quality Assurance Project Plan: Phthalates and Metals in Children’s Products. Publication No. 12-07-023a. Washington State Department of Ecology, Olympia.
- Trumbull, K., A. Stone, K. Steward, and N. Winters. 2017. Children’s Seasonal Products Report 2014–2015. Publication No. 16-04-029. Washington State Department of Ecology, Olympia.
- Wiseman, C. 2018a. Standard Operating Procedure for Consumer Product Sample Collection and Processing, Version 2.0. Document No. PTP001. Publication 18-04-018. Washington State Department of Ecology, Olympia.
- Wiseman, C., 2018b. Standard Operating Procedures for Product Testing Data Entry and Database Use, Version 2.0. Internal Document No. PTP002. Washington State Department of Ecology, Olympia, WA.

Appendix B. Data Summaries

Table B-1. Summary of items purchased, including locations, dates, costs, and quantity.

Retail name (purchase event ID)	Physical address or web address	Purchase date	Total cost of purchase	Number of purchased products	Number of products tested*
Amazon (AM-24)	Amazon.com	8/3/2018	\$258.16	18	18
Amazon (AM-25)	Amazon.com	8/6/2018	\$173.26	10	8
Dollar Tree (DT-22)	606 Sleater Kinney Rd SE, Lacey, WA	8/7/2018	\$9.86	10	3
Fred Meyer (FM-33)	700 Sleater Kinney Rd SE, Lacey, WA	8/7/2018	\$43.80	6	1
Office Depot (OD-5)	602 Sleater Kinney Rd SE, Lacey, WA	8/7/2018	\$147.76	16	1
Shopko (SK-16)	5500 Martin Way E, Lacey, WA	8/7/2018	\$29.42	3	0
Target (TG-40)	665 Sleater Kinney Rd. SE, Lacey, WA	8/7/2018	\$84.95	9	0
Walmart (WM-38)	1401 Galaxy Drive NE, Lacey, WA	8/7/2018	\$107.47	15	0
Amazon (AM-26)	Amazon.com	8/8/2018	\$137.95	7	4
Amazon (AM-27)	Amazon.com	8/9/2018	\$167.48	13	4
Amazon (AM-28)	Amazon.com	8/13/2018	\$122.25	7	7
Dollar Tree (DT-23)	5203 Capital Blvd SW, Tumwater, WA	8/31/2018	\$4.41	4	1
Amazon combined — Subtotal			\$859.10	55	41
Other retailers — Subtotal			\$427.67	63	6
Totals			\$1286.77	118	47

* Does not delineate instances where multiple components or subproducts were tested from one purchased product.

Table B-2. Summary Results for School Supplies Study 2018.

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-24-1-1	Cars Double Zippered Blue Pencil Pouch — Blue Material	Disney/Pixar	4714670023905	The Deal Agency, Amazon, Disney/Pixar	6530	5.17	Attached tag with UPC; Code above UPC: BVC-24A-20; ASIN: B00IQY9MC4
AM-24-1-5	Cars Double Zippered Blue Pencil Pouch — Zipper	Disney/Pixar	4714670023905	The Deal Agency, Amazon, Disney/Pixar	170	12.7	Attached tag with UPC; Code above UPC: BVC-24A-20; ASIN: B00IQY9MC4
AM-24-2-3	Cars Single Zipper Blue Pencil Pouch — White Seam Tape	Mirage	6940127820102	Kids World of Toys, Amazon, Disney/Pixar	538	137	Attached tag with UPC; code above UPC: C2010; tag states: 'conforms to ASTM D-4236' and 'not for children under 3 years'; Contained packing slip; ASIN: B00IQY9MC4
AM-24-3-3	Cars Single Zipper Black Pencil Pouch — Black Seam Tape	Mirage	6940127820102	FOUR-SEASONS-STORE, Amazon, Disney/Pixar	3930	766	Attached tag with UPC; code above UPC: C2010; tag states: 'conforms to ASTM D-4236' and 'not for children under 3 years'. The 2 purchases from Four-Seasons-Stores did not arrive as purchased, i.e., color, # of zippers and ASIN. Attached packing slip shows different product than arrived. ASINs on packing slip: B005BUISYY and B00IQY9MC4. See record for AM-24-4.

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-24-4-3	Cars Single Zipper Blue Pencil Pouch — White Seam Tape	Mirage	6940127820102	FOUR-SEASONS-STORE, Amazon, Disney/Pixar	507	135	Attached tag with UPC; code above UPC: C2010; tag states: 'conforms to ASTM D-4236' and 'not for children under 3 years'. The 2 purchases from Four-Seasons-Stores did not arrive as purchased, i.e., color, # of zippers and ASIN. Attached packing slip shows different product than arrived. ASINs on packing slip: B005BUI5YY and B00IQY9MC4. See record for AM-24-3.
AM-24-5-1	Cars Double Zippered Black Pencil Pouch — Black Material	Disney/Pixar	4714670023905	Granny's Best Deals, Lisa Pellicano, Amazon, Disney/Pixar	2710	29.0	Purchase made from Granny's Best Deals (657-465-0025), shipping label lists Lisa Pellicano; Ordered blue, received black. Attached tag with UPC; code above UPC: BVC-24A-20; ASIN: B005BUI5YY
AM-24-5-5	Cars Double Zippered Black Pencil Pouch — Zipper Pull	Disney/Pixar	4714670023905	Granny's Best Deals, Lisa Pellicano, Amazon, Disney/Pixar	203	14.1	Purchase made from Granny's Best Deals (657-465-0025), shipping label lists Lisa Pellicano; Ordered blue, received black. Attached tag with UPC; code above UPC: BVC-24A-20; ASIN: B005BUI5YY
AM-24-6-15	Felt Dark Brown Dog Pencil Pouch — Black Plastic from Eye and Nose	YOURNELO	—	YOURNELO, Amazon, huanglifu	3.31	1.00 U	No UPC; came in YOURNELO bag (brand). ASIN: B078TC1TG4

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-24-7-2	Plush Green Frog Pencil Pouch — Frog Eye	YOURNELO	–	YOURNELO, Amazon, huanglifu	8560	1.44 U	No UPC. At time of purchase, was listed as sold and shipped by YOURNELO. (YOURNELO used as brand). Came with two pens zipped inside the case. ASIN: B078TD1G62
AM-24-8-2	Plush Green Frog Pencil Pouch — Frog Eye	Nici	–	rainandbow, Amazon, gaosy / international trade inc, Flexibuy	7930	1.01 U	Sold by listed at time of online purchase: rainandbow; Brand shown at time of purchase: Flexibuy. Attached tag says 'NICI' (NICI used as brand); No UPC; ASIN: B00TCKMQLU
AM-24-9-1	Cars Double Zippered Black Pencil Pouch — Black Material	Disney/Pixar	4714670023905	The Deal Agency, Amazon, Disney/Pixar	2580	26.1	Ordered blue and black arrived. Attached tag with UPC; code above UPC: BVC-24A-20 is printed above barcode; ASIN: B005BUI5YY
AM-24-9-5	Cars Double Zippered Black Pencil Pouch — Zipper	Disney/Pixar	4714670023905	The Deal Agency, Amazon, Disney/Pixar	201	14.0	Ordered blue and black arrived. Attached tag with UPC; code above UPC: BVC-24A-20 is printed above barcode; ASIN: B005BUI5YY
AM-24-10-1	Pink Pencil Pouch with Dots — Pink Outer Material	Inkology	838157004295	Amazon Fulfillment Services, Inkology, Inc, Clique Deals	1.57	1.00 U	UPC on attached product tag: 838157004295; Code on attached tag (below UPC#): F1231186 04302017 (same code also on inner product label); ASIN: B00LU0ZHPC

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-24-11-1	Pink Pencil Pouch with Dots — Pink Outer Material	Inkology	838157004295	Amazon Fulfillment Services, Inkology, Inc	1.50	1.00 U	UPC on attached product tag: 838157004295; Code on attached tag (below UPC#): F1231186 04302017 (same code also on inner product label); Sticker on packaging bag: B00LU0ZHPC; ASIN: B00LU0ZHPC
AM-24-12-1	Pink Pencil Pouch with Hearts — Pink Outer Material	Inkology	838157004295	Your Online Solutions, Amazon Fulfillment Services, Inkology, Inc	1.28	1.00 U	Two stickers on packaging bag: B00LU0ZHPC, spRkBBT6g7H; Sticker on attached product tag: B00LU0ZHPC(Sticker covered UPC); Code below UPC#: F1231186 04302017 (same code also on inner product label); ASIN: B00LU0ZHPC
AM-24-13-1	Pink Pencil Pouch with Hearts — Pink Outer Material	Inkology	—	Amazon Fulfillment Services, Inkology, Inc	1.26	1.00 U	Sticker on packaging bag: B00LU0ZHPC; No tag attached to product and no UPC. Code on inside product label: (F12311869 04302017); ASIN: B00LU0ZHPC
AM-24-14-1	Deep Blue Shark Pencil Pouch with Combination Lock — Blue Material	Moon Love	—	Bao Core, Amazon Fulfillment Services	2620	5.94	Label attached to packaging: PEN-HLD-000050, X001E3YRTX; ASIN: B06XTGL513
AM-24-14-11	Deep Blue Shark Pencil Pouch with Combination Lock — Red Mouth Material	Moon Love	—	Bao Core, Amazon Fulfillment Services	55.9	91.6	Label attached to packaging: PEN-HLD-000050, X001E3YRTX; ASIN: B06XTGL513
AM-24-14-16	Deep Blue Shark Pencil Pouch with Combination Lock — Zipper Composite	Moon Love	—	Bao Core, Amazon Fulfillment Services	2030	42.0	Label attached to packaging: PEN-HLD-000050, X001E3YRTX; ASIN: B06XTGL513

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-24-15-1	Black Shark Pencil Pouch with Combination Lock— Black Material	Moon Love	–	Bao Core, Amazon Fulfillment Services	2190	12.7	Label attached to packaging: PEN-HLD-00051, X001EDSZZZ. ASIN: B06XTJCVR2
AM-24-15-11	Black Shark Pencil Pouch with Combination Lock— Red Mouth Material	Moon Love	–	Bao Core, Amazon Fulfillment Services	52.5	87.4	Label attached to packaging: PEN-HLD-00051, X001EDSZZZ. ASIN: B06XTJCVR2
AM-24-15-8	Black Shark Pencil Pouch with Combination Lock— Zipper Composite	Moon Love	–	Bao Core, Amazon Fulfillment Services	744	4.71	Label attached to packaging: PEN-HLD-00051, X001EDSZZZ. ASIN: B06XTJCVR2
AM-24-16-1	Black Shark Pencil Pouch with Combination Lock— Black Material	Moon Love	–	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	2540	5.26	Label attached to packaging: A30-03-022, PEN-HLD-000051; ASIN: B06XYK5DBL
AM-24-16-5	Black Shark Pencil Pouch with Combination Lock— Zipper Composite	Moon Love	–	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	725	5.16	Label attached to packaging: A30-03-022, PEN-HLD-000051; ASIN: B06XYK5DBL
AM-24-16-11	Black Shark Pencil Pouch with Combination Lock— Red Mouth Material	Moon Love	–	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	56.3	88.8	Label attached to packaging: A30-03-022, PEN-HLD-000051; ASIN: B06XYK5DBL

