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School Supplies 2017

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 February 20, 2018. The technical memo is a non-standard report and includes additional information and appendices that are 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.

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Background

In support of the Children's Safe Products Act (CSPA), RCW 70.240, the Washington State Department of Ecology (Ecology) performs studies to evaluate children's products for the presence of toxic chemicals and chemicals of high concern to children (CHCCs).

During 2014 and 2015, Ecology conducted a study to assess products that may be more readily available, or only available, during holidays and specific times of year. During the 2015 Back to School sampling, three pencil pouches and two book covers were found to contain lead concentrations above the CSPA lead limit of 90 parts per million (ppm). These levels ranged from 474 to 19,600 ppm (Trumbull et al., 2017). Data and information for these 2015 Back to School products were forwarded to the United States Consumer Product Safety Commission (CPSC) for review under the Consumer Product Safety Improvement Act (CPSIA).¹

In late summer 2017, at the request of the Washington State Attorney General's Office (AGO), Ecology conducted a follow-up study to evaluate similar items to those found to contain lead in the 2015 study. This 2017 study focuses on testing for lead and cadmium in pencil pouches/cases and in book covers.² In addition to this memo, the data collected from this study will be forwarded to the AGO for further evaluation and investigation.

Methods

A Quality Assurance (QA) Project Plan Addendum (Sekerak, 2017a) was approved before the 2017 samples were collected. The plan described methods for collection and analysis, schedules for timeline and budget, as well as requirements for data review and published reports. All prescribed procedures, standard operating procedures (SOPs), and methods were followed.

Methods for Selecting Products

When assessing potential children's products, Ecology's standard CSPA product-selection procedure was followed and the customary defined children's product characteristics were applied.³ As determined in the study scope, pencil pouches/cases and book covers, common school supplies for children, were targeted in this study. Ecology purchased pencil pouches/cases and book covers when the products exhibited children-appealing designs,

¹ CPSIA (2011) established a total lead limit of 100 ppm in most children's products.

² The 2015 study also tested for cadmium, but levels were not found above the 40 ppm CSPA limit for children's products. The CPSIA cadmium threshold limit of 75 ppm is used when determining whether product information and data are to be forwarded to the CPSC.

³ Both the CSPA and CPSIA guidance were employed, deferring to the broadest definition when the criteria differed. For example, when applying age determination, Ecology used the CPSIA "12 years of age or younger" (16 CFR § 1200.2) criteria versus CSPA's "under the age of 12."

themes, or bright colors. After the 2015 study, Ecology determined that pencil pouches/cases and book covers did not categorically fit as CSPA-regulated children's products. To support a case-by-case evaluation strategy used by CSPIA, photographs were taken to determine if the *“product is represented in its packaging, display, promotion, or advertising as appropriate for use by children 12 years of age or younger.”* For online purchases, auxiliary data and information were captured by taking web screen captures or web videos during each purchase.

Store Purchases

A total of 48 products were purchased at seven retail stores during September 9-12, 2017 (Appendix A, Table A-1). Some products were displayed in a manner, or marketed in such a way, that suggested the product was designed for use by a child. Photos were taken to document store marketing, including when products were near other recognized children's products (i.e., located on children's products aisles or arranged on shelves).

All stores had product sections located near the front, displayed more prominently in sections usually reserved for seasonal items, with signs such as *“Back to School”* or *“School Supplies.”* Each store also had at least one section permanently located elsewhere that displayed products offered as school supplies or office supplies, including pencil pouches/cases and book covers. Products were purchased in both areas of the stores. By the October 13, 2017, purchase event at Dollar Tree (DT-19), the products earlier displayed (DT-17) at the front of the store had been moved to the permanent in-aisle location with products such as pencils, binders, educational flash cards, and children's coloring books.

Online Purchases

A total of 43 products were purchased through Amazon.com on September 26, September 28, and October 12, 2017 (Table A-1). For online purchasing, web screen-captures and screen-recording videos were taken to show product marketing and information available at the time of purchase. Immediately before each Amazon.com purchasing event, AM-16, AM-17, and AM-18, the computer's web browser histories and cookies were deleted. This was an attempt to not provide browser history data for algorithms that may be used by Amazon.com for influencing our subsequent purchases. AM-16 consisted of three separate purchases, with the first two recorded using web screen recording software. AM-17 consisted of two purchases, with the first one recorded. The last purchase made during each of the three events and the only purchase made for AM-18 were not recorded.

Each online purchase was started by searching “Amazon” in the computer's internet browser and then selecting the official Amazon.com link provided. The Amazon.com Homepage search was begun using the “All” search bar. During product selection, after each product was added to the “Cart,” the back browser arrow was selected to return to the products list generated by the initial search criteria. To minimize bias in the selection process, products appearing at the bottom of individual pages displayed as *“Sponsored,” “Frequently bought together,”* or *“Customers who bought this item also bought”* were not selected. If a product again appeared

in the main search, it was included if it appeared to meet the study criteria.

During the first purchase of AM-16, “School Supplies” was entered, then “Grades 3-5,” “Classroom & School Supplies,” and “Pencil Cases.”⁴ Products that appeared to fit within the study scope were added to the “Cart.” During the second purchase on AM-16, the Amazon.com Homepage displayed a section containing items “Related to items you’ve viewed.”⁵ It is possible that the cookies were not deleted prior to this purchase. This second purchase used the search phrase “Children’s kids pencil pouches cases,” based on the most common terms to be displayed with products seen during the first AM-16 purchase. For the last AM-16 purchase, two 2015 products and two products seen in earlier searches were included. Searches for these were product-name or brand-name specific.

The first AM-17 purchase focused on book covers.⁶ The search phrase used was “Children’s kids book textbook covers.” The second AM-17 purchase contained two Inkology-brand and two character-shaped pencil pouches seen on an earlier search.

The AM-18 purchase began after the incorrect color of Inkology shoe was delivered (purple instead of blue). The Inkology blue shoe, as well as an additional Inkology brand shoe (black), were purchased on AM-18.

Locating the Original 2015 Products for Use in the 2017 Study

All five of the original 2015 Back to School study products (Table 1) were located, purchased, and tested for the 2017 study.

Table 1. Original Back to School Products, Tested in 2015.

Purchased From	Brand	Product Description	UPC
Shopko	Inkology	Pink Heart Pencil Pouch	838157004295
Shopko	Inkology	Yellow Pencil Pouch with Dots	838157004288
Office Depot	Inkology	Shoe Pencil Pouch	838157004424
Office Depot	Office Depot	Adhesive Book Cover Rolls	735854192808
Dollar Tree	Magic Cover	Green Magic Cover	639277133908

UPC = Universal Product Code

⁴ Web screen recording: 09262017Amazon1.mp4

⁵ Web screen recording: 09262017Amazon2.mp4

⁶ Web screen recording: 09282017Amazon.mp4

For the 2017 Study

The Inkology pencil pouches, Pink Heart Pencil Pouch and Yellow Pencil Pouch with Dots, were purchased from the same Shopko store location as in 2015. A Pink Heart Pencil Pouch product (same UPC), as well as a round-shaped version with the same color and design pattern, was also purchased from Amazon.com.

The third 2015 Inkology pencil pouch, the (Blue) Shoe, was not found available at Office Depot, but instead was purchased through Amazon.com. Two additional Inkology shoe pencil pouches (purple and black) were also purchased from Amazon.com.

The Magic Cover product, Green Magic (Book) Cover, was found again at the same Dollar Tree location. Two additional colors of the same Magic Cover product were also purchased.

The Office Depot 4-pack product, Adhesive Book Cover Roll, was not found at any Office Depot store or through their online store. However, a similar product, sold as a single-roll package, was purchased from the original Office Depot location. Through a search on Amazon.com, a 4-pack Adhesive Book Cover Roll that appeared similar to the one from the 2015 study and was advertised as an Office Depot brand was purchased. Upon receipt of the 4-pack product, the label did not show Office Depot or a UPC; however, the product did contain the name of a subsidiary of Office Depot: Swinton Avenue Trading Co.

In all, 74 pencil pouches/cases and 17 book covers were purchased, representing 52 brands (Table A-2).

Processing Samples⁷

Ecology followed established chain-of-custody procedures with all in-store-purchased products as they were transferred back to Ecology Headquarters (HQ) and stored in restricted-access locked cabinets in the HQ Product Testing room. Online purchases were delivered to Ecology HQ through delivery carriers determined by the distributor or seller, with all products received in good condition. Packaging that included seller, distributor, and shipping information was stored with the products.

All products were stored in locked cabinets; they were removed only during HQ processing performed by Ecology's Study Lead or Sampling Lead. Products and product information were cataloged, product IDs assigned, and photographs taken. Product components were identified with component IDs before screening (Sekerak, 2017b; Wiseman et al., 2016a, b).

Product-component samples were categorized for laboratory analysis as either fabric, metal, or plastic, based on the material (matrix) where contributing mass was greatest (e.g., a painted metal component was considered a metal sample). In all, 11 samples were fabric, 30 were

⁷ "Composite" is used throughout the memo to indicate two product components were combined and sent for testing as one sample.

metal, and 19 were plastic.⁸ All components were screened by the X-ray fluorescence analyzer (XRF) and prioritized for laboratory analysis based on the screening results.

