



DEPARTMENT OF
ECOLOGY
State of Washington

Product Testing Follow-up Study
2018–2019

**Addendum to
Quality Assurance Project Plan:
Product Testing Program Version 1.0**

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Product Testing Follow-up Study 2018–2019

Addendum to Quality Assurance Project Plan Product Testing Program, Version 1.0

July 2018

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EAP: Environmental Assessment Program

HQ: Headquarters Office

HWTR: Hazardous Waste and Toxics Reduction

2.0 Abstract

In 2018, a study will be conducted to perform follow-up testing on children's products previously investigated by the Washington State Department of Ecology (Ecology). Additional testing data will be used to evaluate compliance of children's product manufacturers that have not reported the presence of chemicals of high concern to children in their products.

The strategy for this plan will consist of three follow-up sampling and testing events occurring from late spring 2018 through summer 2019. During each event, the scope-identified children's products will be purchased and submitted to the laboratory for analysis of one or more analyte groups: metals, phthalates, and parabens.

Product testing data will be evaluated for compliance with Washington State regulations. The data will support continual efforts in assessing the use and presence of toxic chemicals in consumer products, as well as apparent manufacturer reporting inconsistencies and data gaps.

3.0 Background

3.1 Introduction and problem statement

Washington State Department of Ecology (Ecology) regularly conducts consumer product testing studies to ensure compliance with existing Washington State regulations. Consumer product studies (1) provide data to help understand sources of toxics entering our environment, (2) identify potential health risks, and (3) support continual rulemaking efforts.

To date, Ecology has completed 13 studies to assess toxic chemicals in children's products under the Children's Safe Products Act (CSPA) (Chapter 70.240 Revised Code of Washington (RCW)) and reporting rule (Chapter 173-334 Washington Administrative Code (WAC)). Past studies show both compliance and noncompliance with the reporting laws for chemicals of high concern to children¹ (CHCC). Notably, manufacturers rectified instances of noncompliance without delay or difficulty when notified of an issue. Many years have passed since those studies ended; therefore, we are lacking current information as to whether those products are still in compliance. More specifically, we do not know whether the manufacturers are still producing children's products without toxic chemicals or if they are reporting CHCC presence regularly and appropriately.

This study aims to retest some of the nearly 1,000 previously-tested children's products and also test some products from manufacturers that have never reported data to Ecology. Follow-up testing will provide data to help monitor and check for compliance over time. Data collected may also answer questions about observed gaps in both the presence and reporting of CHCCs in children's products.

¹ Lead and isobutyl paraben are not listed as a CHCC under the rule (Chapter 173-334 WAC); however, within this document the citations of "CHCC" will be used to include lead and isobutyl paraben. Lead limits are specified under CSPA. Isobutyl paraben was evaluated in previous studies and will be included for testing in the current study.

3.2 Study area and surroundings

3.2.3 Parameters of Interest (chemicals of concern)

This study will test for the selected chemicals of concern listed in Table 1.

Table 1. Table of chemicals of concern organized by analyte group.

Metals [#]	Parabens	Phthalates
antimony (Sb) 7440-31-5	butyl paraben 94-26-8	diethyl phthalate (DEP) 84-66-2
arsenic (As) 7440-38-2	ethyl paraben 120-47-8	di-n-octyl phthalate (DnOP) 117-84-0
cadmium (Cd) 7440-43-9	isobutyl paraben* 4247-02-3	di-n-hexyl phthalate (DnHP) 84-75-3
cobalt (Co) 7440-48-4	methyl paraben 99-76-3	di-2-ethylhexyl phthalate (DEHP) 117-81-7
lead* (Pb) 7439-92-1	propyl paraben 94-13-3	diisodecyl phthalate (DIDP) 26761-40-0
mercury (Hg) 7439-97-6		dibutyl phthalate (DBP) 84-74-2
		butyl benzyl phthalate (BBP) 85-68-7
		diisononyl phthalate (DINP) 28553-12-0
		dimethyl phthalate* (DMP) 131-11-3

[#] Molybdenum (CAS 7439-98-7) removed from CHCC list in 2017 rule making. Molybdenum will not be assessed in current study.

* Not a listed chemical of high concern to children (CHCC) under the reporting rule.