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-24-17-1	Deep Blue Shark Pencil Pouch with Combination Lock — Deep Blue Material	Moon Love	—	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	1770	30.1	ASIN: B06XY6XMSD
AM-24-17-5	Deep Blue Shark Pencil Pouch with Combination Lock — Zipper Composite	Moon Love	—	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	852	8.61	ASIN: B06XY6XMSD
AM-24-17-11	Deep Blue Shark Pencil Pouch with Combination Lock — Red Mouth Material	Moon Love	—	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	453	157	ASIN: B06XY6XMSD
AM-24-18-3	Sneaker Pencil Pouch 12 Pack — Glitter Blue Sneaker Zipper Pulls (Pull Composite from 2 Pouches)	Inkology	838157004424	Amazon Fulfillment Services, Inkology, Inc	534	27.4	Assorted sneaker pencil pouches, includes 2 each of: Glitter Pink, Glitter Blue, Skulls, Butterfly, Green, and Orange pencil pouches; All UPCs identical; ASIN: B014STYRXE
AM-24-18-9	Sneaker Pencil Pouch 12 Pack — Green Sneaker Zipper Pulls (Pull Composite from 2 Pouches)	Inkology	838157004424	Amazon Fulfillment Services, Inkology, Inc	616	22.2	Assorted sneaker pencil pouches, includes 2 each of: Glitter Pink, Glitter Blue, Skulls, Butterfly, Green, and Orange pencil pouches; All UPCs identical; ASIN: B014STYRXE
AM-25-1-9	Monster High Girls Pencil Pouch — Seam Tape	Mirage	4714670059058	Amazon, Shinn Jee Enterprise Co., Ltd., koola inc, Shipping Department	3660	1150	Attached label with UPC; code under UPC: BVMH-8H-41; ASIN: B07FWMFNMN

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-25-2-1	Round Pink Pencil Pouch with Hearts — Pink Material	Inkology	838157004288	Amazon Fulfillment Services, Inkology, Inc	2940	20.6	Attached tag with UPC; code below UPC (F11281994 042015); ASIN: B014SYTNE2
AM-25-2-3	Round Pink Pencil Pouch with Hearts — Zipper	Inkology	838157004288	Amazon Fulfillment Services, Inkology, Inc	377	10.8	Attached tag with UPC; code below UPC (F11281994 042015); ASIN: B014SYTNE2
AM-25-3-15	Multicolored Dual-Pattern 3-Ring Pencil Pouch 4-Pack — Green Pouch — Green Material	Boonafit	—	Authentic Gemstones, Amazon Fulfillment Services	695	103	Label attached to packaging: B01M72DI6S. ASIN: B01M72DI6S
AM-25-3-20	Multicolored Dual-Pattern 3-Ring Pencil Pouch 4-Pack — Green Pouch — Lower Zipper	Boonafit	—	Authentic Gemstones, Amazon Fulfillment Services	572	134	Label attached to packaging: B01M72DI6S. ASIN: B01M72DI6S
AM-25-4-8	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack — Gray Pouch — Lower Front Zipper	Boonafit	—	Authentic Gemstones, Amazon Fulfillment Services	1070	1.00 U	5-pack contained: 1 blue, 1 gray, 1 red, 1 green and 1 purple; Label attached to packaging: X001E18RG7; ASIN: B071DRW9W2
AM-25-4-22	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack — Green Pouch — Green Material	Boonafit	—	Authentic Gemstones, Amazon Fulfillment Services	1010	79.4	5-pack contained: 1 blue, 1 gray, 1 red, 1 green and 1 purple; Label attached to packaging: X001E18RG7; ASIN: B071DRW9W2

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-25-4-27	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack — Purple Pouch — Purple Material	Boonafit	—	Authentic Gemstones, Amazon Fulfillment Services	186	291	5-pack contained: 1 blue, 1 gray, 1 red, 1 green and 1 purple; Label attached to packaging: X001EI8RG7; ASIN: B071DRW9W2
AM-25-5-6	Black Tiger Pencil Case— Black Seam Tape	SOOCUTE	—	Miss Guo, Amazon Fulfillment Services	150	2.43 U	Label attached to packaging: X001BECUZN; ASIN: B01N9S4DIA
AM-25-7-3	Green Baseball Dinosaur Pencil Case — Zipper Pull	SOOCUTE	—	Miss Guo, Amazon Fulfillment Services	40.2	1.00 U	Label attached to packaging: X001SV15RX; ASIN: B07DKF72PQ
AM-25-8-9	Cute Cat Pencil Pouch Set of 2 — Zipper Composite	Funny Live	—	Funny Live, Amazon Fulfillment Services	380	2.05	2-pack set; similar cat design on both pouches—one with blue eyes and one with green eyes; both pouch zippers (pull + sliders) composited; Label attached to packaging: X001J9XZR7; ASIN: B073NDT2BG
AM-25-10-7	Trolls Family Backpack with Pencil Case — Pencil Case — White Seam Tape	Dreamworks	—	Kids World of Toys, Amazon, Pustaka Sri Dunia Sdn. Bhd., DreamWorks Animation LLC	401	79.8	Product contained: 1 backpack, 1 pencil pouch, 1 lunch box with drink bottle; backpack attached tag with UPC: 4714127515120, code 13A-TRO; pencil pouch attached tag with UPC:4714127515076, code 9A-TRO; lunch bag attached tag with UPC: 4714127515106, and code 8A-TRO; licensed by Pustaka Sri Dunia Sdn. Bhd. marketing@psdsb.com; ASIN: B01MQTAERQ

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-25-10-17	Trolls Family Backpack with Pencil Case — Lunch Bag — Seam Tape	Dreamworks	—	Kids World of Toys, Amazon, Pustaka Sri Dunia Sdn. Bhd., DreamWorks Animation LLC	400	82.0	Product contained: 1 backpack, 1 pencil pouch, 1 lunch box with drink bottle; backpack attached tag with UPC: 4714127515120, code 13A-TRO; pencil pouch attached tag with UPC:4714127515076, code 9A-TRO; lunch bag attached tag with UPC: 4714127515106, and code 8A-TRO; licensed by Pustaka Sri Dunia Sdn. Bhd. marketing@psdsb.com; ASIN: B01MQTAERQ
AM-25-10-33	Trolls Family Backpack with Pencil Case — Backpack — White Seam Tape	Dreamworks	—	Kids World of Toys, Amazon, Pustaka Sri Dunia Sdn. Bhd., DreamWorks Animation LLC	547	106	Product contained: 1 backpack, 1 pencil pouch, 1 lunch box with drink bottle; backpack attached tag with UPC: 4714127515120, code 13A-TRO; pencil pouch attached tag with UPC:4714127515076, code 9A-TRO; lunch bag attached tag with UPC: 4714127515106, and code 8A-TRO; licensed by Pustaka Sri Dunia Sdn. Bhd. marketing@psdsb.com; ASIN: B01MQTAERQ
AM-26-1-2	Red Spiderman Single Zipper Pencil Pouch — Red Material	Mirage	6940127822663	Kids World of Toys, Amazon	3020	44.4	Attached tag with UPC; code above UPC: 9A-SPR; tag states: 'conforms to ASTM D-4236' and 'not for children under 3 years'; packing slip included; ASIN: B01AYNMFPU

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-26-1-6	Red Spiderman Single Zipper Pencil Pouch — White Seam Tape	Mirage	6940127822663	Kids World of Toys, Amazon	425	80.0	Attached tag with UPC; code above UPC: 9A-SPR; tag states: 'conforms to ASTM D-4236' and 'not for children under 3 years'; packing slip included; ASIN: B01AYNMFPU
AM-26-2-7	Trolls Family Pencil Case Set of 2 — Dark Pink Case — White Seam Tape	Dreamworks	4714127515076	Kids World of Toys, Amazon, DreamWorks Animation LLC, Pustaka Sri Dunia Sdn. Bhd.	316	65.8	2-pack (individually packaged): 1 dark pink case with green piping and 1 light pink case with purple piping; tags with UPCs attached to both cases; SAME UPCs; same code above UPCs: licensed rights: Pustaka Sri Dunia Sdn. Bhd.; same inside labels; ASIN: B01MUE7FA5
AM-26-2-14	Trolls Family Pencil Case Set of 2 — Light Pink Case — White Seam Tape	Dreamworks	4714127515076	Kids World of Toys, Amazon, DreamWorks Animation LLC, Pustaka Sri Dunia Sdn. Bhd.	396	80.4	2-pack (individually packaged): 1 dark pink case with green piping and 1 light pink case with purple piping; tags with UPCs attached to both cases; SAME UPCs; same code above UPCs: licensed rights: Pustaka Sri Dunia Sdn. Bhd.; same inside labels; ASIN: B01MUE7FA5
AM-26-3-7	Trolls Family Backpack with Pencil Case — Pencil Case — White Seam Tape	Dreamworks	4714127515120	Granny's Best Deals, Lisa Pellicano, Amazon, DreamWorks Animation LLC, Pustaka Sri Dunia Sdn. Bhd.	537	137	Product contained: 1 backpack, 1 pencil case, 1 lunch box with drink bottle; backpack attached tag with UPC: 4714127515120; Lunch Bag attached tag with UPC: 4714127515106; Pencil case attached tag with UPC: 4714127515076. Ordered from Granny's Best Deals, shipped by Lisa Pellicano; ASIN: B01MQTAERQ

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-26-3-17	Trolls Family Backpack with Pencil Case — Lunch Bag — Seam Tape	Dreamworks	4714127515120	Granny's Best Deals, Lisa Pellicano, Amazon, DreamWorks Animation LLC, Pustaka Sri Dunia Sdn. Bhd.	553	107	Product contained: 1 backpack, 1 pencil case, 1 lunch box with drink bottle; backpack attached tag with UPC: 4714127515120; Lunch Bag attached tag with UPC: 4714127515106; Pencil case attached tag with UPC: 4714127515076. Ordered from Granny's Best Deals, shipped by Lisa Pellicano; ASIN: B01MQTAERQ
AM-26-3-33	Trolls Family Backpack with Pencil Case — Backpack — White Seam Tape	Dreamworks	4714127515120	Granny's Best Deals, Lisa Pellicano, Amazon, DreamWorks Animation LLC, Pustaka Sri Dunia Sdn. Bhd.	394	82.0	Product contained: 1 backpack, 1 pencil case, 1 lunch box with drink bottle; backpack attached tag with UPC: 4714127515120; Lunch Bag attached tag with UPC: 4714127515106; Pencil case attached tag with UPC: 4714127515076. Ordered from Granny's Best Deals, shipped by Lisa Pellicano; ASIN: B01MQTAERQ
AM-26-5-7	Trolls Family Pencil Case Set of 2 — Dark Pink Case — White Seam Tape	Dreamworks	4714127515076	5StarsService, Amazon, Pustaka Sri Dunia Sdn. Bhd., DreamWorks Animation LLC	371	74.6	Attached tag with UPC on both cases (Same UPC); code on tag: 9A-TRO, Licensee- Pustaka Sri Dunia Sdn. Bhd, marketing@psdsb.com; ASIN: B01MUE7FA5
AM-26-5-14	Trolls Family Pencil Case Set of 2 — Light Pink Case — White Seam Tape	Dreamworks	4714127515076	5StarsService, Amazon, Pustaka Sri Dunia Sdn. Bhd., DreamWorks Animation LLC	382	78.1	Attached tag with UPC on both cases (Same UPC); code on tag: 9A-TRO, Licensee- Pustaka Sri Dunia Sdn. Bhd, marketing@psdsb.com; ASIN: B01MUE7FA5