A total of 60 samples from 45 products representing 32 brands were hand-delivered to Ecology’s Manchester Environmental Laboratory (MEL) on November 17, 2017, for analysis for cadmium and lead. Case narratives and preliminary data were received by the Study Lead on December 12, 2017, and the complete data set was received on December 28, 2017. All study results are summarized in Appendix A, Table A-2. The MEL case narrative is presented in Appendix B.

Evaluating Data from Manchester Environmental Laboratory

Study samples were analyzed with all appropriate quality control (QC) measures, and results were verified and reported in accordance with MEL standard practices. Data were reviewed in accordance with the technical specifications and quality assurance (QA)/ QC requirements of MEL methods and the study’s QA Project Plan Addendum (Sekerak, 2017a). The Study Lead performed a final assessment of the data. All data were verified as valid and usable.

The analysis instrument was calibrated, and all MEL initial and ongoing instrument performance QC criteria were met. No target analytes (lead and cadmium) were found in the blanks.

Qualified results were based on sample-specific QC performance. The qualifier codes used in this study are displayed in Table 2.

Table 2. Qualifier Codes and Descriptions for Laboratory-Assigned Result Data.

Data Qualifier Code	Data Qualifier Description
J	Analyte was positively identified. The reported result is an estimate.
U	Analyte was not detected at or above the reported result.
UJ	Analyte was not detected at or above the reported estimate.

⁸ Many of the components cataloged as fabric appeared to be made from synthetic polymers rather than natural-fiber fabrics.

All results with “U” and “UJ” qualifiers indicate that concentrations were not quantified above the adjacent numeric reported concentration.

Sample 1711023-04 (SK-13-3-4) contained 1040 ppm of lead and 11.4 ppm of cadmium.⁹ Both lead and cadmium results were qualified “J” due to the relative percent differences (RPDs) between the respective matrix spike (MS) and matrix spike duplicate (MSD) samples above the acceptance limit (> 20%). Individual MS recoveries did not indicate the results were biased.

The result for sample 1711023-08 (AM-18-2-8) for lead was qualified as “J” due to the duplicate sample RPD above the acceptance limit.¹⁰

Results for sample 1711023-29 (WM-35-10-7) were qualified as “J” due to a loss of this sample as it “vented” during the microwave preparation step at MEL.¹¹ A second preparation was attempted using a smaller sample, but the same problem occurred. Final results were reported as estimates with an adjustment for the estimated loss of sample.

Data Usability

All results without qualifiers are valid and useable as reported.

Both MEL and the Study Lead recommend that the results from sample 1711023-29 be used on an informational basis only.

Samples 1711023-04 and 1711023-08 indicate the positive identification of lead at concentrations well above the 90 ppm CSPA lead limit. These results are useable.

The assigned “J” qualifier was used to denote variability in the detections of the two metal concentrations within of the sub-sample aliquots (duplicates).

It has been observed that heterogeneity of the metal composition itself and/or from contributions of surface coatings, both visible and invisible to the eye, that contain the target analytes can lead to inconsistent concentration recoveries. Coatings and metal plating on products can be applied for purely decorative purposes or to increase some physical property attributes such as corrosion inhibition or durability. Metal plating may not be easily distinguishable on the product components due to the similar appearance of metals.

Also, small product components (for example, zipper pulls and grommets) limit the quantities available for sampling. Further, reducing the size of small metal components is more difficult, and techniques such as cryomilling, which is often used for plastics size reducing, is not applicable for metals.¹²

⁹ SK-13-3-4 = Inkology Yellow Pencil Pouch with Dots — Zipper Pull (composite with SK-13-3-3)

¹⁰ AM-18-2-8 = Inkology Glitter Blue Sneaker Pencil Pouch — Zipper Pull (composite with AM-18-2-11)

¹¹ WM-35-10-7 = Studio C Red Dog 3-Ring Pencil Pouch — Plastic Paw Print Zipper Pull

¹² A technique utilizing liquid nitrogen to cool and embrittle a sample while subjecting the sample to a mechanical shaking or impaction to produce micron-sized particles.

Both 1711023-04 and 1711023-08 were zipper pulls made of a metal, each without any observable surface coatings such as paint, polymers, or metal plating. Sample 1711023-04 was used in its entirety. Only a small amount of 1711023-08 remained; therefore, no additional preparation/analysis was performed.

Results and Discussion

Summary of Results for 2017

A total of 95% (57 of 60) of the samples contained lead, cadmium, or both metals above the quantitation limit of 1 ppm. Concentrations of lead ranged from 1.24 to 13,800 ppm, and cadmium concentrations ranged from 1.69 to 922 ppm.

A total of 52% (31 of 60) of the component samples contained either lead, cadmium, or both metals above the respective CSPA limits of 90 ppm for lead and 40 ppm for cadmium.¹³ Table A-3 in Appendix A displays the component samples for levels above CSPA limits.

Lead above 90 ppm was detected in 55% (6 of 11) of the fabric component samples, 23% (7 of 30) of the metal component samples, and 79% (15 of 19) of the plastic component samples (Figure 1, Table A-2). The highest levels of lead were found in plastic component samples.

¹³ The lower CSPA limits are used in the discussion instead of the CSPIA limits of 100 ppm and 75 ppm, for lead and cadmium, respectively.

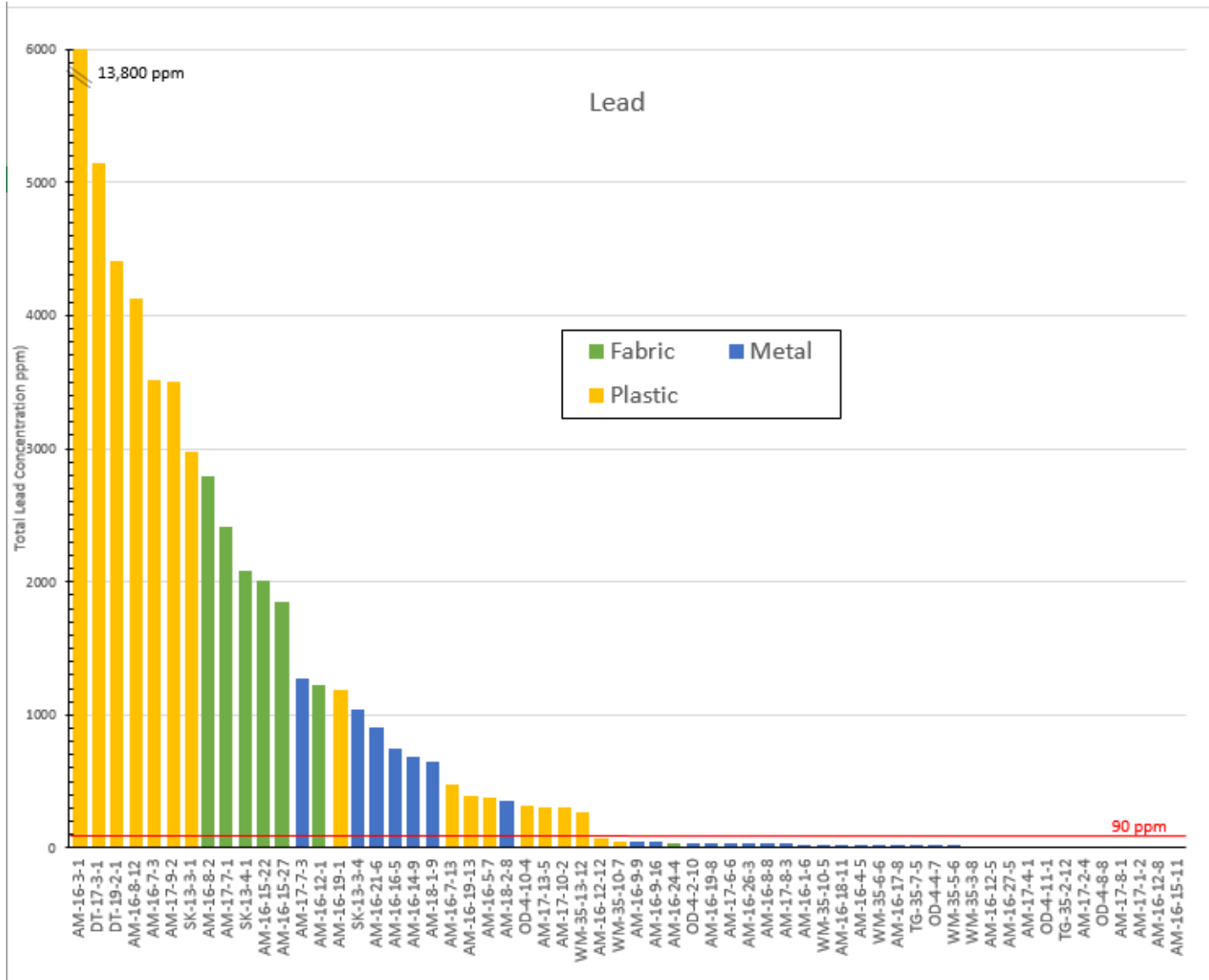


Figure 1. Detections of Lead across Material Types.