4.0 Study Description

This study plan covers three sampling and testing events as an *Addendum to the Quality Assurance Project Plan (QAPP): Product Testing (PT) Program, Version 1.0* (Sekerak, 2016a). The studies will be carried out in three separate events occurring from May 2018 through July

2019. If this monitoring strategy is successful, subsequent monitoring plans in the product-testing program may be structured similarly.

The first study event will focus on a follow-up to the Chemicals of High Concern to Children in Clothing, Footwear and Accessories study (Mathieu and Sekerak, 2015). The second event will serve to follow up products tested in the Cadmium and Other Metals in Children's Jewelry study (Sekerak, 2016). Finally, a third study event will be structured to evaluate data gaps in manufacturer reporting as observed in the CSPA [Manufacturer Reporting Database](#) (CSPA database).

4.1 Study goals

In addition to the goals stated in the Product Testing (PT) Program, Version 1.0 QAPP, this study is being conducted specifically to:

- Determine if manufacturers are manufacturing products that meet CSPA chemical limits for lead, cadmium, and selected phthalates.
- Determine if manufacturers² or responsible parties are reporting, continuing to report, or should be reporting their products that contain the individual selected CHCCs from the metals, phthalates, and parabens analyte groups.
- Provide data for future assessments of trends, gaps, and error reports within manufacturer-reported data in the CSPA database.

Evaluate this follow-up and monitoring plan concept for success and for potential as a future strategy.

4.3 Information needed and sources

Children's products will be identified for follow-up based upon review of previous study reports and data.

The CSPA database will be used to guide selection of product types to target for data gaps and trends observed in manufacturer-reported data. Internet research and literature reviews will further be used to select specific product components to target and which chemicals to analyze.

After the products have been purchased for the Data Gaps event, a review of the CSPA database will be conducted. Data reports made by manufacturers that produce similar products will be reviewed and evaluated for reporting trends of CHCCs. This reference data will be used to guide the testing of:

² Manufacturer is defined under CSPA broadly to include the other possible responsible parties: producers, importers and domestic distributors (RCW 70.2140.010). This broad definition of "manufacturer" will be used throughout this document.

1. The appropriate component(s) within each product.
2. The appropriate analyte group(s): metals, phthalates, or parabens, in each component.

4.4 Tasks required

In addition to the tasks stated in the Product Testing Program, Version 1.0 QAPP, study-specific tasks include:

Clothing, Footwear, and Accessories³ Event

- Review previous study report, data, and enforcement actions to determine products to perform follow-up testing for metals and phthalates.
- Perform product research on manufacturer and retailer websites to focus purchasing efforts.
- Purchase all available products with the same Universal Product Code (UPC) that did not meet the CSPA limits or the reporting rule requirements for metals or phthalates under the original study.
 - Purchase one alternate product of a similar product type from the same manufacturer, brand, or product line, when original product is not available.
 - If available, purchase two to three additional products from the same manufacturer, but purchase different product types. The brand may differ if the manufacturer is the same.
- Purchase up to 10 additional previously tested products, which contained a CHCC (≥ 100 ppm), but did not reveal violations to CSPA or the reporting rule.
- Log products into the Product Testing Database (PTDB) and process product components following appropriate Standard Operating Procedures (SOPs).
- Send up to 60 product component samples for the analysis of metals and phthalates.
- Perform internal Quality Assurance (QA) review on PTDB.
- Review laboratory data, and write data narrative discussing the data quality and summary statistics.
- Load data into Ecology's PTDB, and transfer data and data narrative to the CSPA Compliance Lead.

³ Some of the original tested accessory products in the initial study would not meet the current Global Product Classification (GPC) definition of Clothing Accessories. All products where CHCCs were found will be potentially investigated during this study.