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-27-1-11	Shopkins SPK Party Pencil Case — Orange Piping	Shopkins	844331097427	Moose Toys Pty Ltd, Innovative Designs LLC, 4leafclover, Amazon	118	2.36 U	Attached tag with UPC; code above UPC: 9742SD; code below UPC: Innovative Designs F01403/17L9742; Front of tag: 'FOR AGES 5+'; Licensee: Moose Enterprise(INT)PTY LTD 2013; separated attached tag: 'Warning: CHOKING HAZARD- Small parts Not for children under 3 years'; ASIN: B01IP2EV4U
AM-27-2-2	Cute Panda Pencil Case — Black Pouch Material	—	—	Gbell, Miss Tang, Amazon	1010	129	Label attached to packaging: MLC70727356 [A03A10-12-01] 18080613014425025; phone number on return label: 13928473360. ASIN: B07D7TZL5N
AM-27-2-9	Cute Panda Pencil Case — Front Zipper	—	—	Gbell, Miss Tang, Amazon	289	3.67	Label attached to packaging: MLC70727356 [A03A10-12-01] 18080613014425025; phone number on return label: 13928473360. ASIN: B07D7TZL5N
AM-27-3-4	Strawberry Scented Pencil Pouch — Red/Yellow Plastic Strawberry	Office Depot	735854057466	Swinton Ave Trading Limited Inc., Turbods3, Darsie Strome, Amazon	80.0	6.94 U	Attached tag with UPC; Item 602-294: 17C1021364; ASIN: B076HBC3BF
AM-27-7-4	Strawberry Scented Pencil Pouch — Red/Yellow Plastic Strawberry	Office Depot	735854057466	Swinton Ave Trading Limited Inc., AMREiY, Amazon, US	43.0	6.41 U	Attached tag with UPC; item 602-294. 17C1021364; Shipping label: shipped from 'US'; ASIN: B076HBC3BF

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-28-1-1	Black Shark Backpack — Black Material	Artone	—	Figaro Gift Shop, Amazon Fulfillment Services	885	4.58	Attached label on packaging and attached tag: X001CHXSPZ; ASIN: B06XDFRLQJ
AM-28-1-23	Black Shark Backpack — Metal Zipper Pull	Artone	—	Figaro Gift Shop, Amazon Fulfillment Services	842	57.3	Attached label on packaging and attached tag: X001CHXSPZ; ASIN: B06XDFRLQJ
AM-28-2-1	Shark Pencil Pouch — Black Material	Artone	—	Figaro Gift Shop, Amazon Fulfillment Services	2040	3.98	Label attached to packaging: X001SKRZCX bdsha-bla-1; ASIN B07CYPQ52G
AM-28-2-13	Shark Pencil Pouch — Red Mouth Material	Artone	—	Figaro Gift Shop, Amazon Fulfillment Services	55.1	91.7	Label attached to packaging: X001SKRZCX bdsha-bla-1; ASIN B07CYPQ52G
AM-28-3-1	Gray Shark Pencil Pouch with Combination Lock— Gray Material	Moon Love	—	Dept. CA #42, Amazon, Bao Core	894	32.6	Label attached to packaging: PEN-HLD-000097; ASIN: B07G8ZNC96
AM-28-3-13	Gray Shark Pencil Pouch with Combination Lock— Black Internal Divider	Moon Love	—	Dept. CA #42, Amazon, Bao Core	53.9	89.7	Label attached to packaging: PEN-HLD-000097; ASIN: B07G8ZNC96
AM-28-4-3	Blue Elmo Pencil Pouch— White Seam Tape	Sesame Street	6931190811661	Accessoryzone, Amazon	774	322	Attached tag with UPC: '3+ Years'; Online purchase showed blue picture but described the product as a 'Pink Elmo' case—delivered as blue; ASIN: B00529W02A

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
AM-28-5-1	Deep Blue Shark Pencil Pouch — Blue Material	Artone	—	Amazon Fulfillment Services, Figaro Gift Shop	2580	5.58	Label on packaging: X000VFH005, BDsha-dble; ASIN: B0168LFHNO
AM-28-5-13	Deep Blue Shark Pencil Pouch — Red Mouth Material	Artone	—	Amazon Fulfillment Services, Figaro Gift Shop	60.5	90.6	Label on packaging: X000VFH005, BDsha-dble; ASIN: B0168LFHNO
AM-28-6-1	Black Shark Backpack — Black Material	SAMAZ	—	SAMAZ SUPER, Yihua Wu/US Samaz, Amazon	2780	35.6	No product tags; sender phone:+86-13510186961; ASIN: B01JKTVL3G
AM-28-6-3	Black Shark Backpack — Red Mouth Material	SAMAZ	—	SAMAZ SUPER, Yihua Wu/US Samaz, Amazon	2030	5.00	No product tags; sender phone:+86-13510186961; ASIN: B01JKTVL3G
AM-28-7-1	Barbie 7-Piece Stationary Set — Printed Plastic Material	J&X	6913505888285	GameDay Wear, Amazon	1.00 U	1270	Barbie themed product set contained: 1 pouch, 1 pencil sharpener, 1 eraser, 1 sticker book, 1 ruler, 2 pencils; UPC printed on pouch, code above UPC: J&X - 8828; ASIN: B00J3ASBZY
DT-22-3-1	Green Magic Book Cover — Green Material	Magic Cover	639277133908	Greenbrier International Inc.	4060	1.00 U	Item # DP13-222433-12
DT-22-4-1	Orange Magic Book Cover — Orange Material	Magic Cover	639277133908	Greenbrier International Inc.	1.24	1.00 U	Item # DP13-222433-12
DT-22-9-8	Red Sweets 3-Ring Pencil Pouch — Metal Grommets	jot	639277093721	Greenbrier International Inc.	278	1.00 U	Code below UPC: 219095-10959-001-050518

Component ID	Product Component Description	Brand	UPC Number	Companies Associated (distributors, importers, manuf., etc.)	Lead (mg/kg)	Cadmium (mg/kg)	Product Notes
DT-23-1-1	Green Magic Book Cover — Green Material	Magic Cover	639277133908	Greenbrier International Inc.	3900	1.00 U	Item # DP13-222433-12
FM-33-6-9	Office Works 3-Ring Pencil Pouch — Zipper Composite	Office Works	11110371591	Inter-American Products	1560	2.79	Item # 30019.0W
OD-5-8-2	Glitter Insects 3-Ring Pencil Pouch — Green Fabric	Unison	747219551267	Fibro Source USA Inc.	259	18.0	Item # 55126; code below UPC: 086-1803-14574

Bold = Detections above CSPA limits (90 mg/kg lead, 40 mg/kg cadmium); UPC = Universal Product Code; ASIN = Amazon Standardized Identification Number; U = Analyte was not detected at or above the reported result.

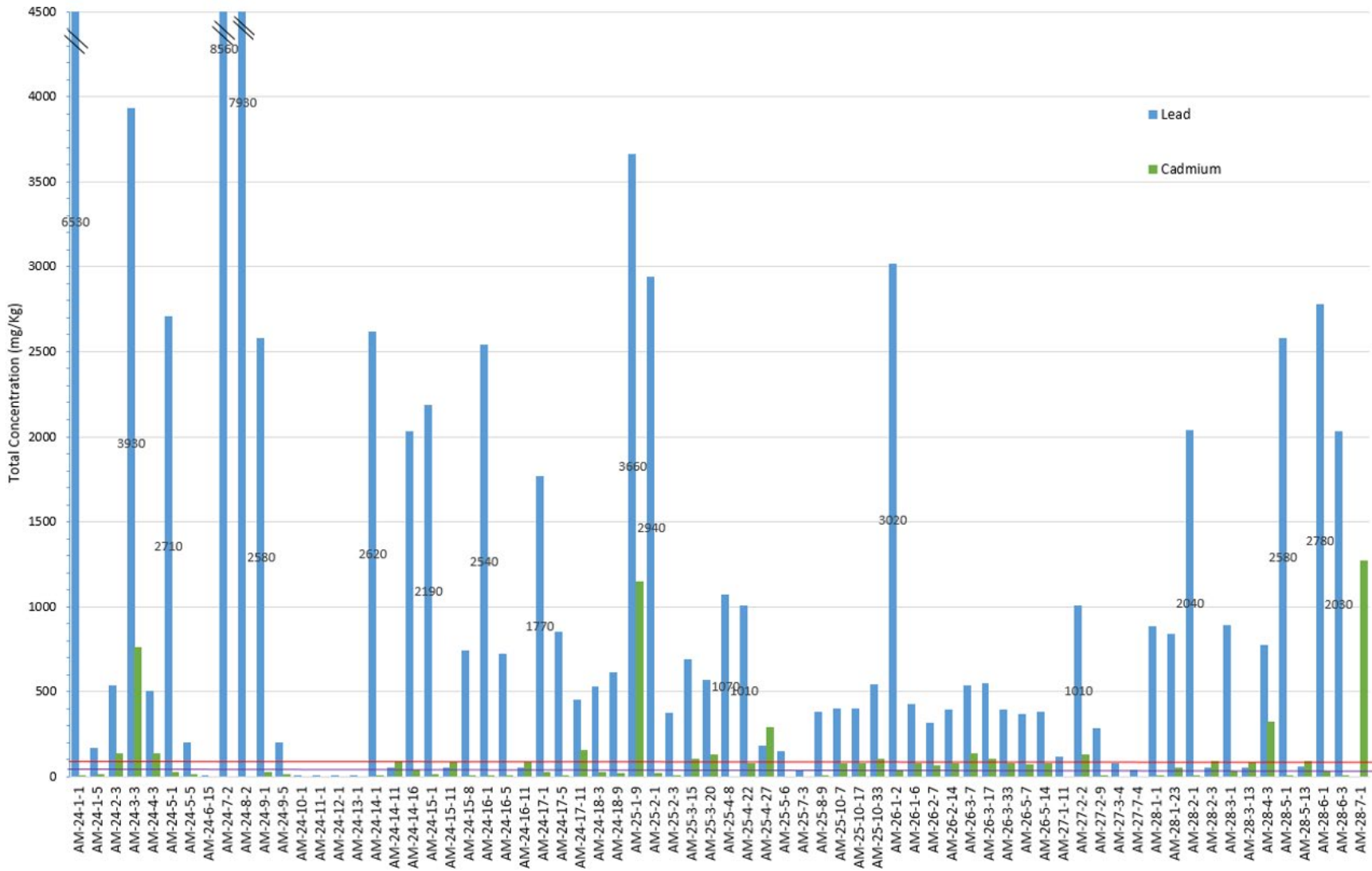


Figure B-1. Summary chart for Amazon products by product component.

\\ = lead concentrations for AM-24-1-1, AM-24-7-2, and AM-24-8-2 exceeded the displayed y-axis upper limit. Red horizontal line = Children’s Safe Products Act (CSPA) lead limit of 90 mg/kg. Purple horizontal line = CSPA cadmium limit of 40 mg/kg.

Table B-3. Summary of selected products with tested subproducts that display similar levels of lead and/or cadmium (subset of data presented in Table B-2).