Cadmium above 40 ppm was detected in 18% (2 of 11) of the fabric component samples, 47% (11 of 19) of the plastic component samples, and none of the metal component samples (Figure 2, Table A-2). Only low levels of cadmium (1.69-20.6 ppm) were present in metal component samples. The highest levels of cadmium were present in plastic component samples.

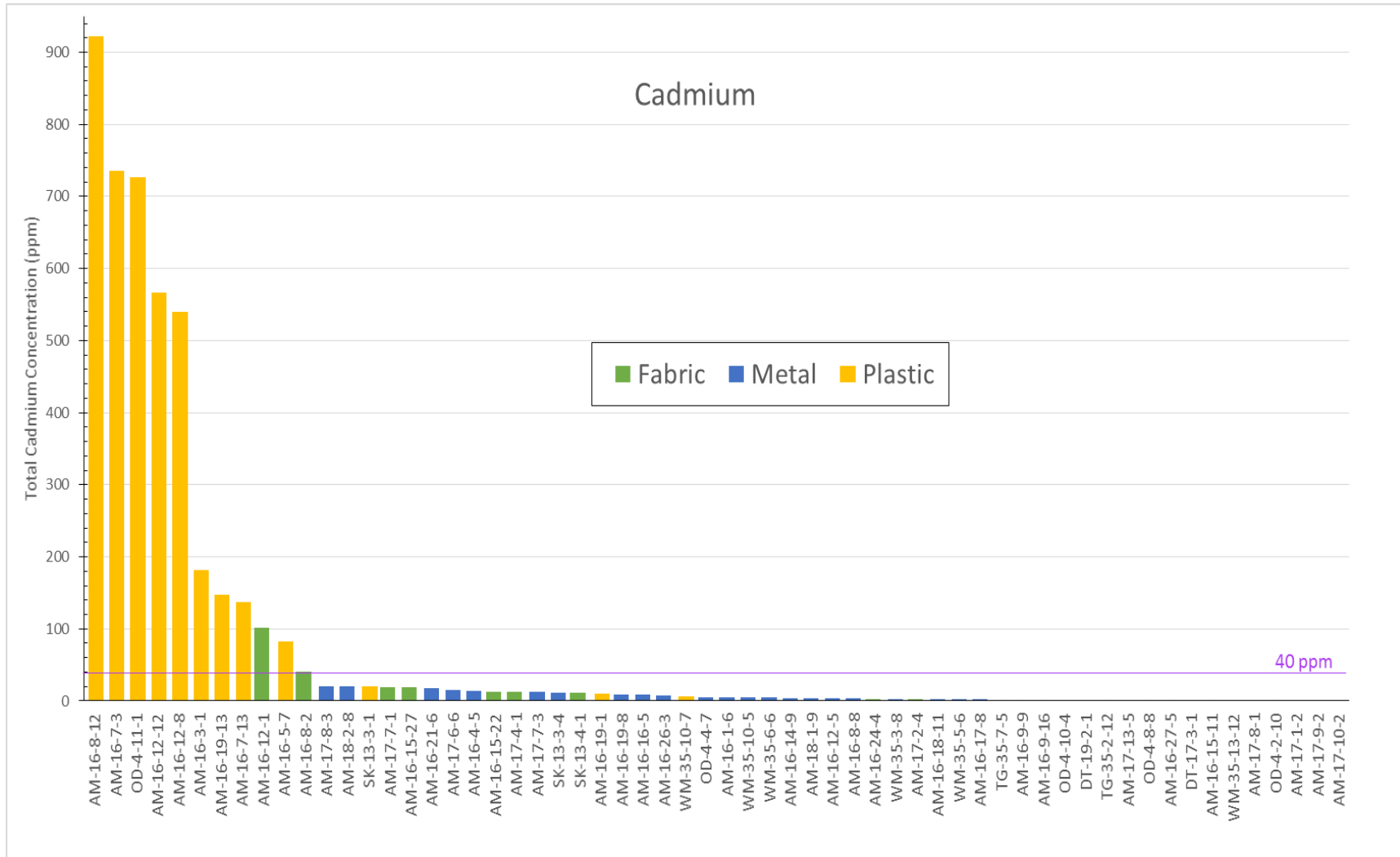


Figure 2. Detections of Cadmium across Material Types.

Results of 2015 Study Compared to 2017 Study

All five of the 2015 study products were located, purchased, and tested during this 2017 study. For this study, all results for pencil pouches and book covers were similar to results found in 2015 (Appendix A, Tables A-4 and A-5).

Detected concentrations in pencil pouches ranged from 1.24 – 2,980 ppm for lead and 10.9 – 20.9 ppm for cadmium. The highest concentration was 2,980 ppm of lead found in the pouch fabric of the Inkology Yellow Pencil Pouch with Dots (SK-13-3-1). This result was slightly higher than was found in the 2015 study. This may be because both the blue plastisol print “dot” material and the yellow pouch fabric were tested in 2015. This blue “dot” material was not included in the 2017 testing, based on the Study Lead’s review of both sets (2015 and 2017) of XRF screening data. The screening data indicated that the yellow fabric, not the blue “dot” material, appeared to contain the lead. The Yellow Pencil Pouch with Dots zipper pull had a similar lead level in 2017 to what was detected in 2015.

The Pink Heart Pencil Pouch (SK-13-4-1), purchased at the same store as the 2015 product, had lead at 2,080 ppm (3,804 ppm in 2015) in the pink fabric. Only 1.24 ppm of lead was found in the pink fabric of the Pink Heart Pencil Pouch (AM-17-8-3) purchased from Amazon.com.

The zipper pull of the Glitter Blue Sneaker Pencil Pouch (AM-18-2-8) had 361 ppm of lead and 20.4 ppm cadmium in 2017. Similarly, this product’s zipper pull contained 1,140 ppm of lead and 16.4 ppm of cadmium in 2015.

In 2017, concentrations in book covers ranged from 9.44–13,800 ppm for lead and 181 – 727 ppm for cadmium. Similarly to the 2015 testing, the Orange Office Depot Adhesive Book Cover Roll (AM-16-3-1) had the highest concentration of lead at 13,800 ppm (19,600 ppm in 2015). Unlike in 2015, where only 2.08 ppm of cadmium was detected, the 2017 testing showed the product had a cadmium concentration of 181 ppm. The additional Office Depot adhesive book cover (OD-4-11-1) had only 9.44 ppm of lead but contained 727 ppm of cadmium.

The Green Magic Book Cover (DT-17-3-1) had 5,510 ppm of lead in 2017 and 5,620 ppm of lead in 2015 (DT-9-12-1). The Orange Magic Book Cover (DT-19-2-1) contained 4,410 ppm of lead in 2017. Only low levels of cadmium were found in these products in both 2015 and 2017 (<1.0 - 1.99 ppm).

Additional Observations

Only two of the 45 tested products, AM-17-1 and AM-17-2 did not contain lead or cadmium above 1 ppm.¹⁴

¹⁴ AM-17-1 = Stretchable Book Covers 6-Pack (tested component AM 17-2-1 — Peace Fabric) and AM-17-2 = Stretchable Book Sox 4-Pack (tested component AM-17-2-4 — Blue Camo Cover)

A total of 38% (23 of 45) of the products had one or more component with lead or cadmium above one, or both, of the CSPA limits (Table A-6).

A total of 36% (12 of 32) of the brands tested contained lead or cadmium, or both, above the CSPA limits for the respective metal. This includes 46% (12 of 26) of the pencil pouch brands and 57% (4 of 7) of the book cover brands.

Study Files

Included on USB flash drive

Web Screen Recordings

09262017Amazon1.mp4

09262017Amazon2.mp4

09282017Amazon.mp4

Web Screen Captures

Folders by date and purchase ID

Screen-captures were collected in PDF form, when possible, to display the entire webpage. When the product pictures obscured the text content of the product, .JPG or .PNG screenshots were also taken. Some files were converted from .PNG to .JPG after the original capture. Image file metadata displays the accurate original “Created” date and time. After the web screen recordings and the purchases were completed, Amazon’s “Your Orders” record was used to navigate back to the specific product purchased to take additional web-screen captures.

In-Store Photos

Folders by store, date, and purchase ID

Product Photos

Folders by store, date, and purchase ID

References

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Wiseman, C., K. Inch, S. van Bergen, and S. Sekerak. 2016a. Product Testing Standard Operating Procedure: Sample Collection and Processing. Internal document No. PTP001.

Wiseman, C. and K. Inch. 2016b. Product Testing Standard Operating Procedure: Data Entry and Database. Internal document No. PTP002.

Appendices

Appendix A. Data Summaries

Table A-1. Summary of Item Purchases, including Locations, Dates, Costs, and Quantity.

