



DEPARTMENT OF
ECOLOGY
State of Washington

School Supplies 2017

Addendum 2 to Quality Assurance Project Plan: Phthalates and Metals in Children's Products

October 2017

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Publication Information

Addendum

This addendum is on the Washington State Department of Ecology's website at <https://fortress.wa.gov/ecy/publications/SummaryPages/1703114.html>

This is the second addendum to an original Quality Assurance Project Plan (QAPP).

This addendum includes numbering and format updates following Ecology's current QAPP format. This formatting was not available at the time of publication for the original QAPP or Addendum #1. Format updates do not adversely alter the substantive content of the publications.

Data for this study will be available on the Product Testing Database (PTDB) website at <https://fortress.wa.gov/ecy/ptdbpublicreporting/Default.aspx>. Search by Study: School Supplies 2017.

Original Quality Assurance Project Plan

Quality Assurance Project Plan: Phthalates and Metals in Children's Products.
Publication No. 12-07-023.

<https://fortress.wa.gov/ecy/publications/documents/1207023.html>

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Funding for this study is provided by the Washington State Attorney General's Office.

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School Supplies 2017

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EAP

Date: _____

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Date: _____

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

2.0 Abstract

At the request of the Washington State Attorney General's Office (AGO), the Washington State Department of Ecology (Ecology) will investigate lead and cadmium levels in products that appear to be marketed to children 12 years of age or younger and are promoted as school supplies. These products are more readily available in late summer and early fall, coinciding with the beginning of a school year.

In fall 2017, Ecology will collect at least 60 products of this type, screen the product components using X-Ray fluorescence, and send 60 samples to Ecology's Manchester Environmental Laboratory for analysis of lead and cadmium¹.

A Technical Memo describing the results and data quality will be submitted to the AGO at the end of the study in early 2018. Funding for this study is provided by the AGO.

¹ For this study phthalates will not be investigated.

3.0 Background

This document describes the 2017 sampling effort to test school supplies for lead and cadmium. It is the second addendum to the *Quality Assurance Project Plan: Phthalates and Metals in Children's Products* (Stone, 2012). This second addendum employs a seasonal event sampling design used in *Addendum #1 to Quality Assurance Project Plan: Phthalates and Metals in Children's Products* (Stone, 2014).

The Washington State Department of Ecology (Ecology) regularly conducts studies to evaluate the presence of chemicals in consumer products regulated by Washington State laws. The Children's Safe Products Act (CSPA) ([Chapter 70.240 Revised Code of Washington \(RCW\)](#)) set limits on the amount of lead, cadmium, and phthalates in children's products. The law also requires manufacturers to report if their children's products contain a Chemical of High Concern to Children (CHCC) ([Chapter 173-334 Washington Administrative Code \(WAC\)](#)). Manufacturers may not be required to report the presence of toxic chemicals in some types of products.

At the federal level, the Consumer Product Safety Improvement Act (CPSIA) regulates consumer product safety, including limiting levels of lead and cadmium in children's products.

CSPA and CPSIA define a "children's product" by slightly different criteria, but neither law categorically defines school supplies as children's products. Under CPSIA some school supplies may fit within the definition of a "children's product" as steered by the law's "four specified statutory factors" and the law's given authority to evaluate products on a case-by-case basis. Specifically, a product can be individually distinguished as a children's product based on its "display, promotion, or advertising as appropriate for use by children 12 years of age or younger"².

CPSIA authoritatively restricts lead in children's products to less than 100 parts per million (ppm) and cadmium at 75 ppm. CSPA sets limits at 90 ppm lead and 40 ppm cadmium in children's products, with some product categories preempted by CPSIA. Ecology regularly submits data and product information to the federal Consumer Product Safety Commission (CPSC) when exceedances of these limits occur where federal law supersedes state law.

In addition, the Washington Consumer Protection Act prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce" ([RCW 19.86.020](#)). The manufacture and sale of products in violation of federal law are unfair and deceptive, and therefore may comprise a state Consumer Protection Act violation.

Ecology's 2015 study of phthalates and metals in children's products demonstrated that certain school supplies that appeared to be marketed to children contained high concentrations of lead (Trumbull et al., 2017). Specifically, some pencil pouches and book covers tested contained significant quantities of lead; in one case, nearly 200 times the CPSIA-imposed limit. Everyday use of non-regulated products may increase a child's contact with toxic lead and cadmium.

² CPSIA applies to "consumer product[s] designed or intended primarily for children 12 years of age or younger" 16 CFR § 1200.2. CSPA governs products designed or intended for use by "children under the age of 12"

4.0 Study Description

In September 2017, Ecology will purchase up to 60 school supply products from those marketed and offered for sale as school supplies, specifically pursuing pencil pouches/cases and book cover materials. Products to be purchased will include the five products, if available, that were found to have high levels of lead in the 2015 Back to School Seasonal event (Trumbull et al., 2017) Additional products that are manufactured by the same companies, sold by the same retailers, or appear to have similar function or purpose will also be targeted.

4.1 Study goals

This study aims to assess lead and cadmium concentrations in products offered for sale and promoted as school supplies.

The data from this study will serve to:

- Inform the AGO and Ecology about the scope and nature of potential violations of state and federal law restricting the concentrations of lead and cadmium in children's products.
- Support appropriate enforcement action or litigation authorized by Ecology or the AGO.

4.6 Tasks required

The study will include the following tasks:

- Draft and approve Interagency Agreement (IAA), as necessary.
- Purchase the previously tested five targeted items and additional similar products used as school supplies, totaling at least 60 products.
- Screen products with the X-ray fluorescence (XRF) analyzer.
- Submit at least 60 samples to the laboratory for analysis of lead and cadmium.
- Review analytical data.
- Write technical memo.