Product ID	Product Component ID	Product Component Description	Brand	Lead (mg/kg)	Cadmium (mg/kg)
AM-24-18	AM-24-18-3	Sneaker Pencil Pouch 12 Pack — <u>Glitter Blue Sneaker</u> — Zipper Pulls (Pull Composite from 2 Pouches)	Inkology	534	27.4
" "	AM-24-18-9	Sneaker Pencil Pouch 12 Pack — <u>Green Sneaker</u> — Zipper Pulls (Pull Composite from 2 Pouches)	Inkology	616	22.2
AM-25-4	AM-25-4-8	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack — <u>Gray Pouch</u> — Lower Front Zipper	Boonafit	1070	1.00 U
" "	AM-25-4-22	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack — <u>Green Pouch</u> — Green Material	Boonafit	1010	79.4
" "	AM-25-4-27	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack — <u>Purple Pouch</u> — Purple Material	Boonafit	186	291
AM-25-10	AM-25-10-7	Trolls Family Backpack with Pencil Case — <u>Pencil Case</u> — White Seam Tape	Dreamworks	401	79.8
" "	AM-25-10-17	Trolls Family Backpack with Pencil Case — <u>Lunch Bag</u> — Seam Tape	Dreamworks	400	82.0
" "	AM-25-10-33	Trolls Family Backpack with Pencil Case — <u>Backpack</u> — White Seam Tape	Dreamworks	547	106
AM-26-2	AM-26-2-7	Trolls Family Pencil Case Set of 2 — <u>Dark Pink Case</u> — White Seam Tape	Dreamworks	316	65.8
" "	AM-26-2-14	Trolls Family Pencil Case Set of 2 — <u>Light Pink Case</u> — White Seam Tape	Dreamworks	396	80.4
AM-26-3	AM-26-3-7	Trolls Family Backpack with Pencil Case — <u>Pencil Case</u> — White Seam Tape	Dreamworks	537	137
" "	AM-26-3-17	Trolls Family Backpack with Pencil Case — <u>Lunch Bag</u> — Seam Tape	Dreamworks	553	107
" "	AM-26-3-33	Trolls Family Backpack with Pencil Case — <u>Backpack</u> — White Seam Tape	Dreamworks	394	82.0
AM-26-5	AM-26-5-7	Trolls Family Pencil Case Set of 2 — <u>Dark Pink Case</u> — White Seam Tape	Dreamworks	371	74.6
" "	AM-26-5-14	Trolls Family Pencil Case Set of 2 — <u>Light Pink Case</u> — White Seam Tape	Dreamworks	382	78.1

Bold = Detections above CSPA limits (90 mg/kg for lead, 40 mg/kg for cadmium).

U = Analyte was not detected at or above the reported result.

Underline = Identifies specific multipack or set subproduct.

Table B-4. Comparison of 2017 and 2018 results for Cars-themed products (2018 data are a subset of data presented in Table B-2).

Study Name	Purchased From	Brand	Product Component Description	UPC Number & ASIN	Component ID (Lab ID)	Lead (mg/kg)	Cadmium (mg/kg)
School Supplies — 2017	Amazon, Smileworkshop	Mirage	Cars Pencil Pouch 2-Pack — Black Seam Tape	6940127820102	AM-16-7-3 (1711023-26)	3510	736
School Supplies — 2017	Amazon, Smileworkshop	Mirage	Cars Pencil Pouch 2-Pack — White Seam Tape	6940127820102	AM-16-7-13 (1711023-30)	474	137
School Supplies— 2018	Kids World of Toys, Amazon, Disney/Pixar	Mirage	Cars Single Zipper Blue Pencil Pouch — White Seam Tape	6940127820102 ASIN: B00IQY9MC4	AM-24-2-3 (1811050-39)	538	137
School Supplies— 2018	FOUR-SEASONS-STORE, Amazon, Disney/Pixar	Mirage	Cars Single Zipper Black Pencil Pouch— Black Seam Tape	6940127820102*	AM-24-3-3 (1811050-41)	3930	766
School Supplies— 2018	FOUR-SEASONS-STORE, Amazon, Disney/Pixar	Mirage	Cars Single Zipper Blue Pencil Pouch— White Seam Tape	6940127820102*	AM-24-4-3 (1811050-40)	507	135
School Supplies— 2018	The Deal Agency, Amazon, Disney/Pixar	Disney/ Pixar	Cars Double Zippered Blue Pencil Pouch—Blue Material	4714670023905 ASIN: B00IQY9MC4	AM-24-1-1 (1811033-28)	6530	5.17
School Supplies— 2018	The Deal Agency, Amazon, Disney/Pixar	Disney/ Pixar	Cars Double Zippered Blue Pencil Pouch—Zipper	4714670023905 ASIN: B00IQY9MC4	AM-24-1-5 (1810044-74)	170	12.7
School Supplies— 2018	Granny's Best Deals, Lisa Pellicano, Amazon, Disney/Pixar	Disney/ Pixar	Cars Double Zippered Black Pencil Pouch—Black Material	4714670023905 ASIN: B005BUI5YY	AM-24-5-1 (1811050-29)	2710	29.0
School Supplies— 2018	Granny's Best Deals, Lisa Pellicano, Amazon, Disney/Pixar	Disney/ Pixar	Cars Double Zippered Black Pencil Pouch—Zipper Pull	4714670023905 ASIN: B005BUI5YY	AM-24-5-5 (1810044-72)	203	14.1
School Supplies— 2018	The Deal Agency, Amazon, Disney/Pixar	Disney/ Pixar	Cars Double Zippered Black Pencil Pouch—Black Material	4714670023905 ASIN: B005BUI5YY	AM-24-9-1 (1811033-27)	2580	26.1
School Supplies— 2018	The Deal Agency, Amazon, Disney/Pixar	Disney/ Pixar	Cars Double Zippered Black Pencil Pouch—Zipper	4714670023905 ASIN: B005BUI5YY	AM-24-9-5 (1810044-73)	201	14.0

* Product(s) ordered and packing slip showed an ASIN discrepancy. ASINs were not assigned. The two ASINs on the packing slip were: B005BUI5YY and B00IQY9MC4.

ASIN = Amazon Standardized Identification Number.

Bold = Detections above CSPA limits (90 mg/Kg lead, 40 mg/Kg cadmium).

UPC = Universal Product Code.

Table B-5. Comparison of 2017 and 2018 results for Amazon-purchased Inkology products (2018 data are a subset of data presented in Table B-2).

Study Name	Purchased From	Brand	Product Component Description	UPC Number & ASIN	Component ID (Lab ID)	Lead (mg/kg)	Cadmium (mg/kg)
School Supplies—2017	Amazon	Inkology	Pink Pencil Pouch with Hearts—Pink Material	838157004295	AM-17-8-1 (1711023-40)	1.24	1.00 U
School Supplies—2017	Amazon	Inkology	Pink Pencil Pouch with Hearts—Zipper Pull (plus slider)	838157004295	AM-17-8-3 (1711023-16)	30.8	20.6
School Supplies—2018	Amazon Fulfillment Services, Inkology Inc.	Inkology	Pink Pencil Pouch with Dots—Pink Outer Material	838157004295 ASIN: B00LU0ZHPC	AM-24-10-1 (1811033-03)	1.57	1.00 U
School Supplies—2018	Amazon Fulfillment Services, Inkology Inc.	Inkology	Pink Pencil Pouch with Dots—Pink Outer Material	838157004295 ASIN: B00LU0ZHPC	AM-24-11-1 (1811033-02)	1.50	1.00 U
School Supplies—2018	Your Online Solutions, Amazon Fulfillment Serv.	Inkology	Pink Pencil Pouch with Hearts—Pink Outer Material	838157004295 ASIN: B00LU0ZHPC	AM-24-12-1 (1811033-04)	1.28	1.00 U
School Supplies—2018	Amazon Fulfillment Services, Inkology Inc.	Inkology	Pink Pencil Pouch with Hearts—Pink Outer Material	No UPC ASIN: B00LU0ZHPC	AM-24-13-1 (1811033-05)	1.26	1.00 U
School Supplies—2017	Amazon	Inkology	Round Pink Pencil Pouch with Hearts—Zipper Pull	838157004288	AM-17-7-3 (1711023-03)	1270	12.3
School Supplies—2017	Amazon	Inkology	Round Pink Pencil Pouch with Hearts—Pink Material	838157004288	AM-17-7-1 (1711023-44)	2410	19.4
School Supplies—2018	Amazon Fulfillment Services, Inkology Inc.	Inkology	Round Pink Pencil Pouch with Hearts—Pink Material	838157004288 ASIN: B014SYTNE2	AM-25-2-1 (1811033-01)	2940	20.6
School Supplies—2018	Amazon Fulfillment Services, Inkology Inc.	Inkology	Round Pink Pencil Pouch with Hearts—Zipper	838157004288 ASIN: B014SYTNE2	AM-25-2-3 (1810044-76)	377	10.8
School Supplies—2017	Amazon	Inkology	Glitter Blue Sneaker Pencil Pouch—Zipper Pull	838157004424	AM-18-2-8 (1711023-08)	361 J	20.4
School Supplies—2018	Amazon Fulfillment Services, Inkology Inc.	Inkology	Sneaker Pencil Pouch 12 Pack—Glitter Blue Sneaker Zipper Pulls (Pull Composite from 2 Pouches)	838157004424 ASIN: B014STYRXE	AM-24-18-3 (1810044-65)	534	27.4
School Supplies—2018	Amazon Fulfillment Serv., Inkology Inc.	Inkology	Sneaker Pencil Pouch 12 Pack—Green Sneaker Zipper Pulls (Pull Composite from 2 Pouches)	838157004424 ASIN: B014STYRXE	AM-24-18-9 (1810044-66)	616	22.2

ASIN = Amazon Standardized Identification Number; **Bold** = Detections above CSPA limits (90 mg/kg lead, 40 mg/kg cadmium);

J = Analyte was positively identified. The reported result is an estimate

U = Analyte was not detected at or above the reported result; UPC = Universal Product Code.

Table B-6. Comparison of 2017 and 2018 results for Amazon-purchased shark pencil pouches with Artone and Moon Love branding (2018 data are a subset of data presented in Table B-2).