Retail Name^ (Purchase Event ID)	Physical Address or Web Address	Purchase Date	Total Amount of Purchase	Number of Items Purchased
Shopko (SK-13)	5500 Martin Way E, Lacey, WA	9/8/2017	\$9.87	4
Office Depot (OD-4)	602 Sleater Kinney Rd SE, Lacey, WA	9/8/2017	\$43.83	10
Dollar Tree (DT-17)	606 Sleater Kinney Rd SE, Lacey, WA	9/8/2017	\$3.27	3
Fred Meyer (FM-29)	700 Sleater Kinney Rd SE, Lacey, WA	9/8/2017	\$17.19	4
Target (TG-35)	60065 Sleater Kinney SE, Lacey, WA	9/12/2017	\$26.78	7
Shopko (SK-14)	5500 Martin Way, Lacey, WA	9/12/2017	\$2.28	1
Dollar Tree (DT-18)	606 Sleater Kinney Rd, Lacey, WA	9/12/2017	\$1.09	1
Walmart (WM-35)	1401 Galaxy Drive NE, Lacey, WA	9/12/2017	\$47.37	14
Amazon (AM-16)	Amazon.com	9/26/2017	\$113.99	13
Amazon (AM-16)	Amazon.com	9/26/2017	\$105.91	10
Amazon (AM-16)	Amazon.com	9/26/2017	\$59.90	4
Amazon (AM-17)	Amazon.com	9/28/2017	\$155.68	8

Retail Name^ (Purchase Event ID)	Physical Address or Web Address	Purchase Date	Total Amount of Purchase	Number of Items Purchased
Amazon (AM-17)	Amazon.com	9/28/2017	\$91.90	6
Amazon (AM-18)	Amazon.com	10/12/2017	\$22.43	2
Dollar Tree (DT-19)	2104 Harrison Ave NW A18, Olympia, WA	10/13/2017	\$4.40	4

^Return visits to the same store location were not tallied separately.

Table A-2. Summary and Results for 2017 Tested Pencil Pouch/Case and Book Cover Products.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-16-12-1	Back to School Kit—Red Pencil Pouch—Red Material	Kedudes	—	CHINA	Amazon, Cool Kraft	1711023-47	1230	102	No UPCs on products. Two pouches: one red and one clear, plastic-containing supplies.
AM-16-12-12	Back to School Kit—White Plastic on Clear Pencil Pouch	Kedudes	—	CHINA	Amazon, Cool Kraft	1711023-60	68.7	566	No UPCs on products. Two pouches: one red and one clear, plastic-containing supplies.
AM-16-12-5	Back to School Kit—Red Pencil Pouch—Upper Zipper Pull	Kedudes	—	CHINA	Amazon, Cool Kraft	1711023-07	16.7	3.37	No UPCs on products. Two pouches: one red and one clear, plastic-containing supplies.
AM-16-12-8	Back to School Kit—Clear Pencil Pouch Plastic	Kedudes	—	CHINA	Amazon, Cool Kraft	1711023-36	1 U	540	No UPCs on products. Two pouches: one red and one clear, plastic-containing supplies.

Component ID	Product— Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-16-14-9	Purple Sneaker Pencil Pouch— Zipper Pull	Inkology	838157004424	CHINA	Amazon, Inkology, Inc	1711023- 06	686	4.01	Item No. 442-4. 'Age 5+'
AM-16-15-11	3-Ring Canvas Pencil Pouch Assorted Colors 5- Pack—Dark Blue Pouch— Grommets	Boonafit	—	CHINA	Amazon, Authentic Gemstones	1711023- 10	1 U	1 U	No UPCs on products.
AM-16-15-22	3-Ring Canvas Pencil Pouch Assorted Colors 5- Pack— Green Pouch— Green Material	Boonafit	—	CHINA	Amazon, Authentic Gemstones	1711023- 45	2010	13.1	No UPCs on products.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-16-15-27	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack—Purple Pouch—Purple Material	Boonafit	—	CHINA	Amazon, Authentic Gemstones	1711023-41	1850	19.4	No UPCs on products.
AM-16-1-6	3D Galaxy Pencil Pouch—Black Zipper Slider	Ledback	—	CHINA	Amazon, Thinkin	1711023-18	28.6	5.27	No UPC on product.
AM-16-16-5	Cute Cat Pencil Pouch—Zipper Pull	Phroboxl	—	CHINA	Amazon, Phroboxl	1711023-01	750	8.24	No UPC on product.
AM-16-17-8	Funny Cat Pencil Pouch—Black Zipper Pull	Funny Live	—	CHINA	Amazon, Funny Live	1711023-19	23.2	1.95	No UPC on product.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-16-18-11	Cactus Pencil Pouch 4-Pack—Large Cactus Pouch—Black Zipper Pull	Subang	—	CHINA	Amazon	1711023-12	26	2.2	No UPC on product. Packaging sticker labeled. SUBANG 4 pacs Pencil Case Under scan bar: X001HP9FVD. Product arrived with limited seller/distributor/manufacturer information.
AM-16-19-1	Shark Pencil Pouch—Black Material	Artone	—		Amazon, Figaro Gift Shop	1711023-27	1190	10.7	No UPC on product. Main zippers on black body, secondary zippers in red shark mouth.
AM-16-19-13	Shark Pencil Pouch—Red Mouth Material	Artone	—		Amazon, Figaro Gift Shop	1711023-31	393	147	No UPC on product. Main zippers on black body, secondary zippers in red shark mouth.
AM-16-19-8	Shark Pencil Pouch—Red Zipper—Pull	Artone	—		Amazon, Figaro Gift Shop	1711023-09	40.2	8.39	No UPC on product. Main zippers on black body, secondary zippers in red shark mouth.
AM-16-21-6	Green Guitar Crocodile Pencil Case—Zipper Pull	SOOCUTE	—	CHINA	Amazon, MissGuo	1711023-02	901	18.1	No UPC on product.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-16-24-4	Pikachu Pencil Pouch—Yellow Canvas Material	Dengguoli	—		Amazon, Baby's Zone	1711023-48	41	2.58 U	Date on packaging: 9-02-17. No UPC on product.
AM-16-26-3	Carp Zipper Pencil Pouch—Brown Zipper Pull	MorningRising	—		SchoolSupply, Amazon	1711023-57	31.7	7.52	No label, no UPC on product. No 'Made in Country' listed. Product information available on Amazon web page at time of purchase stated the product ships from and sold by school supply. Received from address: Shenzhenshi Guangdong 518100 CHINA. Attached packaging scan.
AM-16-27-5	Pink Milk Shaped Pencil Pouch—Red Zipper Pull	Coerni	—	CHINA	Amazon	1711023-56	15.9	1 U	No UPC on product. Product arrived with limited seller/distributor/manufacturer information. Attached packaging scan.
AM-16-3-1	Adhesive Book Cover Rolls Assorted Colors 4-Pack—Orange Material	Office Depot	—	CHINA	Amazon, Swinton Avenue Trading Ltd., Inc, Byzbits	1711023-21	13800	181	No manufacturer UPC.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-16-4-5	Paw Patrol Pencil Case—Blue Zipper Pull	Spin Master	888273478364	CHINA	Amazon, Mars Distribution, Inc.	1711023-20	25.6	13.7	Multi-pack with 2 folders. '3+' on attached product tag.
AM-16-5-7	Pink Trolls Family Girls Pencil Case—White Internal Trim	Dreamworks	471412751507 6	CHINA	Amazon, Four-Season-Store	1711023-32	385	82.2	Licensee: Pustaka Sri Dunia Sdn. Bhd. E-mail: marketing@psdsb.com
AM-16-7-13	Cars Pencil Pouch 2-Pack—White Seam Tape	Mirage	694012782010 2	CHINA	Amazon, Smileworkshop	1711023-30	474	137	Both have same UPC.
AM-16-7-3	Cars Pencil Pouch 2-Pack—Black Seam Tape	Mirage	694012782010 2	CHINA	Amazon, Smileworkshop	1711023-26	3510	736	Both have same UPC.
AM-16-8-12	Spiderman Pencil Pouch 2-Pack—Black Seam Tape on the Black Pouch	Mirage	694012782266 3	CHINA	Amazon, Dreamshop 14	1711023-24	4130	922	Both have same UPC.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-16-8-2	Spiderman Pencil Pouch 2-Pack—Red Material	Mirage	694012782266 3	CHINA	Amazon, Dreamshop 14	1711023-43	2790	41	Both have same UPC.
AM-16-8-8	Spiderman Pencil Pouch 2-Pack—Black Material	Mirage	694012782266 3	CHINA	Amazon, Dreamshop 14	1711023-54	31.2	3.35	Both have same UPC.
AM-16-9-16	Animal Island Cartoon Pouch 4-Pack—Zipper Pull from Green Pouch	iSuperb	—	CHINA	Amazon, iSuperb	1711023-11	44.1	1.69	No UPCs on products.
AM-16-9-9	Animal Island Cartoon Pouch 4-Pack—Zipper Pull on Red Pouch	iSuperb	—	CHINA	Amazon, iSuperb	1711023-51	50.9	1.72	No UPCs on products.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-17-10-2	Pineapple Stretchable Leather Book Cover—Black Material	FeiHuang	—	CHINA	Amazon	1711023-34	303	1 U	No UPC on product. Product arrived with limited seller/distributor/manufacturer information. Shipped from Address: linjianshuai xiamenfeihuanggongmao 5th Floor NO. 2 Fanghu St. SiMingQu XiaMenShi Fujian 361006 CHINA. Attached packaging scan to database.
AM-17-1-2	Stretchable Book Covers 6 Pack—Peace Fabric	Kittrich Corporation	87508034676	VIET NAM	Amazon, Kittrich Corporation	1711023-50	1 U	1 U	One UPC for all patterns/colors. Included 5 folders.
AM-17-13-5	Chevron Sausage Dog Stretchable Book Cover—Black Material	Cooper Girl	—	CHINA	Amazon	1711023-35	307	1 U	No UPC on product. Product arrived with limited seller/distributor/manufacturer information. Shipped from Address: Room 802H,63#2 Building, WangHai RD, Siming Distric HuLiQU XiaMenShi Fujian 361000. Attached packaging scan to database.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-17-2-4	Stretchable Book Sox 4-Pack—Blue Camo Cover	Book Sox	70895104778	CHINA	Amazon, All Sport N Jerseys	1711023-49	2.23 U	2.23 U	UPC: 70895104778 on 2 of the 4-pack. UPC: 70851040341 on 2 of the 4-pack.
AM-17-4-1	Ice Age Pink Pencil Pouch—Pink Material	Inkology	838157008859	CHINA	Amazon, Inkology, Inc	1711023-42	13.6	12.8	Item No. 885-9. Under UPC: (F100211869 04212016) 'Ages 5+'
AM-17-6-6	Denim Pants 3-Ring Pencil Pouch—Black Zipper Pull	Inkology	838157004783	CHINA	Amazon, Inkology, Inc	1711023-55	33.6	15.8	Item No. 748-3. Under UPC (F11071943 04/2015)
AM-17-7-1	Round Pink Pencil Pouch with Hearts—Pink Material	Inkology	838157004288	CHINA	Amazon, Inkology, Inc	1711023-44	2410	19.4	Item No. 428-8. Under UPC: (F11281994 04/2015)
AM-17-7-3	Round Pink Pencil Pouch with Hearts—Zipper Pull	Inkology	838157004288	CHINA	Amazon, Inkology, Inc	1711023-03	1270	12.3	Item No. 428-8. Under UPC: (F11281994 04/2015)