5.0 Organization and Schedule

5.1 Key individuals and their responsibilities

Table 1. Organization of study staff and responsibilities.

Staff	Title	Responsibilities
William Sherman Attorney General's Office Phone: 206-442-4485	External Client	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 Enforcement Lead	Provides review of the QAPP Addendum and approves the final QAPP Addendum. Oversees CSPA enforcement.
Sara Sekerak TS Unit EAP Phone: 360-407-6997	Project Manager	Writes the QAPP Addendum. Oversees product collection, sample screening, and sample prioritization. Conducts QA review of data, analyzes and interprets data, and enters data into PTDB. Writes the draft and final Technical Memo.
Chrissy Wiseman RTT Unit HWTR Phone: 360-407-6492	Assistant	Leads products collection, sample screening, sample processing, chain-of-custody, and transport of samples to 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.
William R. Kammin Phone: 360-407-6964	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 2. Schedule for Completing Product Collection and Laboratory Work, Data Reviews, Data Entry into Product Testing Database (PTDB), and Final Technical Memo.

Product Collection, Processing, and Laboratory Work	Due Date	Lead Staff
Product purchase completion	9/30/2017	Chrissy Wiseman
Product logging completion	10/31/2017	Chrissy Wiseman
Internal data QA completion	10/31/2017	Chrissy Wiseman
Laboratory analyses completion	12/31/2017	
Data		
Lab data QA reviewed	01/15/2018	Sara Sekerak
Lab data loaded into PTDB	01/20/2018	Sara Sekerak
PTDB data QA review completion	01/31/2018	Chrissy Wiseman
Final Technical Memo		
Author lead	Sara Sekerak	
Schedule		
Draft due to supervisor/peer reviewer	01/20/2018	
Draft due to publications coordinator	02/02/2018	
Technical Memo due to AGO	02/20/2018	

QA: Quality Assurance

PTDB: Product Testing Database

5.6 Budget and funding

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

Table 3. Study Budget.

Sampling	No. Purchased	QC Samples*	\$ per Sample	Subtotal
Products	≥ 60	---	\$10.00	\$600.00 [#]
Lab Analysis	No. of Samples	QC Samples*		
Metals (Pb, Cd)	60	9	\$75.00	\$5,175.00
Study Total:				\$5,775.00⁺

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

[#] Amount to not exceed \$1000.00.

[^] Estimate based on 60 products.

⁺ Estimate based on 60 products and 60 samples.

6.0 Data Quality Objectives

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

Table 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

Five previously tested products containing high levels of lead will be purchased.

Additional products to be purchased include those made by the same manufacturer or promoted as school supplies. Particular product types that will be targeted include:

- Pencil pouches and cases
- Book cover material

Emphasis will be placed on products that 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). XRF results will be used to prioritize specific component samples (e.g., metal zipper, fabric case material) to be sent for analysis.

Multiple component samples, representing different components from one product, may be submitted to the laboratory for testing. Component samples may be prioritized based on XRF-confirmed lead and/or cadmium over component samples with no detected levels of lead and cadmium.

7.5 Possible challenges and contingencies

7.5.1 Logistical problems

There may be difficulty finding and purchasing the exact products previously found to contain high levels of lead in the 2015 Back to School study. Product unavailability may result from the fact that products are:

- No longer manufactured
- Out of stock

Pencil pouches or book cover materials from the same manufacturers or retailers will be purchased in their place if the original products are unavailable.

8.0 Field Procedures

8.2 Measurement and sampling procedures

Product collection and processing will follow the PT Program SOP:

- PTP001 Sample Collection and Processing (Wiseman et al., 2016a)

8.8 Other activities

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, 2017)

9.0 Laboratory Procedures

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

In 2015 new 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 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.

Table 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 = 20 product samples

11.0 Management Procedures

11.1 Data recording and reporting requirements

Product login will follow the Product Testing (PT) Program Standard Operating Procedure (SOP):

- PTP002 Data Entry and Database (Wiseman et al., 2016b)

12.0 Audits and Reports

12.4 Responsibility for reports

The project manager will be responsible for writing a Technical Memo discussing the data quality and usability of the data to accompany the transfer of the final dataset to the AGO. The project manager will deliver the Technical Memo and dataset (in CSV Format) to the AGO via email by the date listed in Section 5.4.

15.0 References

Sekerak, S., 2017. Standard Operating Procedure for the Operation of the Thermo Fisher Scientific Niton XL3t 700 X-Ray Fluorescence Analyzer. 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. Washington State Department of Ecology, Olympia, WA. Publication No. 12-07-023. <https://fortress.wa.gov/ecy/publications/SummaryPages/1207023.html>

Stone, A., 2014. Addendum #1 to Quality Assurance Project Plan: Phthalates and Metals in Children's Products. Washington State Department of Ecology, Olympia, WA. Publication No. 12-07-023a. <https://fortress.wa.gov/ecy/publications/SummaryPages/1207023a.html>

Trumbull, K., A. Stone, K. Steward, and N. Winters, 2017. Children's Seasonal Products Report 2014-2015. Washington State Department of Ecology, Olympia, WA. Publication No. 16-04-029. <https://fortress.wa.gov/ecy/publications/SummaryPages/1604029.html>

Wiseman, C., K. Inch, S. van Bergen, and S. Sekerak, 2016a. Product Testing Standard Operating Procedure: Sample Collection and Processing. Internal document No. PTP001. Washington State Department of Ecology, Olympia, WA.

Wiseman, C. and K. Inch, 2016b. Product Testing Standard Operating Procedure: Data Entry and Database. Internal document No. PTP002. Washington State Department of Ecology, Olympia, WA.