Study Name	Purchased From	Brand	Product Component Description	UPC Number & ASIN	Component ID (Lab ID)	Lead (mg/kg)	Cadmium (mg/kg)
School Supplies—2017	Amazon, Figaro Gift Shop	Artone	Shark Pencil Pouch—Red Zipper—Pull	–	AM-16-19-8 (1711023-09)	40.2	8.39
School Supplies—2017	Amazon, Figaro Gift Shop	Artone	Shark Pencil Pouch—Black Material	–	AM-16-19-1 (1711023-27)	1190	10.7
School Supplies—2017	Amazon, Figaro Gift Shop	Artone	Shark Pencil Pouch—Red Mouth Material	–	AM-16-19-13 (1711023-31)	393	147
School Supplies—2018	Bao Core, Amazon Fulfillment Services	Moon Love	Deep Blue Shark Pencil Pouch with Combination Lock—Blue Material	ASIN: B06XTGL513	AM-24-14-1 (1811033-12)	2620	5.94
School Supplies—2018	Bao Core, Amazon Fulfillment Services	Moon Love	Deep Blue Shark Pencil Pouch with Combination Lock—Red Mouth Material	ASIN: B06XTGL513	AM-24-14-11 (1811033-19)	55.9	91.6
School Supplies—2018	Bao Core, Amazon Fulfillment Services	Moon Love	Deep Blue Shark Pencil Pouch with Combination Lock—Zipper Composite	ASIN: B06XTGL513	AM-24-14-16 (1810044-68)	2030	42.0
School Supplies—2018	Bao Core, Amazon Fulfillment Services	Moon Love	Black Shark Pencil Pouch with Combination Lock—Black Material	ASIN: B06XTJCVR2	AM-24-15-1 (1811033-13)	2190	12.7
School Supplies—2018	Bao Core, Amazon Fulfillment Services	Moon Love	Black Shark Pencil Pouch with Combination Lock—Zipper Composite	ASIN: B06XTJCVR2	AM-24-15-8 (1810044-69)	744	4.71
School Supplies—2018	Bao Core, Amazon Fulfillment Services	Moon Love	Black Shark Pencil Pouch with Combination Lock—Red Mouth Material	ASIN: B06XTJCVR2	AM-24-15-11 (1811033-20)	52.5	87.4
School Supplies—2018	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	Moon Love	Black Shark Pencil Pouch with Combination Lock—Black Material	ASIN: B06XYK5DBL	AM-24-16-1 (1811033-14)	2540	5.26
School Supplies—2018	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	Moon Love	Black Shark Pencil Pouch with Combination Lock—Zipper Composite	ASIN: B06XYK5DBL	AM-24-16-5 (1810044-70)	725	5.16
School Supplies—2018	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	Moon Love	Black Shark Pencil Pouch with Combination Lock—Red Mouth Material	ASIN: B06XYK5DBL	AM-24-16-11 (1811033-21)	56.3	88.8

Study Name	Purchased From	Brand	Product Component Description	UPC Number & ASIN	Component ID (Lab ID)	Lead (mg/kg)	Cadmium (mg/kg)
School Supplies—2018	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	Moon Love	Deep Blue Shark Pencil Pouch with Combination Lock—Deep Blue Material	ASIN: B06XY6XMSD	AM-24-17-1 (1811033-15)	1770	30.1
School Supplies—2018	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	Moon Love	Deep Blue Shark Pencil Pouch with Combination Lock—Zipper Composite	ASIN: B06XY6XMSD	AM-24-17-5 (1810044-71)	852	8.61
School Supplies—2018	Starsource, Amazon, SF Express c/o Worldnet Shipping USA Inc.	Moon Love	Deep Blue Shark Pencil Pouch with Combination Lock—Red Mouth Material	ASIN: B06XY6XMSD	AM-24-17-11 (1811033-22)	453	157
School Supplies—2018	Figaro Gift Shop, Amazon Fulfillment Services	Artone	Shark Pencil Pouch—Black Material	ASIN: B07CYPQ52G	AM-28-2-1 (1811033-09)	2040	3.98
School Supplies—2018	Figaro Gift Shop, Amazon Fulfillment Services	Artone	Shark Pencil Pouch – Red Mouth Material	ASIN: B07CYPQ52G	AM-28-2-13 (1811033-16)	55.1	91.7
School Supplies—2018	Dept. CA #42, Amazon, Bao Core	Moon Love	Gray Shark Pencil Pouch with Combination Lock—Gray Material	ASIN: B07G8ZNC96	AM-28-3-1 (1811033-11)	894	32.6
School Supplies—2018	Dept. CA #42, Amazon, Bao Core	Moon Love	Gray Shark Pencil Pouch with Combination Lock—Black Internal Divider	ASIN: B07G8ZNC96	AM-28-3-13 (1811033-18)	53.9	89.7
School Supplies—2018	Amazon Fulfillment Services, Figaro Gift Shop	Artone	Deep Blue Shark Pencil Pouch—Blue Material	ASIN: B0168LFHNO	AM-28-5-1 (1811033-10)	2580	5.58
School Supplies—2018	Amazon Fulfillment Services, Figaro Gift Shop	Artone	Deep Blue Shark Pencil Pouch—Red Mouth Material	ASIN: B0168LFHNO	AM-28-5-13 (1811033-17)	60.5	90.6

ASIN = Amazon Standardized Identification Number. **Bold** = Detections above CSPA limits (90 mg/kg for lead, 40 mg/kg for cadmium). UPC = Universal Product Code.

Appendix C. Case Narratives from Manchester Environmental Laboratory

This appendix contains untagged content that isn't compatible with screen readers and may have other barriers to accessibility.

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Manchester Environmental Laboratory
7411 Beach Drive E, Port Orchard, Washington 98366

Case Narrative - Metals

November 26, 2018

Project: School Supplies 2018

Work Order: 1811033

Project
Manager: Sekerak, Sara

By: Dean Momohara

Summary

The laboratory followed EPA 3052 for the preparation and EPA 6020B for the analysis of metals.

The analysis requested was evaluated by established regulatory quality assurance guidelines.

Sample Information

The samples were received at the Manchester Laboratory on 11/14/2018. The samples were received in good condition. Twenty eight samples were received and assigned laboratory identification numbers 01 to 28.

Holding Times

The laboratory performed the analysis within its hold time.

Calibration

The instrument was calibrated following the appropriate method. All initial and continuing calibration verification checks were within the acceptance limits. All initial and continuing calibration verification and blank checks were within the acceptance limits. All standard residuals were within acceptance limits. The r-value was within acceptance limits. The instrument was calibrated with a NIST traceable standard and verified to be in calibration with a second source NIST traceable standard.

Method Blanks

No analytically significant levels of analyte were detected in the method blanks associated with these samples.

Laboratory Control Samples

All laboratory control sample recoveries were within the acceptance limits.

Replicates

All associated duplicate relative percent differences of samples with concentrations greater than 5 times the reporting limit were within the acceptance limits.

Matrix Spikes

All matrix spike recoveries were within the acceptance limits.

Internal Standards

All internal standard recoveries were within the acceptance limits.

Other Quality Assurance Measures and Issues

U - The analyte was not detected at or above the reported result.

bold - The analyte was present in the sample. (Visual Aid to locate detected compounds on report sheet.)

Please call Dean Momohara at (360) 871-8808 to further discuss this project.

cc: Project File

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Cadmium**

Project Name: School Supplies 2018

Project Officer: Sekerak, Sara Work Order: 1811033 Analyte: Cadmium	Prep Method: SW3052 Prepared: 11/16/18 Batch ID: B18K109	Analysis Method: SW6020B Matrix: Fabric Units: mg/Kg ww
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Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1811033-01	AM-25-2-1	20.6		1.00	0.027	11/14/18	11/21/18
1811033-02	AM-24-11-1	1.00	U	1.00	0.027	11/14/18	11/21/18
1811033-03	AM-24-10-1	1.00	U	1.00	0.026	11/14/18	11/21/18
1811033-04	AM-24-12-1	1.00	U	1.00	0.027	11/14/18	11/21/18
1811033-05	AM-24-13-1	1.00	U	1.00	0.026	11/14/18	11/21/18
1811033-06	AM-26-1-2	44.4		1.00	0.027	11/14/18	11/21/18
1811033-07	AM-25-4-22	79.4		1.00	0.026	11/14/18	11/21/18
1811033-08	AM-25-4-27	291		1.00	0.026	11/14/18	11/21/18
1811033-09	AM-28-2-1	3.98		1.00	0.026	11/14/18	11/21/18
1811033-10	AM-28-5-1	5.58		1.00	0.027	11/14/18	11/21/18
1811033-11	AM-28-3-1	32.6		1.00	0.026	11/14/18	11/21/18
1811033-12	AM-24-14-1	5.94		1.00	0.026	11/14/18	11/21/18
1811033-13	AM-24-15-1	12.7		1.00	0.026	11/14/18	11/21/18
1811033-14	AM-24-16-1	5.26		1.00	0.026	11/14/18	11/21/18
1811033-15	AM-24-17-1	30.1		1.00	0.025	11/14/18	11/21/18
1811033-16	AM-28-2-3 13	91.7		1.17	0.032	11/14/18	11/21/18
1811033-17	AM-28-5-13	90.6		4.46	0.121	11/14/18	11/21/18
1811033-18	AM-28-3-13	89.7		1.00	0.027	11/14/18	11/21/18

QC Results for Batch ID: B18K109

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18K109-BLK1	Blank	1.00	U	1.00	0.027

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec Limits	RPD	RPD Limit
B18K109-BS1	LCS	212	200			106 85-115		
B18K109-BSD1	LCS Dup	214	200			107 85-115	0.9	20
B18K109-DUP1	Duplicate	11.7		1811033-13	12.7		8	20
B18K109-MS1	Matrix Spike	210	200	1811033-10	5.58	102 75-125		
B18K109-MSD1	Matrix Spike Dup	213	194	1811033-10	5.58	107 75-125	1	20

Authorized by: _____

Release Date: 11/20

Page 1 of 4

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Cadmium**

Project Name: School Supplies 2018

Project Officer: Sekerak, Sara
Work Order: 1811033
Analyte: Cadmium

Prep Method: SW3052
Prepared: 11/20/18
Batch ID: B18K110

Analysis Method: SW6020B
Matrix: Fabric
Units: mg/Kg ww

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1811033-19	AM-24-14-11	91.6		1.00	0.027	11/14/18	11/21/18
1811033-20	AM-24-15-11	87.4		1.46	0.039	11/14/18	11/21/18
1811033-21	AM-24-16-11	88.8		1.82	0.049	11/14/18	11/21/18
1811033-22	AM-24-17-11	157		5.21	0.141	11/14/18	11/21/18
1811033-23	AM-25-3-15	103		1.00	0.027	11/14/18	11/21/18
1811033-24	AM-28-6-1	35.6		1.00	0.027	11/14/18	11/21/18
1811033-25	AM-28-1-1	4.58		1.00	0.027	11/14/18	11/21/18
1811033-26	AM-28-6-3	5.00		1.00	0.026	11/14/18	11/21/18
1811033-27	AM-24-9-1	26.1		1.00	0.026	11/14/18	11/21/18
1811033-28	AM-24-1-1	5.17		1.00	0.026	11/14/18	11/21/18

QC Results for Batch ID: B18K110

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18K110-BLK1	Blank	1.00	U	1.00	0.027

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18K110-BS1	LCS	213	200			106	85-115		
B18K110-BSD1	LCS Dup	210	200			105	85-115	2	20
B18K110-DUP1	Duplicate	4.36		1811033-25	4.58			5	20
B18K110-MS1	Matrix Spike	307	195	1811033-23	103	105	75-125		
B18K110-MSD1	Matrix Spike Dup	317	200	1811033-23	103	107	75-125	3	20

Authorized by: Dm

Release Date: 11/20/18

Page 2 of 4

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Lead**

Project Name: School Supplies 2018

Project Officer: Sekerak, Sara	Prep Method: SW3052	Analysis Method: SW6020B
Work Order: 1811033	Prepared: 11/16/18	Matrix: Fabric
Analyte: Lead	Batch ID: B18K109	Units: mg/Kg ww

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1811033-01	AM-25-2-1	2940		1.00	0.051	11/14/18	11/21/18
1811033-02	AM-24-11-1	1.50		1.00	0.050	11/14/18	11/21/18
1811033-03	AM-24-10-1	1.57		1.00	0.050	11/14/18	11/21/18
1811033-04	AM-24-12-1	1.28		1.00	0.050	11/14/18	11/21/18
1811033-05	AM-24-13-1	1.26		1.00	0.049	11/14/18	11/21/18
1811033-06	AM-26-1-2	3020		1.00	0.051	11/14/18	11/21/18
1811033-07	AM-25-4-22	1010		1.00	0.049	11/14/18	11/21/18
1811033-08	AM-25-4-27	186		1.00	0.049	11/14/18	11/21/18
1811033-09	AM-28-2-1	2040		1.00	0.048	11/14/18	11/21/18
1811033-10	AM-28-5-1	2580		1.00	0.051	11/14/18	11/21/18
1811033-11	AM-28-3-1	894		1.00	0.050	11/14/18	11/21/18
1811033-12	AM-24-14-1	2620		1.00	0.050	11/14/18	11/21/18
1811033-13	AM-24-15-1	2190		1.00	0.050	11/14/18	11/21/18
1811033-14	AM-24-16-1	2540		1.00	0.050	11/14/18	11/21/18
1811033-15	AM-24-17-1	1770		1.00	0.048	11/14/18	11/21/18
1811033-16	AM-28-2-3 13	55.1		1.17	0.060	11/14/18	11/21/18
1811033-17	AM-28-5-13	60.5		4.46	0.228	11/14/18	11/21/18
1811033-18	AM-28-3-13 <i>1/22/19 SLS</i>	53.9		1.00	0.051	11/14/18	11/21/18