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
AM-17-8-1	Pink Pencil Pouch with Hearts— Pink Material	Inkology	838157004295	CHINA	Amazon, Inkology, Inc	1711023-40	1.24	1 U	Item No. 429-5. Under UPC: (F12311869 04302017)
AM-17-8-3	Pink Pencil Pouch with Hearts— Zipper Pull	Inkology	838157004295	CHINA	Amazon, Inkology, Inc	1711023-16	30.8	20.6	Item No. 429-5. Under UPC: (F12311869 04302017)
AM-17-9-2	Plush Green Frog Pencil Pouch— Frog Eye	Ladaidra	—	CHINA	Amazon	1711023-28	3500	1 U	Nici may be the brand. Product arrived with limited seller/distributor/manufacturer information. Attached packaging scan.
AM-18-1-9	Black Sneaker Pencil Pouch— Zipper Pull	Inkology	838157004424	CHINA	Amazon, Inkology, Inc	1711023-05	647	3.97	Item No. 442-4; 'Age 5+'
AM-18-2-8	Glitter Blue Sneaker Pencil Pouch— Zipper Pull	Inkology	838157004424	CHINA	Amazon, Inkology, Inc, Splashdeal	1711023-08	361 J	20.4	Item No. 442-4. Under UPC:(F11071943 04/2015); Amazon contact listing for Splashdeal: splashdeal@gmail.com

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
DT-17-3-1	Green Magic Book Cover—Green Material	Magic Cover	639277133908	CHINA	Greenbrier International Inc.	1711023-22	5150	1 U	Location sold in store, such as low on shelves; Product sold in or with children's products.
DT-19-2-1	Orange Magic Book Cover—Orange Material	Magic Cover	639277133908	CHINA	Greenbrier International Inc.	1711023-23	4410	1 U	Location sold in store, such as low on shelves; Product sold in or with children's products.
FM-29-4-7	Green Zipsters Wildlings 3 Ring Pencil Pouch—Green Metal Zipper Slider	Zipit	817758011688 3	CHINA	Zipit USA	1711023-17	21.7	5.41	Product sold in or with children's products.
OD-4-10-4	Strawberry Scented Pencil Pouch—Red Plastic Strawberry	Office Depot	735854057466	CHINA	Swinton Ave Trading Limited Inc.	1711023-39	323	1.11 U	Item 602-294. 17C1021364. Location sold in store, such as low on shelves; Product sold in or with children's products.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
OD-4-11-1	Clear Adhesive Book Cover Roll—Clear Adhesive	Office Depot	735854192662	CHINA	Office Depot	1711023-33	9.44	727	Product sold in or with children's products.
OD-4-2-10	Green Mesh Window 3 Ring Pencil Pouch—Lower Black Zipper Pull	—	735854986780	CHINA	Swinton Ave Trading Limited Inc.	1711023-14	40.3	1 U	Item 469-734; Location sold in store, such as low on shelves; Product sold in or with children's products.
OD-4-8-8	Vaultz Locking Supply Box—Rivet	Vaultz	8260300147890	CHINA	Ideastream Consumer Products, LLC	1711023-58	1.52	1 U	'This Product Contains Composite Wood that Complies with Phase 2 of the ATCM.' Location sold in store, such as low on shelves; Product sold in or with children's products; photograph of young boy on inner 'sweepstakes' flyer.
SK-13-3-1	Yellow Pencil Pouch with Dots—Yellow Pouch Material	Inkology	838157004288	CHINA	Inkology, Inc	1711023-25	2980	19.9	Item No. 428-8. Under UPC: (F11281994 04/2015). Location sold in store, such as low on shelves; Product sold in or with children's products.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
SK-13-3-4	Yellow Pencil Pouch with Dots—Zipper Pull	Inkology	838157004288	CHINA	Inkology, Inc	1711023-04	1040 J	11.4 J	Item No. 428-8. Under UPC: (F11281994 04/2015). Location sold in store, such as low on shelves; Product sold in or with children's products.
SK-13-4-1	Pink Heart Pencil Pouch—Pink Outer Material	Inkology	838157004295	CHINA	Inkology, Inc	1711023-46	2080	10.9	Item No. 429-5. Under UPC: F11281994 04/2014. Location sold in store, such as low on shelves; Product sold in or with children's products; 'Age 5+'
TG-35-2-12	Pink and Creme 3-Ring Binder Pouch Set—Silver Carabiner	up&up	86196281829	CHINA	Target Corporation	1711023-53	7.74	1 U	Location sold in store, such as low on shelves; Product sold in or with children's products.
TG-35-7-5	Glitter Zip Pencil Case—Zipper Slider	Yoobi	815766025880	CHINA	Yoobi Trading Corporation Ltd.	1711023-13	22	1.81	Style 15ACBNADAB. Location sold in store, such as low on shelves; Product sold in or with children's products; 'For every Yoobi item you buy, a Yoobi item will be donated to a classroom in need, right here in the U.S. One for you, one for me. It's that simple!'

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
WM-35-10-5	Red Dog 3-Ring Pencil Pouch—Zipper Slider	Studio C	79784261938	CHINA	Wal-Mart Stores Inc.	1711023-37	28	4.79	Product sold in or with children's products; numbers on product labels: 39933, WM-008169V6_2-317, MF 20392, JO#8779.
WM-35-10-7	Red Dog 3-Ring Pencil Pouch—Plastic Paw Print Zipper Pull	Studio C	79784261938	CHINA	Wal-Mart Stores Inc.	1711023-29	54.3 J	5.86	Product sold in or with children's products; numbers on product labels: 39933, WM-008169V6_2-317, MF 20392, JO#8779.
WM-35-13-12	Shopkins SPK Party Pencil Case—Orange Piping	Shopkins	844331059432	CHINA	Innovative Designs LLC	1711023-38	275	1 U	Warning tag: not for children under 3 years. Shopkins tag: for ages 5+. Above UPC: 5943SD.
WM-35-3-8	Blue Quilted Birds Pencil Pouch—Upper Black Zipper Pull	Pen+Gear	849732001899	CHINA	Wal-Mart Stores Inc.	1711023-52	17.5	2.44	Location sold in store, such as low on shelves; Product sold in or with children's products.

Component ID	Product—Component Description	Brand	UPC	Country Made In	Companies Listed on Product (e.g., Manufacturers, Distributors, Importers)	Lab Sample ID	Lead (mg/Kg)	Cadmium (mg/Kg)	Product Notes
WM-35-5-6	Bust a Minion 3-Ring Pencil Case—Zipper Slider	Universal Studios	844331059388	CHINA	Innovative Designs LLC	1711023-15	20.4	2.03	Product sold in or with children's products; numbers listed on tag: 5938DP & F01403/1715938; Choking Hazard Tag: 'Not for children under 3 years'
WM-35-6-6	Pink Chevron Pencil Pouch—Zipper Pull	Pen+Gear	5021419163334	CHINA	Wal-Mart Stores Inc.	1711023-59	25.4	4.48	Product sold in or with children's products; WMFSPC16199-0417.

UPC = Universal Product Code.

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

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

Table A-3. Summary of Product-Component Samples from 2017 above the CSPA Threshold: 90 ppm for Lead and 40 ppm for Cadmium.

Component ID	Product—Component Description	Brand	Composite With	Lab Sample ID	Lead (ppm)	Cadmium (ppm)
AM-16-3-1	Adhesive Book Cover Rolls Assorted Colors 4-Pack—Orange Material	Office Depot	—	1711023-21	13800	181
AM-16-5-7	Pink Trolls Family Girls Pencil Case—White Internal Trim	Dreamworks	—	1711023-32	385	82.2
AM-16-7-13	Cars Pencil Pouch 2-Pack—White Seam Tape	Mirage	—	1711023-30	474	137
AM-16-7-3	Cars Pencil Pouch 2-Pack—Black Seam Tape	Mirage	—	1711023-26	3510	736
AM-16-8-2	Spiderman Pencil Pouch 2-Pack—Red Material	Mirage	—	1711023-43	2790	41
AM-16-8-12	Spiderman Pencil Pouch 2-Pack—Black Seam Tape on the Black Pouch	Mirage	—	1711023-24	4130	922
<i>AM-16-8-8</i>	<i>Spiderman Pencil Pouch 2-Pack—Black Material</i>	<i>Mirage</i>	—	<i>1711023-54</i>	<i>31.2</i>	<i>3.35</i>
AM-16-12-1	Back to School Kit—Red Pencil Pouch—Red Material	Kedudes	—	1711023-47	1230	102
AM-16-12-8	Back to School Kit—Clear Pencil Pouch Plastic	Kedudes	—	1711023-36	1 U	540
AM-16-12-12	Back to School Kit—White Plastic on Clear Pencil Pouch	Kedudes	—	1711023-60	68.7	566
AM-16-14-9	Purple Sneaker Pencil Pouch—Zipper Pull	Inkology	—	1711023-06	686	4.01

Component ID	Product—Component Description	Brand	Composite With	Lab Sample ID	Lead (ppm)	Cadmium (ppm)
AM-16-15-22	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack—Green Pouch—Green Material	Boonafit	—	1711023-45	2010	13.1
AM-16-15-27	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack—Purple Pouch—Purple Material	Boonafit	—	1711023-41	1850	19.4
AM-16-16-5	Cute Cat Pencil Pouch—Zipper Pull	Phroboxl	—	1711023-01	750	8.24
AM-16-19-1	Shark Pencil Pouch—Black Material	Artone	—	1711023-27	1190	10.7
AM-16-19-13	Shark Pencil Pouch—Red Mouth Material	Artone	—	1711023-31	393	147
AM-16-19-8	<i>Shark Pencil Pouch—Red Zipper—Pull</i>	<i>Artone</i>	—	<i>1711023-09</i>	<i>40.2</i>	<i>8.39</i>
AM-16-21-6	Green Guitar Crocodile Pencil Case—Zipper Pull	SOOCUTE	—	1711023-02	901	18.1
AM-17-7-1	Round Pink Pencil Pouch with Hearts—Pink Material	Inkology	—	1711023-44	2410	19.4
AM-17-7-3	Round Pink Pencil Pouch with Hearts—Zipper Pull	Inkology	—	1711023-03	1270	12.3
AM-17-9-2	Plush Green Frog Pencil Pouch—Frog Eye	Ladaidra	—	1711023-28	3500	1 U
AM-17-10-2	Pineapple Stretchable Leather Book Cover—Black Material	FeiHuang	—	1711023-34	303	1 U
AM-17-13-5	Chevron Sausage Dog Stretchable Book Cover—Black Material	Cooper Girl	—	1711023-35	307	1 U
AM-18-1-9	Black Sneaker Pencil Pouch—Zipper Pull	Inkology	—	1711023-05	647	3.97

Component ID	Product—Component Description	Brand	Composite With	Lab Sample ID	Lead (ppm)	Cadmium (ppm)
AM-18-2-8	Glitter Blue Sneaker Pencil Pouch—Zipper Pull	Inkology	AM-18-2-11 (slider)	1711023-08	361 J	20.4
DT-17-3-1	Green Magic Book Cover—Green Material	Magic Cover	—	1711023-22	5150	1 U
DT-19-2-1	Orange Magic Book Cover—Orange Material	Magic Cover	—	1711023-23	4410	1 U
OD-4-10-4	Strawberry Scented Pencil Pouch—Red Plastic Strawberry	Office Depot	—	1711023-39	323	1.11 U
OD-4-11-1	Clear Adhesive Book Cover Roll—Clear Adhesive	Office Depot	—	1711023-33	9.44	727
SK-13-3-1	Yellow Pencil Pouch with Dots—Yellow Pouch Material	Inkology	—	1711023-25	2980	19.9
SK-13-3-4	Yellow Pencil Pouch with Dots—Zipper Pull	Inkology	SK-13-3-3 (slider)	1711023-04	1040 J	11.4 J
SK-13-4-1	Pink Heart Pencil Pouch—Pink Outer Material	Inkology	—	1711023-46	2080	10.9
WM-35-13-12	Shopkins SPK Party Pencil Case—Orange Piping	Shopkins	—	1711023-38	275	1 U

Bold = Concentrations above CSPA threshold for lead and cadmium.

Italics = Product components with lower than threshold concentrations but from same product where components exceed a threshold.

Bold Cell Outline = Component samples within bolded outline are from the same product.

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

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

Table A-4. Comparison of Results for 2015 and 2017 Inkology Brand Pencil Pouches

Study Name	Purchase Date	Purchased From	Brand	Product— Component Description	UPC	Component ID (Lab ID)	Composite of Component IDs	Lead (mg/Kg)	Cadmium (mg/Kg)
<i>Seasonal Products— 2015—Back to School</i>	7/15/2015	Shopko	Inkology	<i>Pink Heart Pencil Pouch- Pink Fabric</i>	83815700429 5	SK-6-5-1 (1509092-17)	—	3840	10.6
School Supplies— 2017	9/8/2017	Shopko	Inkology	Pink Heart Pencil Pouch—Pink Outer Material	83815700429 5	SK-13-4-1 (1711013-46)	—	2080	10.9
School Supplies— 2017	9/28/2017	Amazon	Inkology	Pink Pencil Pouch with Hearts—Pink Material	83815700429 5	AM-17-8-1 (1711023-40)	—	1.24	1 U
School Supplies— 2017	9/28/2017	Amazon	Inkology	Pink Pencil Pouch with Hearts— Zipper Pull	83815700429 5	AM-17-8-3 (1711023-16)	AM-17-18-2 (slider)	30.8	20.6
<i>Seasonal Products— 2015—Back to School</i>	7/28/2015	Office Depot	Inkology	<i>Shoe Pencil Pouch- Zipper pull</i>	83815700442 4	OD-3-37-2 (1509092-13)	OD-3-37-3 (slider)	474	16.4
School Supplies— 2017	10/12/2017	Amazon	Inkology	Glitter Blue Sneaker Pencil Pouch— Zipper Pull	83815700442 4	AM-18-2-8 (1711023-08)	AM-18-2-11 (slider)	361 J	20.4

Study Name	Purchase Date	Purchased From	Brand	Product— Component Description	UPC	Component ID (Lab ID)	Composite of Component IDs	Lead (mg/Kg)	Cadmium (mg/Kg)
<i>Seasonal Products— 2015—Back to School</i>	8/10/2015	Shopko	Inkology	<i>Yellow Pencil Pouch with Dots- Zipper pull</i>	83815700428 8	SK-7-1-4 (1509092-19)	SK-7-1-3 (slider)	1140	11.2
<i>Seasonal Products— 2015—Back to School</i>	8/10/2015	Shopko	Inkology	<i>Yellow Pencil Pouch with Dots- Blue dot</i>	83815700428 8	SK-7-1-6 (1509092-20)	w/ yellow fabric	2220	14.5
School Supplies— 2017	9/8/2017	Shopko	Inkology	Yellow Pencil Pouch with Dots—Zipper Pull	83815700428 8	SK-13-3-4 (1711023-04)	SK-13-3-3 (slider)	1040 J	11.4 J
School Supplies— 2017	9/8/2017	Shopko	Inkology	Yellow Pencil Pouch with Dots— Yellow Pouch Material	83815700428 8	SK-13-3-1 (1711023-25)	—	2980	19.9

Italics = products tested in the original 2015 Back to School study.

Bold = concentrations above the CSPA limit.

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

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

Table A-5. Comparison of Results for 2015 and 2017 Book Cover Products.

Study Name	Purchase Date	Purchased From	Brand	Product—Component Description	UPC	Component ID (Lab ID)	Composite of Component IDs	Lead (mg/Kg)	Cadmium (mg/Kg)
<i>Seasonal Products—2015—Back to School</i>	7/15/2015	<i>Dollar Tree</i>	<i>Magic Cover</i>	<i>Green Magic Cover- Green material</i>	639277133908	<i>DT-9-12-1 (1509092-01)</i>	—	5620	1.99
School Supplies—2017	9/8/2017	Dollar Tree	Magic Cover	Green Magic Book Cover—Green Material	639277133908	DT-17-3-1 (1711023-22)	—	5150	1 U
School Supplies—2017	10/13/2017	Dollar Tree	Magic Cover	Orange Magic Book Cover—Orange Material	639277133908	DT-19-2-1 (1711023-23)	—	4410	1 U
<i>Seasonal Products—2015—Back to School</i>	7/28/2015	<i>Office Depot</i>	<i>Office Depot</i>	<i>Adhesive Book Cover Rolls- Orange</i>	735854192808	<i>OD-3-44-3 (1509092-14)</i>	—	19600	2.08
School Supplies—2017	9/26/2017	Amazon	Office Depot	Adhesive Book Cover Rolls Assorted Colors 4-Pack—Orange Material	—	AM-16-3-1 (1711023-21)	—	13800	181
School Supplies—2017	9/8/2017	Office Depot	Office Depot	Clear Adhesive Book Cover Roll—Clear Adhesive	735854192662	OD-4-11-1 (1711023-33)	—	9.44	727

Italics = products tested in the original 2015 Back to School study.