QC Results for Batch ID: B18K109

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18K109-BLK1	Blank	1.00	U	1.00	0.051

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18K109-BS1	LCS	211	200			105	85-115		
B18K109-BSD1	LCS Dup	217	200			109	85-115	3	20
B18K109-DUP1	Duplicate	2050		1811033-13	2190			7	20
B18K109-MS1	Matrix Spike	2730	200	1811033-10	2580	77	75-125		
B18K109-MSD1	Matrix Spike Dup	2810	194	1811033-10	2580	117	75-125	3	20

Authorized by: DM

Release Date: 11/26

Page 3 of 4

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Lead**

Project Name: School Supplies 2018

Project Officer: Sekerak, Sara	Prep Method: SW3052	Analysis Method: SW6020B
Work Order: 1811033	Prepared: 11/20/18	Matrix: Fabric
Analyte: Lead	Batch ID: B18K110	Units: mg/Kg ww

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1811033-19	AM-24-14-11	55.9		1.00	0.051	11/14/18	11/21/18
1811033-20	AM-24-15-11	52.5		1.46	0.075	11/14/18	11/21/18
1811033-21	AM-24-16-11	56.3		1.82	0.093	11/14/18	11/21/18
1811033-22	AM-24-17-11	453		5.21	0.266	11/14/18	11/21/18
1811033-23	AM-25-3-15	695		1.00	0.051	11/14/18	11/21/18
1811033-24	AM-28-6-1	2780		1.00	0.050	11/14/18	11/21/18
1811033-25	AM-28-1-1	885		1.00	0.051	11/14/18	11/21/18
1811033-26	AM-28-6-3	2030		1.00	0.049	11/14/18	11/21/18
1811033-27	AM-24-9-1	2580		1.00	0.050	11/14/18	11/21/18
1811033-28	AM-24-1-1	6530		9.58	0.489	11/14/18	11/21/18

QC Results for Batch ID: B18K110

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18K110-BLK1	Blank	1.00	U	1.00	0.051

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18K110-BS1	LCS	217	200			108	85-115		
B18K110-BSD1	LCS Dup	216	200			108	85-115	0.3	20
B18K110-DUP1	Duplicate	849		1811033-25	885			4	20
B18K110-MS1	Matrix Spike	905	195	1811033-23	695	108	75-125		
B18K110-MSD1	Matrix Spike Dup	922	200	1811033-23	695	114	75-125	2	20

Authorized by: Dm

Release Date: 11/20/18

Page 4 of 4

Manchester Environmental Laboratory
7411 Beach Drive E, Port Orchard, Washington 98366

Case Narrative - Metals

December 3, 2018

Project: School Supplies Study 2018

Work Order: 1811050

Project
Manager: Sekerak, Sara

By: Dean Momohara

Summary

The laboratory followed EPA 3052 for the preparation and EPA 6020B for the analysis of metals.

The analysis requested was evaluated by established regulatory quality assurance guidelines.

Sample Information

The samples were received at the Manchester Laboratory on 11/28/2018. The samples were received in good condition. Twelve samples were received and assigned laboratory identification numbers 29 to 31, 35 to 41, 61 and 63.

Holding Times

The laboratory performed the analysis within its hold time.

Calibration

The instrument was calibrated following the appropriate method. All initial and continuing calibration verification checks were within the acceptance limits. All initial and continuing calibration verification and blank checks were within the acceptance limits. All standard residuals were within acceptance limits. The r-value was within acceptance limits. The instrument was calibrated with a NIST traceable standard and verified to be in calibration with a second source NIST traceable standard.

Method Blanks

No analytically significant level of analyte was detected in the method blank associated with these samples.

Laboratory Control Samples

The laboratory control sample recovery was within the acceptance limits.

Replicates

The associated duplicate relative percent difference of samples with concentrations greater than 5 times the reporting limit was within the acceptance limits.

Matrix Spikes

The matrix spike recovery was within the acceptance limits.

Internal Standards

All internal standard recoveries were within the acceptance limits.

Other Quality Assurance Measures and Issues

The reporting limits (RL) for samples 31, 35, 36 and 37 for cadmium were elevated. To achieve the required RL, at least 0.25 g is needed for analysis. Samples 35 and 36 had insufficient sample provided, 0.036 g and 0.039 g. Samples 31 and 37 vented during digestion and a lower amount of sample was used to properly digest the samples.

U - The analyte was not detected at or above the reported result.

bold - The analyte was present in the sample. (Visual Aid to locate detected compounds on report sheet.)

Please call Dean Momohara at (360) 871-8808 to further discuss this project.

cc: Project File

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Cadmium**

Project Name: School Supplies Study 2018

**Project Officer: Sekerak, Sara
Work Order: 1811050
Analyte: Cadmium**

**Prep Method: SW3052
Prepared: 11/30/18
Batch ID: B18K168**

**Analysis Method: SW6020B
Units: mg/Kg ww**

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1811050-29	AM-24-5-1	29.0		1.00	Fabric	11/27/18	12/03/18
1811050-30	AM-27-2-2	129		1.00	Fabric	11/27/18	12/03/18
1811050-31	AM-25-5-6	2.43	U	2.43	Fabric	11/27/18	12/03/18
1811050-35	AM-27-3-4	6.94	U	6.94	Plastic	11/27/18	12/03/18
1811050-36	AM-27-7-4	6.41	U	6.41	Plastic	11/27/18	12/03/18
1811050-37	AM-27-1-11	2.36	U	2.36	Plastic	11/27/18	12/03/18
1811050-38	AM-26-1-6	80.0		1.00	Plastic	11/27/18	12/03/18
1811050-39	AM-24-2-3	137		1.00	Plastic	11/27/18	12/03/18
1811050-40	AM-24-4-3	135		1.03	Plastic	11/27/18	12/03/18
1811050-41	AM-24-3-3	766		1.00	Plastic	11/27/18	12/03/18
1811050-61	DT-22-3-1	1.00	U	1.00	Plastic	11/27/18	12/03/18
1811050-63	DT-23-1-1	1.00	U	1.00	Plastic	11/27/18	12/03/18

QC Results for Batch ID: B18K168

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18K168-BLK1	Blank	1.00	U	1.00	0.027

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18K168-BS1	LCS	200	200			100	85-115		
B18K168-BSD1	LCS Dup	212	200			106	85-115	6	20
B18K168-DUP1	Duplicate	29.7		1811050-29	29.0			2	20
B18K168-MS1	Matrix Spike	189	183	1811050-63	1.00	103	75-125		
B18K168-MSD1	Matrix Spike Dup	188	183	1811050-63	1.00	102	75-125	0.7	20

Authorized by: _____ *DM*

Release Date: _____ *12/3/18*

Page 1 of 2

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Lead**

Project Name: School Supplies Study 2018

**Project Officer: Sekerak, Sara
Work Order: 1811050
Analyte: Lead**

**Prep Method: SW3052
Prepared: 11/30/18
Batch ID: B18K168**

**Analysis Method: SW6020B
Units: mg/Kg ww**

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1811050-29	AM-24-5-1	2710		1.00	Fabric	11/27/18	12/03/18
1811050-30	AM-27-2-2	1010		1.00	Fabric	11/27/18	12/03/18
1811050-31	AM-25-5-6	150		2.43	Fabric	11/27/18	12/03/18
1811050-35	AM-27-3-4	80.0		6.94	Plastic	11/27/18	12/03/18
1811050-36	AM-27-7-4	43.0		6.41	Plastic	11/27/18	12/03/18
1811050-37	AM-27-1-11	118		2.36	Plastic	11/27/18	12/03/18
1811050-38	AM-26-1-6	425		1.00	Plastic	11/27/18	12/03/18
1811050-39	AM-24-2-3	538		1.00	Plastic	11/27/18	12/03/18
1811050-40	AM-24-4-3	507		1.03	Plastic	11/27/18	12/03/18
1811050-41	AM-24-3-3	3930		9.65	Plastic	11/27/18	12/03/18
1811050-61	DT-22-3-1	4060		9.92	Plastic	11/27/18	12/03/18
1811050-63	DT-23-1-1	3900		9.62	Plastic	11/27/18	12/03/18

QC Results for Batch ID: B18K168

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18K168-BLK1	Blank	1.00	U	1.00	0.051

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18K168-BS1	LCS	208	200			104	85-115		
B18K168-BSD1	LCS Dup	218	200			109	85-115	5	20
B18K168-DUP1	Duplicate	2720		1811050-29	2710			0.6	20
B18K168-MS1	Matrix Spike	4070	183	1811050-63	3900	93	75-125		
B18K168-MSD1	Matrix Spike Dup	4110	183	1811050-63	3900	117	75-125	1	20

Authorized by: _____ *JS*

Release Date: _____ *12/3/18*

Page 2 of 2

Manchester Environmental Laboratory
7411 Beach Drive E, Port Orchard, Washington 98366

Case Narrative - Metals

November 5, 2018

Project: School Supplies Study 2018

Work Order: 1810044

Project
Manager: Sekerak, Sara

By: Dean Momohara,

Summary

The laboratory followed EPA 3052 for the preparation and EPA 6020B for the analysis of metals.

All analyses requested were evaluated by established regulatory quality assurance guidelines.

Sample Information

The samples were received at the Manchester Laboratory on 10/9/2018 and 10/16/2018. The samples were received in good condition. Samples 14 and 51 did not completely digest. Seventy six samples were received and assigned laboratory identification numbers 01 to 31, 35 to 56 and 60 to 82.

PM rejected 01-31, 35-41, 61 and 63 11/29/18 sus

Holding Times

The laboratory performed all analyses within their hold times.

Calibration

The instrument was calibrated following the appropriate method. All initial and continuing calibration verification checks were within the acceptance limits. All initial and continuing calibration verification and blank checks were within the acceptance limits. All standard residuals were within acceptance limits. All r-values were within acceptance limits. The instrument was calibrated with a NIST traceable standard and verified to be in calibration with a second source NIST traceable standard.

Method Blanks

No analytically significant levels of analyte were detected in the method blanks associated with these samples.

Laboratory Control Samples

All laboratory control sample recoveries were within the acceptance limits.

Replicates

All associated duplicate relative percent differences of samples with concentrations greater than 5 times the reporting limit were within the acceptance limits.

Matrix Spikes

All matrix spike (MS) recoveries were within the acceptance limits except for lead.

Both MS/MSD recoveries for sample 12 for lead and one of the MS/MSD recoveries for sample 30 for lead was outside of the acceptance limits. The standard spiking level was insufficient for the elevated concentration in the source sample therefore the recoveries were not evaluated.

Internal Standards

All internal standard recoveries were within the acceptance limits.