Bold = concentrations above the CSPA limit.

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

Table A-6. Products from 2017 with One or More Components Containing Lead and/or Cadmium Above the CSPA limits: 90 ppm for Lead and 40 ppm for Cadmium.

Product ID	Product Description	Brand
AM-16-3	Adhesive Book Cover Rolls Assorted Colors 4-Pack	Office Depot
AM-16-5	Pink Trolls Family Girls Pencil Case	Dreamworks
AM-16-7	Cars Pencil Pouch 2-Pack	Miarge
AM-16-8	Spiderman Pencil Pouch 2-Pack	Mirage
AM-16-12	Back to School Kit—Red Pencil Pouch	Kedudes
AM-16-14	Purple Sneaker Pencil Pouch	Inkology
AM-16-15	3-Ring Canvas Pencil Pouch Assorted Colors 5-Pack	Boonafit
AM-16-16	Cute Cat Pencil Pouch	Phroboxl
AM-16-19	Shark Pencil Pouch	Artone
AM-16-21	Green Guitar Crocodile Pencil Case	SOOCUTE
AM-17-7	Round Pink Pencil Pouch with Hearts	Inkology
AM-17-9	Plush Green Frog Pencil Pouch	Ladaidra
AM-17-10	Pineapple Stretchable Leather Book Cover	FeiHuang
AM-17-13	Chevron Sausage Dog Stretchable Book Cover	Cooper Girl
AM-18-1	Black Sneaker Pencil Pouch	Inkology
AM-18-2	Glitter Blue Sneaker Pencil Pouch	Inkology
DT-17-3	Green Magic Book Cover	Magic Cover
DT-19-2	Orange Magic Book Cover	Magic Cover
OD-4-10	Strawberry Scented Pencil Pouch	Office Depot
OD-4-11	Clear Adhesive Book Cover Roll	Office Depot
SK-13-3	Yellow Pencil Pouch with Dots	Inkology
SK-13-4	Pink Heart Pencil Pouch	Inkology
WM-35-13	Shopkins SPK Party Pencil Case	Shopkins

Appendix B. Case Narrative 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

December 12, 2017

Project: School Supplies 2017

Work Order: 1711023

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.

The results for sample 29 were qualified as estimate and should be only used for informational purposes. While digesting in the microwave, the sample built up too much pressure and vented. The sample was digested twice, the second time using a lesser amount. The results were adjusted for the estimated loss of sample.

Samples 48 for cadmium and 49 for cadmium and lead were diluted for analyses. The samples were non detect at a higher reporting limit proportional for the dilution factor.

Sample Information

The samples were received at the Manchester Laboratory on 11/17/2017. The samples were received in good condition. Sixty samples were received and assigned laboratory identification numbers 01 to 60.

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

The duplicate relative percent differences (RPD) between the matrix spike (MS) and matrix spike duplicate (MSD) for batch B17K106 for cadmium and lead were greater than the acceptance limit. The source sample (04) was qualified as an estimate.

The RPD between sample 08 and its duplicate for lead was greater than the acceptance limit. The sample and duplicate were qualified as estimates.

All other RPDs with concentrations greater than 5 times the reporting limit were within the acceptance limit.

Matrix Spikes

One of the MS/MSD recoveries for sample 04 for lead was outside of the acceptance limits. The standard spiking level was insufficient for the elevated concentration in the source sample therefore the recovery was not evaluated.

All other MS 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.
- J - The analyte was positively identified. The associated numerical result is an estimate.
- UJ - The analyte was not detected at or above the reported estimated 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 2017

Project Officer: Sekerak, Sara
Work Order: 1711023
Analyte: Cadmium

Prep Method: SW3052
Prepared: 11/21/17
Batch ID: B17K106

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

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1711023-01	AM-16-16-5	8.24		1.00	0.027	11/14/17	12/11/17
1711023-02	AM-16-21-6	18.1		1.00	0.026	11/14/17	12/11/17
1711023-03	AM-17-7-3	12.3		1.00	0.027	11/14/17	12/11/17
1711023-04	SK-13-3-4	11.4	J	1.00	0.027	11/14/17	12/11/17
1711023-05	AM-18-1-9	3.97		1.00	0.027	11/14/17	12/11/17
1711023-06	AM-16-14-9	4.01		1.00	0.026	11/14/17	12/11/17
1711023-07	AM-16-12-5	3.37		1.00	0.027	11/14/17	12/11/17
1711023-08	AM-18-2-8	20.4		1.00	0.024	11/14/17	12/11/17
1711023-09	AM-16-19-8	8.39		1.00	0.027	11/14/17	12/11/17
1711023-10	AM-16-15-11	1.00	U	1.00	0.024	11/14/17	12/11/17
1711023-11	AM-16-9-16	1.69		1.00	0.027	11/14/17	12/11/17
1711023-12	AM-16-18-11	2.20		1.00	0.027	11/14/17	12/11/17
1711023-13	TG-35-7-5	1.81		1.00	0.027	11/14/17	12/11/17
1711023-14	OD-4-2-10	1.00	U	1.00	0.026	11/14/17	12/11/17
1711023-15	WM-35-5-6	2.03		1.00	0.026	11/14/17	12/11/17
1711023-16	AM-17-8-3	20.6		1.00	0.027	11/15/17	12/11/17
1711023-17	OD-4-4-7	5.41		1.00	0.027	11/15/17	12/11/17
1711023-18	AM-16-1-6	5.27		1.00	0.026	11/15/17	12/11/17
1711023-19	AM-16-17-8	1.95		1.00	0.026	11/15/17	12/11/17
1711023-20	AM-16-4-5	13.7		1.00	0.026	11/15/17	12/11/17

QC Results for Batch ID: B17K106

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B17K106-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
B17K106-BS1	LCS	217	200			109	85-115		
B17K106-BSD1	LCS Dup	219	200			109	85-115	0.7	20
B17K106-DUP1	Duplicate	18.6		1711023-08	20.4			9	20
B17K106-MS1	Matrix Spike	214	198	1711023-04	11.4	102	75-125		
B17K106-MSD1	Matrix Spike Dup	313	287	1711023-04	11.4	105	75-125	37	20

Authorized by: _____

Dm

Release Date: _____

12/21/17

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

Project Name: School Supplies 2017

Project Officer: Sekerak, Sara
Work Order: 1711023
Analyte: Cadmium

Prep Method: SW3052
Prepared: 12/06/17
Batch ID: B17L001

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

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1711023-37	WM-35-10-5	4.79		1.00	0.027	11/16/17	12/11/17
1711023-41	AM-16-15-27	19.4		1.00	0.026	11/16/17	12/11/17
1711023-42	AM-17-4-1	12.8		1.00	0.024	11/16/17	12/11/17
1711023-43	AM-16-8-2	41.0		1.00	0.025	11/16/17	12/11/17
1711023-44	AM-17-7-1	19.4		1.00	0.025	11/16/17	12/11/17
1711023-45	AM-16-15-22	13.1		1.00	0.025	11/16/17	12/11/17
1711023-46	SK-13-4-1	10.9		1.00	0.027	11/16/17	12/11/17
1711023-47	AM-16-12-1	102		1.00	0.026	11/16/17	12/11/17
1711023-48	AM-16-24-4	2.58	U	2.58	0.070	11/16/17	12/11/17
1711023-49	AM-17-2-4	2.23	U	2.23	0.060	11/16/17	12/11/17
1711023-50	AM-17-1-2	1.00	U	1.00	0.027	11/16/17	12/11/17
1711023-51	AM-16-9-9	1.72		1.00	0.024	11/16/17	12/11/17
1711023-52	WM-35-3-8	2.44		1.00	0.026	11/16/17	12/11/17
1711023-53	TG-35-2-12	1.00	U	1.00	0.027	11/16/17	12/11/17
1711023-54	AM-16-8-8	3.35		1.00	0.023	11/16/17	12/11/17
1711023-55	AM-17-6-6	15.8		1.00	0.027	11/16/17	12/11/17
1711023-56	AM-16-27-5	1.00	U	1.00	0.026	11/16/17	12/11/17
1711023-57	AM-16-26-3	7.52		1.14	0.031	11/16/17	12/11/17
1711023-58	OD-4-8-8	1.00	U	1.00	0.024	11/16/17	12/11/17
1711023-59	WM-35-6-6	4.48		1.00	0.021	11/15/17	12/11/17

QC Results for Batch ID: B17L001

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B17L001-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	
B17L001-BS1	LCS	208	200			104	85-115			
B17L001-BSD1	LCS Dup	208	200			104	85-115	0.05	20	
B17L001-DUP1	Duplicate	1.00	U	1711023-50	1.00	U		NC	20	
B17L001-MS1	Matrix Spike	203	189	1711023-37	4.79	105	75-125			
B17L001-MS2	Matrix Spike	194	188	1711023-48	2.58	U	102	75-125		
B17L001-MSD1	Matrix Spike Dup	196	176	1711023-37	4.79	109	75-125	4	20	
B17L001-MSD2	Matrix Spike Dup	190	189	1711023-48	2.58	U	100	75-125	2	20