Other Quality Assurance Measures and Issues

U - The analyte was not detected at or above the reported result.

bold - The analyte was present in the sample. (Visual Aid to locate detected compounds on report sheet.)

Please call Dean Momohara at (360) 871-8808 to further discuss this project.

cc: Project File

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Cadmium**

Project Name: School Supplies Study 2018

Project Officer: Sekerak, Sara	Prep Method: SW3052	Analysis Method: SW6020B
Work Order: 1810044	Prepared: 10/18/18	Units: mg/Kg ww
Analyte: Cadmium	Batch ID: B18J128	

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1810044-01	AM-25-2-1	21.4		1.00	Fabric	10/05/18	11/01/18
1810044-02	AM-24-11-1	1.00	U	1.00	Fabric	10/05/18	11/01/18
1810044-03	AM-24-10-1	1.00	U	1.00	Fabric	10/05/18	11/01/18
1810044-04	AM-24-12-1	1.00	U	1.00	Fabric	10/05/18	11/01/18
1810044-05	AM-24-13-1	1.00	U	1.00	Fabric	10/05/18	11/01/18
1810044-06	AM-26-1-2	45.5		1.00	Fabric	10/05/18	11/01/18
1810044-07	AM-25-4-22	76.0		1.00	Fabric	10/05/18	11/01/18
1810044-08	AM-25-4-27	338		1.00	Fabric	10/05/18	11/01/18
1810044-09	AM-28-2-1	4.25		1.00	Fabric	10/05/18	11/01/18
1810044-10	AM-28-5-1	5.99		1.00	Fabric	10/05/18	11/02/18
1810044-11	AM-28-3-1	29.6		1.00	Fabric	10/05/18	11/02/18
1810044-12	AM-24-14-1	5.77		1.00	Fabric	10/05/18	11/01/18
1810044-13	AM-24-15-1	3.71		1.00	Fabric	10/05/18	11/01/18
1810044-14	AM-24-16-1	3.68		1.00	Fabric	10/05/18	11/01/18
1810044-15	AM-24-17-1	28.9		1.00	Fabric	10/05/18	11/01/18
1810044-16	AM-28-2-13	80.6		1.00	Fabric	10/05/18	11/02/18
1810044-17	AM-28-5-13	87.1		1.00	Fabric	10/05/18	11/02/18
1810044-18	AM-28-3-13	88.4		1.00	Fabric	10/05/18	11/01/18
1810044-19	AM-24-14-11	85.3		1.00	Fabric	10/05/18	11/01/18
1810044-20	AM-24-15-11	87.4		1.00	Fabric	10/05/18	11/01/18

rejected
11/29/18 SLS

QC Results for Batch ID: B18J128

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18J128-BLK1	Blank	1.00	U	1.00	0.027

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18J128-BS1	LCS	207	200			104	85-115		
B18J128-BSD1	LCS Dup	208	200			104	85-115	0.6	20
B18J128-DUP1	Duplicate	85.0		1810044-16	80.6			5	20
B18J128-MS1	Matrix Spike	195	195	1810044-12	5.77	97	75-125		
B18J128-MSD1	Matrix Spike Dup	204	192	1810044-12	5.77	103	75-125	5	20

Authorized by: DM

Release Date: 11/5/18

Page 1 of 8

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Cadmium**

Project Name: School Supplies Study 2018

Project Officer: Sekerak, Sara
Work Order: 1810044
Analyte: Cadmium

Prep Method: SW3052
Prepared: 10/23/18
Batch ID: B18J151

Analysis Method: SW6020B
Units: mg/Kg ww

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1810044-35	AM-27-3-4	1.00	U	1.00	Plastic	10/08/18	11/01/18
1810044-36	AM-27-7-4	1.00	U	1.00	Plastic	10/08/18	11/01/18
1810044-37	AM-27-1-11	1.00	U	1.00	Plastic	10/08/18	11/01/18
1810044-38	AM-26-1-6	84.4		1.00	Plastic	10/08/18	11/01/18
1810044-39	AM-24-2-3	128		1.00	Plastic	10/08/18	11/01/18
1810044-40	AM-24-4-3	135		1.00	Plastic	10/08/18	11/01/18
1810044-41	AM-24-3-3	772		1.00	Plastic	10/08/18	11/01/18 *
1810044-42	AM-24-8-2	1.01	U	1.01	Plastic	10/11/18	11/01/18
1810044-43	AM-24-7-2	1.44	U	1.44	Plastic	10/11/18	11/01/18
1810044-44	AM-25-10-7	79.8		1.00	Plastic	10/10/18	11/02/18
1810044-45	AM-26-3-7	137		1.00	Plastic	10/10/18	11/01/18
1810044-46	AM-26-2-7	65.8		1.00	Plastic	10/10/18	11/02/18
1810044-47	AM-26-2-14	80.4		1.00	Plastic	10/10/18	11/02/18
1810044-48	AM-26-5-7	74.6		1.00	Plastic	10/10/18	11/02/18
1810044-49	AM-26-5-14	78.1		1.00	Plastic	10/10/18	11/02/18
1810044-50	AM-25-1-9	1150		1.00	Plastic	10/10/18	11/02/18
1810044-51	AM-24-6-15	1.00	U	1.00	Plastic	10/11/18	11/02/18
1810044-52	AM-25-10-33	106		1.00	Plastic	10/11/18	11/02/18
1810044-53	AM-26-3-33	82.0		1.00	Plastic	10/11/18	11/02/18
1810044-54	AM-26-3-17	107		1.00	Plastic	10/11/18	11/02/18

* rejected 11/29/18 SLS

QC Results for Batch ID: B18J151

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18J151-BLK1	Blank	1.00	U	1.00	0.027

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18J151-BS1	LCS	207	200			104	85-115		
B18J151-BSD1	LCS Dup	219	200			109	85-115	5	20
B18J151-DUP1	Duplicate	107		1810044-54	107			0.4	20
B18J151-MS1	Matrix Spike	330	200	1810044-45	137	97	75-125		
B18J151-MSD1	Matrix Spike Dup	325	196	1810044-45	137	96	75-125	1	20

Authorized by: DM

Release Date: 11/17

Page 2 of 8

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Cadmium**

Project Name: School Supplies Study 2018

Project Officer: Sekerak, Sara
Work Order: 1810044
Analyte: Cadmium

Prep Method: SW3052
Prepared: 10/25/18
Batch ID: B18J164

Analysis Method: SW6020B
Units: mg/Kg ww

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1810044-21	AM-24-16-11	79.8		1.00	Fabric	10/05/18	11/02/18
1810044-22	AM-24-17-11	134		1.00	Fabric	10/05/18	11/02/18
1810044-23	AM-25-3-15	92.6		1.00	Fabric	10/05/18	11/02/18
1810044-24	AM-28-6-1	31.1		1.00	Fabric	10/05/18	11/02/18
1810044-25	AM-28-1-1	6.17		1.00	Fabric	10/05/18	11/01/18
1810044-26	AM-28-6-3	5.11		1.00	Fabric	10/05/18	11/01/18
1810044-27	AM-24-9-1	25.3		1.00	Fabric	10/05/18	11/01/18
1810044-28	AM-24-1-1	4.41		1.00	Fabric	10/05/18	11/01/18
1810044-29	AM-24-5-1	26.3		1.00	Fabric	10/05/18	11/01/18
1810044-30	AM-27-2-2	121		1.00	Fabric	10/05/18	11/02/18
1810044-31	AM-25-5-6	1.00	U	1.00	Fabric	10/08/18	11/01/18 *
1810044-55	AM-25-10-17	82.0		1.00	Plastic	10/11/18	11/01/18
1810044-56	AM-28-4-3	322		1.00	Plastic	10/11/18	11/01/18
1810044-60	AM-28-7-1	1270		1.00	Plastic	10/11/18	11/01/18
1810044-61	DT-22-3-1	1.00	U	1.00	Plastic	10/08/18	11/01/18 *
1810044-62	DT-22-4-1	1.00	U	1.00	Plastic	10/10/18	11/01/18
1810044-63	DT-23-1-1	1.00	U	1.00	Plastic	10/08/18	11/01/18 *
1810044-82	OD-5-8-2	18.0		1.00	Fabric	10/12/18	11/02/18

rejected 11/29/18 SCS

QC Results for Batch ID: B18J164

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18J164-BLK1	Blank	1.00	U	1.00	0.027

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18J164-BS1	LCS	197	200			98	85-115		
B18J164-BSD1	LCS Dup	197	200			98	85-115	0.04	20
B18J164-DUP1	Duplicate	79.0		1810044-21	79.8			0.9	20
B18J164-DUP2	Duplicate	78.1		1810044-55	82.0			5	20
B18J164-MS1	Matrix Spike	312	199	1810044-30	121	96	75-125		
B18J164-MS2	Matrix Spike	192	199	1810044-63	1.00	96	75-125		
B18J164-MSD1	Matrix Spike Dup	333	199	1810044-30	121	106	75-125	7	20
B18J164-MSD2	Matrix Spike Dup	196	200	1810044-63	1.00	98	75-125	2	20

Authorized by: DM

Release Date: 11/5/18

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Cadmium**

Project Name: School Supplies Study 2018

**Project Officer: Sekerak, Sara
Work Order: 1810044
Analyte: Cadmium**

**Prep Method: SW3052
Prepared: 10/30/18
Batch ID: B18J194**

**Analysis Method: SW6020B
Units: mg/Kg ww**

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1810044-64	AM-25-7-3	1.00	U	1.00	Metal	10/11/18	11/01/18
1810044-65	AM-24-18-3	27.4		1.00	Metal	10/11/18	11/01/18
1810044-66	AM-24-18-9	22.2		1.00	Metal	10/11/18	11/02/18
1810044-67	AM-25-4-8	1.00	U	1.00	Metal	10/12/18	11/01/18
1810044-68	AM-24-14-16	42.0		1.00	Metal	10/12/18	11/01/18
1810044-69	AM-24-15-8	4.71		1.00	Metal	10/12/18	11/01/18
1810044-70	AM-24-16-5	5.16		1.00	Metal	10/12/18	11/01/18
1810044-71	AM-24-17-5	8.61		1.00	Metal	10/12/18	11/01/18
1810044-72	AM-24-5-5	14.1		1.00	Metal	10/12/18	11/01/18
1810044-73	AM-24-9-5	14.0		1.00	Metal	10/12/18	11/01/18
1810044-74	AM-24-1-5	12.7		1.00	Metal	10/12/18	11/01/18
1810044-75	AM-25-3-20	134		1.00	Metal	10/12/18	11/01/18
1810044-76	AM-25-2-3	10.8		1.00	Metal	10/12/18	11/01/18
1810044-77	FM-33-6-9	2.79		1.00	Metal	10/12/18	11/02/18
1810044-78	AM-27-2-9	3.67		1.00	Metal	10/12/18	11/01/18
1810044-79	AM-28-1-23	57.3		1.00	Metal	10/12/18	11/01/18
1810044-80	AM-25-8-9	2.05		1.00	Metal	10/12/18	11/01/18
1810044-81	DT-22-9-8	1.00	U	1.00	Metal	10/12/18	11/01/18

QC Results for Batch ID: B18J194

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18J194-BLK1	Blank	1.00	U	1.00	0.027

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18J194-BS1	LCS	198	200			99	85-115		
B18J194-BSD1	LCS Dup	214	200			107	85-115	8	20
B18J194-DUP1	Duplicate	3.22		1810044-80	2.05			44	20
B18J194-MS1	Matrix Spike	213	197	1810044-73	14.0	101	75-125		
B18J194-MSD1	Matrix Spike Dup	205	198	1810044-73	14.0	96	75-125	4	20