Authorized by: _____ *Dm*

Release Date: _____ *12/12/17*

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

Project Name: School Supplies 2017

Project Officer: Sekerak, Sara
Work Order: 1711023
Analyte: Lead

Prep Method: SW3052
Prepared: 11/21/17
Batch ID: B17K106

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

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1711023-01	AM-16-16-5	750		1.00	0.050	11/14/17	12/11/17
1711023-02	AM-16-21-6	901		1.00	0.049	11/14/17	12/11/17
1711023-03	AM-17-7-3	1270		1.00	0.051	11/14/17	12/11/17
1711023-04	SK-13-3-4	1040	J	1.00	0.050	11/14/17	12/11/17
1711023-05	AM-18-1-9	647		1.00	0.050	11/14/17	12/11/17
1711023-06	AM-16-14-9	686		1.00	0.050	11/14/17	12/11/17
1711023-07	AM-16-12-5	16.7		1.00	0.051	11/14/17	12/11/17
1711023-08	AM-18-2-8	361	J	1.00	0.045	11/14/17	12/11/17
1711023-09	AM-16-19-8	40.2		1.00	0.051	11/14/17	12/11/17
1711023-10	AM-16-15-11	1.00	U	1.00	0.046	11/14/17	12/11/17
1711023-11	AM-16-9-16	44.1		1.00	0.051	11/14/17	12/11/17
1711023-12	AM-16-18-11	26.0		1.00	0.050	11/14/17	12/11/17
1711023-13	TG-35-7-5	22.0		1.00	0.051	11/14/17	12/11/17
1711023-14	OD-4-2-10	40.3		1.00	0.050	11/14/17	12/11/17
1711023-15	WM-35-5-6	20.4		1.00	0.049	11/14/17	12/11/17
1711023-16	AM-17-8-3	30.8		1.00	0.050	11/15/17	12/11/17
1711023-17	OD-4-4-7	21.7		1.00	0.051	11/15/17	12/11/17
1711023-18	AM-16-1-6	28.6		1.00	0.049	11/15/17	12/11/17
1711023-19	AM-16-17-8	23.2		1.00	0.050	11/15/17	12/11/17
1711023-20	AM-16-4-5	25.6		1.00	0.049	11/15/17	12/11/17

QC Results for Batch ID: B17K106

Method Blank	Sample ID	Result	Qualifer	RL	MDL
B17K106-BLK1	Blank	1.00	U	1.00	0.051

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec %Rec	%Rec Limits	RPD	RPD Limit
B17K106-BS1	LCS	212	200			106	85-115		
B17K106-BSD1	LCS Dup	213	200			106	85-115	0.5	20
B17K106-DUP1	Duplicate	514	J	1711023-08	361			35	20
B17K106-MS1	Matrix Spike	1060	198	1711023-04	1040	13	75-125		
B17K106-MSD1	Matrix Spike Dup	1390	287	1711023-04	1040	122	75-125	27	20

Authorized by: _____ *Dh*

Release Date: _____ *12/12/17*

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

Project Name: School Supplies 2017

Project Officer: Sekerak, Sara
Work Order: 1711023
Analyte: Lead

Prep Method: SW3052
Prepared: 11/29/17
Batch ID: B17K137

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

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1711023-21	AM-16-3-1	13800		9.84	0.502	11/14/17	12/11/17
1711023-22	DT-17-3-1	5150		1.00	0.048	11/14/17	12/11/17
1711023-23	DT-19-2-1	4410		1.00	0.050	11/14/17	12/11/17
1711023-24	AM-16-8-12	4130		1.00	0.051	11/14/17	12/11/17
1711023-25	SK-13-3-1	2980		1.00	0.048	11/14/17	12/11/17
1711023-26	AM-16-7-3	3510		1.00	0.049	11/14/17	12/11/17
1711023-27	AM-16-19-1	1190		1.00	0.049	11/15/17	12/11/17
1711023-28	AM-17-9-2	3500		1.00	0.045	11/15/17	12/11/17
1711023-29	WM-35-10-7	54.3	J	5.86	0.299	11/16/17	12/11/17
1711023-30	AM-16-7-13	474		1.00	0.050	11/15/17	12/11/17
1711023-31	AM-16-19-13	393		1.00	0.047	11/15/17	12/11/17
1711023-32	AM-16-5-7	385		1.00	0.050	11/15/17	12/11/17
1711023-33	OD-4-11-1	9.44		1.00	0.046	11/16/17	12/11/17
1711023-34	AM-17-10-2	303		1.00	0.050	11/16/17	12/11/17
1711023-35	AM-17-13-5	307		1.00	0.047	11/16/17	12/11/17
1711023-36	AM-16-12-8	1.00	U	1.00	0.051	11/16/17	12/11/17
1711023-38	WM-35-13-12	275		1.00	0.051	11/16/17	12/11/17
1711023-39	OD-4-10-4	323		1.11	0.057	11/16/17	12/11/17
1711023-40	AM-17-8-1	1.24		1.00	0.050	11/16/17	12/11/17
1711023-60	AM-16-12-12	68.7		1.00	0.050	11/16/17	12/11/17

QC Results for Batch ID: B17K137

Method Blank	Sample ID	Result	Qualifier	RL	MDL
B17K137-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
B17K137-BS1	LCS	200	200			100	85-115		
B17K137-BSD1	LCS Dup	203	200			101	85-115	1	20
B17K137-DUP1	Duplicate	1.00	U	1711023-36	1.00	U		NC	20
B17K137-MS1	Matrix Spike	681	198	1711023-30	474	105	75-125		
B17K137-MS2	Matrix Spike	192	189	1711023-40	1.24	101	75-125		
B17K137-MSD1	Matrix Spike Dup	683	216	1711023-30	474	97	75-125	0.2	20
B17K137-MSD2	Matrix Spike Dup	198	195	1711023-40	1.24	101	75-125	3	20

Authorized by: _____ *DM*

Release Date: _____ *12/12/17*

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

Project Name: School Supplies 2017

Project Officer: Sekerak, Sara	Prep Method: SW3052	Analysis Method: SW6020B
Work Order: 1711023	Prepared: 12/06/17	Matrix: Metal
Analyte: Lead	Batch ID: B17L001	Units: mg/Kg ww

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed
1711023-37	WM-35-10-5	28.0		1.00	0.050	11/16/17	12/11/17
1711023-41	AM-16-15-27	1850		1.00	0.050	11/16/17	12/11/17
1711023-42	AM-17-4-1	13.6		1.00	0.045	11/16/17	12/11/17
1711023-43	AM-16-8-2	2790		1.00	0.048	11/16/17	12/11/17
1711023-44	AM-17-7-1	2410		1.00	0.048	11/16/17	12/11/17
1711023-45	AM-16-15-22	2010		1.00	0.048	11/16/17	12/11/17
1711023-46	SK-13-4-1	2080		1.00	0.051	11/16/17	12/11/17
1711023-47	AM-16-12-1	1230		1.00	0.048	11/16/17	12/11/17
1711023-48	AM-16-24-4	41.0		2.58	0.131	11/16/17	12/11/17
1711023-49	AM-17-2-4	2.23	U	2.23	0.114	11/16/17	12/11/17
1711023-50	AM-17-1-2	1.00	U	1.00	0.051	11/16/17	12/11/17
1711023-51	AM-16-9-9	50.9		1.00	0.046	11/16/17	12/11/17
1711023-52	WM-35-3-8	17.5		1.00	0.050	11/16/17	12/11/17
1711023-53	TG-35-2-12	7.74		1.00	0.051	11/16/17	12/11/17
1711023-54	AM-16-8-8	31.2		1.00	0.043	11/16/17	12/11/17
1711023-55	AM-17-6-6	33.6		1.00	0.051	11/16/17	12/11/17
1711023-56	AM-16-27-5	15.9		1.00	0.049	11/16/17	12/11/17
1711023-57	AM-16-26-3	31.7		1.14	0.058	11/16/17	12/11/17
1711023-58	OD-4-8-8	1.52		1.00	0.045	11/16/17	12/11/17
1711023-59	WM-35-6-6	25.4		1.00	0.040	11/15/17	12/11/17

QC Results for Batch ID: B17L001

Method Blank	Sample ID	Result	Qualifer	RL	MDL
B17L001-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
B17L001-BS1	LCS	198	200			99	85-115		
B17L001-BSD1	LCS Dup	197	200			98	85-115	0.7	20
B17L001-DUP1	Duplicate	1.00	U	1711023-50	1.00	U		NC	20
B17L001-MS1	Matrix Spike	219	189	1711023-37	28.0	101	75-125		
B17L001-MS2	Matrix Spike	230	188	1711023-48	41.0	101	75-125		
B17L001-MSD1	Matrix Spike Dup	212	176	1711023-37	28.0	104	75-125	3	20
B17L001-MSD2	Matrix Spike Dup	225	189	1711023-48	41.0	97	75-125	2	20

Authorized by: DM Release Date: 12/12/17 Page 6 of 6