Authorized by: DM

Release Date: 11/5/18

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Lead**

Project Name: School Supplies Study 2018

Project Officer: Sekerak, Sara	Prep Method: SW3052	Analysis Method: SW6020B
Work Order: 1810044	Prepared: 10/18/18	Units: mg/Kg ww
Analyte: Lead	Batch ID: B18J128	

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1810044-01	AM-25-2-1	2930	1.00	1.00	Fabric	10/05/18	11/01/18
1810044-02	AM-24-11-1	1.76		1.00	Fabric	10/05/18	11/01/18
1810044-03	AM-24-10-1	1.43		1.00	Fabric	10/05/18	11/01/18
1810044-04	AM-24-12-1	1.44		1.00	Fabric	10/05/18	11/01/18
1810044-05	AM-24-13-1	1.26		1.00	Fabric	10/05/18	11/01/18
1810044-06	AM-26-1-2	3140		1.00	Fabric	10/05/18	11/01/18
1810044-07	AM-25-4-22	1040		1.00	Fabric	10/05/18	11/01/18
1810044-08	AM-25-4-27	220		1.00	Fabric	10/05/18	11/01/18*
1810044-09	AM-28-2-1	2210		1.00	Fabric	10/05/18	11/01/18
1810044-10	AM-28-5-1	2790		1.00	Fabric	10/05/18	11/02/18
1810044-11	AM-28-3-1	851		1.00	Fabric	10/05/18	11/02/18
1810044-12	AM-24-14-1	2680		1.00	Fabric	10/05/18	11/01/18
1810044-13	AM-24-15-1	1930		1.00	Fabric	10/05/18	11/01/18
1810044-14	AM-24-16-1	1930		1.00	Fabric	10/05/18	11/01/18
1810044-15	AM-24-17-1	1720		1.00	Fabric	10/05/18	11/01/18
1810044-16	AM-28-2-13	49.7		1.00	Fabric	10/05/18	11/02/18
1810044-17	AM-28-5-13	59.6		1.00	Fabric	10/05/18	11/02/18
1810044-18	AM-28-3-13	54.2		1.00	Fabric	10/05/18	11/01/18
1810044-19	AM-24-14-11	52.9		1.00	Fabric	10/05/18	11/01/18
1810044-20	AM-24-15-11	52.5	1.00	1.00	Fabric	10/05/18	11/01/18

rejected 11/29/18 SLS

QC Results for Batch ID: B18J128

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18J128-BLK1	Blank	1.00	U	1.00	0.051

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18J128-BS1	LCS	210	200			105	85-115		
B18J128-BSD1	LCS Dup	211	200			105	85-115	0.1	20
B18J128-DUP1	Duplicate	51.4		1810044-16	49.7			3	20
B18J128-MS1	Matrix Spike	2690	195	1810044-12	2680	6	75-125		
B18J128-MSD1	Matrix Spike Dup	2810	192	1810044-12	2680	65	75-125	4	20

Authorized by: DM

Release Date: 11/17

Page 5 of 8

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Lead**

Project Name: School Supplies Study 2018

**Project Officer: Sekerak, Sara
Work Order: 1810044
Analyte: Lead**

**Prep Method: SW3052
Prepared: 10/23/18
Batch ID: B18J151**

**Analysis Method: SW6020B
Units: mg/Kg ww**

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1810044-35	AM-27-3-4	192		1.00	Plastic	10/08/18	11/01/18
1810044-36	AM-27-7-4	193		1.00	Plastic	10/08/18	11/01/18
1810044-37	AM-27-1-11	116		1.00	Plastic	10/08/18	11/01/18
1810044-38	AM-26-1-6	449		1.00	Plastic	10/08/18	11/01/18
1810044-39	AM-24-2-3	502		1.00	Plastic	10/08/18	11/01/18
1810044-40	AM-24-4-3	502		1.00	Plastic	10/08/18	11/01/18
1810044-41	AM-24-3-3	3830		1.00	Plastic	10/08/18	11/01/18 *
1810044-42	AM-24-8-2	7930		10.1	Plastic	10/11/18	11/02/18
1810044-43	AM-24-7-2	8560		14.4	Plastic	10/11/18	11/02/18
1810044-44	AM-25-10-7	401		1.00	Plastic	10/10/18	11/02/18
1810044-45	AM-26-3-7	537		1.00	Plastic	10/10/18	11/01/18
1810044-46	AM-26-2-7	316		1.00	Plastic	10/10/18	11/02/18
1810044-47	AM-26-2-14	396		1.00	Plastic	10/10/18	11/02/18
1810044-48	AM-26-5-7	371		1.00	Plastic	10/10/18	11/02/18
1810044-49	AM-26-5-14	382		1.00	Plastic	10/10/18	11/02/18
1810044-50	AM-25-1-9	3660		9.69	Plastic	10/10/18	11/02/18
1810044-51	AM-24-6-15	3.31		1.00	Plastic	10/11/18	11/02/18
1810044-52	AM-25-10-33	547		1.00	Plastic	10/11/18	11/02/18
1810044-53	AM-26-3-33	394		1.00	Plastic	10/11/18	11/02/18
1810044-54	AM-26-3-17	553		1.00	Plastic	10/11/18	11/02/18

* rejected 11/29/30 SLG

QC Results for Batch ID: B18J151

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18J151-BLK1	Blank	1.00	U	1.00	0.051

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18J151-BS1	LCS	212	200			106	85-115		
B18J151-BSD1	LCS Dup	222	200			111	85-115	5	20
B18J151-DUP1	Duplicate	559		1810044-54	553			1	20
B18J151-MS1	Matrix Spike	722	200	1810044-45	537	93	75-125		
B18J151-MSD1	Matrix Spike Dup	706	196	1810044-45	537	86	75-125	2	20

Authorized by: DM

Release Date: 11/7

Page 6 of 8

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Lead**

Project Name: School Supplies Study 2018

Project Officer: Sekerak, Sara
Work Order: 1810044
Analyte: Lead

Prep Method: SW3052
Prepared: 10/25/18
Batch ID: B18J164

Analysis Method: SW6020B
Units: mg/Kg ww

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1810044-21	AM-24-16-11	51.7		1.00	Fabric	10/05/18	11/02/18
1810044-22	AM-24-17-11	382		1.00	Fabric	10/05/18	11/02/18
1810044-23	AM-25-3-15	632		1.00	Fabric	10/05/18	11/02/18
1810044-24	AM-28-6-1	2440		1.00	Fabric	10/05/18	11/02/18
1810044-25	AM-28-1-1	1170		1.00	Fabric	10/05/18	11/01/18
1810044-26	AM-28-6-3	1980		1.00	Fabric	10/05/18	11/01/18
1810044-27	AM-24-9-1	2440		1.00	Fabric	10/05/18	11/01/18
1810044-28	AM-24-1-1	6170		9.92	Fabric	10/05/18	11/02/18
1810044-29	AM-24-5-1	2490		1.00	Fabric	10/05/18	11/01/18
1810044-30	AM-27-2-2	943		1.00	Fabric	10/05/18	11/02/18
1810044-31	AM-25-5-6	151		1.00	Fabric	10/08/18	11/01/18*
1810044-55	AM-25-10-17	400		1.00	Plastic	10/11/18	11/01/18
1810044-56	AM-28-4-3	774		1.00	Plastic	10/11/18	11/01/18
1810044-60	AM-28-7-1	1.00	U	1.00	Plastic	10/11/18	11/01/18
1810044-61	DT-22-3-1	3830		9.73	Plastic	10/08/18	11/02/18*
1810044-62	DT-22-4-1	1.24		1.00	Plastic	10/10/18	11/01/18
1810044-63	DT-23-1-1	3770		1.00	Plastic	10/08/18	11/01/18*
1810044-82	OD-5-8-2	259		1.00	Fabric	10/12/18	11/02/18

* rejected 11/29/18 s.c.s

QC Results for Batch ID: B18J164

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18J164-BLK1	Blank	1.00	U	1.00	0.051

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18J164-BS1	LCS	201	200			100	85-115		
B18J164-BSD1	LCS Dup	200	200			100	85-115	0.4	20
B18J164-DUP1	Duplicate	50.5		1810044-21	51.7			2	20
B18J164-DUP2	Duplicate	385		1810044-55	400			4	20
B18J164-MS1	Matrix Spike	1130	199	1810044-30	943	92	75-125		
B18J164-MS2	Matrix Spike	3920	199	1810044-63	3770	76	75-125		
B18J164-MSD1	Matrix Spike Dup	1220	199	1810044-30	943	142	75-125	8	20
B18J164-MSD2	Matrix Spike Dup	3950	200	1810044-63	3770	92	75-125	0.8	20

Authorized by: DM

Release Date: 11/5/18

Page 7 of 8

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Lead**

Project Name: School Supplies Study 2018

Project Officer: Sekerak, Sara
Work Order: 1810044
Analyte: Lead

Prep Method: SW3052
Prepared: 10/30/18
Batch ID: B18J194

Analysis Method: SW6020B
Units: mg/Kg ww

Sample #	Sample ID	Result	Qualifier	RL	Matrix	Collected	Analyzed
1810044-64	AM-25-7-3	40.2		1.00	Metal	10/11/18	11/01/18
1810044-65	AM-24-18-3	534		1.00	Metal	10/11/18	11/01/18
1810044-66	AM-24-18-9	616		1.00	Metal	10/11/18	11/02/18
1810044-67	AM-25-4-8	1070		1.00	Metal	10/12/18	11/01/18
1810044-68	AM-24-14-16	2030		1.00	Metal	10/12/18	11/01/18
1810044-69	AM-24-15-8	744		1.00	Metal	10/12/18	11/01/18
1810044-70	AM-24-16-5	725		1.00	Metal	10/12/18	11/01/18
1810044-71	AM-24-17-5	852		1.00	Metal	10/12/18	11/01/18
1810044-72	AM-24-5-5	203		1.00	Metal	10/12/18	11/01/18
1810044-73	AM-24-9-5	201		1.00	Metal	10/12/18	11/01/18
1810044-74	AM-24-1-5	170		1.00	Metal	10/12/18	11/01/18
1810044-75	AM-25-3-20	572		1.00	Metal	10/12/18	11/01/18
1810044-76	AM-25-2-3	377		1.00	Metal	10/12/18	11/01/18
1810044-77	FM-33-6-9	1560		1.00	Metal	10/12/18	11/02/18
1810044-78	AM-27-2-9	289		1.00	Metal	10/12/18	11/01/18
1810044-79	AM-28-1-23	842		1.00	Metal	10/12/18	11/01/18
1810044-80	AM-25-8-9	380		1.00	Metal	10/12/18	11/01/18
1810044-81	DT-22-9-8	278		1.00	Metal	10/12/18	11/01/18

QC Results for Batch ID: B18J194

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B18J194-BLK1	Blank	1.00	U	1.00	0.051

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B18J194-BS1	LCS	205	200			103	85-115		
B18J194-BSD1	LCS Dup	219	200			109	85-115	6	20
B18J194-DUP1	Duplicate	410		1810044-80	380			8	20
B18J194-MS1	Matrix Spike	378	197	1810044-73	201	90	75-125		
B18J194-MSD1	Matrix Spike Dup	386	198	1810044-73	201	94	75-125	2	20

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Page 8 of 8