Cadmium & Other Metals in Children's Jewelry Event

- Review data from the Cadmium and Other Metals in Children's Jewelry study (Sekerak, 2016b) to determine products for follow-up metals testing.
 - Review data of other states' testing on children's jewelry.
- Purchase all available products with the same UPC where violations to CSPA or the reporting rule⁴ occurred in the original study.
- Purchase two to three additional products from each manufacturer where violations to CSPA or the reporting rule occurred in the original study.
- Purchase up to 10 additional previously-tested products that contained a CHCC, but did not produce enforcement action, to be included for ongoing monitoring.
- Purchase up to 10 products from manufacturers referenced other states' testing. These products must be offered for sale to Washington state residents.
- Log products into the PTDB, and process product components following appropriate SOP.
- Screen jewelry product components with the X-ray Fluorescence (XRF) analyzer.
- For ALL jewelry products procured, the component sample that produced the original study violation will be submitted for laboratory testing REGARDLESS of whether the XRF⁵ screening data indicates a CHCC metal.
 - Additional product component samples may be submitted based on screening from the XRF. The highest priority will be assigned to product components with screening data showing presence of lead and/or cadmium.
- Send up to 40 product component samples to the laboratory for the analysis of metals.
- Perform internal QA review on PTDB.
- Review laboratory data, and write data narrative discussing the data quality and summary statistics.
- Load data into Ecology's PTDB, and transfer data and data narrative to the CSPA Compliance Lead.

⁴ And/or apparent violations to the Consumer Products Safety Improvement Act (CPSIA) 15 USC § 1278 and 15 U.S.C. § 2056b, occurred.

⁵ The XRF (screening) analysis is not considered a valid quantitative technique per EPA method 6200. PT XRF screening is used as tool to prioritize further testing by an accredited confirmation method, i.e. EPA 6020B.

Data Gaps Event

- Work with Manchester Environmental Laboratory (MEL) to secure a contract laboratory for the analysis of parabens. (Task to begin from November-December, 2018.)
- Review the CSPA database to identify manufacturers that have registered in the database but never reported any CHCCs in products through the database.
- Purchase up to five children's products from an identified manufacturer that are from a retail outlet or an online source.
- Children's products with an expected prolonged use that make direct skin contact, or those that are for use in the mouth or are designed to be mouthable will be prioritized, when possible, from within available selections of products. Purchase up to 10 additional previously tested products from the group of manufacturers that only reported for a violation.
- Review CSPA database for guiding components and chemicals for testing using similar product reports made by other manufacturers.
- Log products into the PTDB, and process product components following appropriate SOP.
- Send up to 60 product component samples to the laboratory for each of the analyte groups: metals, phthalates, and parabens.
- Perform internal QA review on PTDB.
- Review data quality of laboratory results, and work with the MEL QA Coordinator to resolve any contract data issues.
- Write a data narrative discussing the data quality and summary statistics.
- Load data into Ecology's PTDB, and transfer data and data narrative to the CSPA Compliance Lead.

5.0 Organization and Schedule

5.1 Key roles and their responsibilities

Table 2. Organization of Study Staff and their Responsibilities.

Staff	Title	Responsibilities
Tina Schaefer RTT Unit HWTR Phone: 360-407-6786	Client and CSPA Compliance Lead	Provides review of the QAPP Addendum and approves the final QAPP Addendum. Provides guidance for manufacturer and product selection. Leads CSPA database reviews. Assists with purchasing, log-in, and processing. Leads CSPA compliance actions.
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	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. Assists client with CSPA database reviews.
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	Laboratory Director	Reviews and approves the final QAPP Addendum.
Tom Gries Phone: 360-407-6327	<i>Acting</i> 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 Proposed project schedule

Table 2a-c. Schedule for Completing Product Collection and Laboratory Work, Data Reviews, Data Entry into Product Testing Database (PTDB), and Data Narratives.

a. Clothing, Footwear, and Accessories Follow-up Study Event		
Product Collection, Processing, and Laboratory Work	Due date	Lead staff
Product collection completion	7/15/2018	Chrissy Wiseman
Product logging-in completion	7/31/2018	Chrissy Wiseman
Internal data QA completion	8/15/2018	Chrissy Wiseman
Lab analysis completion	10/31/2018	
Data		
Lab data QA reviewed	11/15/2018	Sara Sekerak
Lab data loaded into PTDB	11/15/2018	Sara Sekerak
Lab data to Compliance Lead	12/01/2018	Sara Sekerak
Data quality narrative	12/01/2018	Sara Sekerak

b. Cadmium and Other Metals in Children's Jewelry Follow-up Study Event		
Product Collection, Processing, and Laboratory Work	Due date	Lead staff
Product collection completion	11/30/2018	Chrissy Wiseman
Product logging-in completion	12/10/2018	Chrissy Wiseman
Internal data QA completion	12/31/2018	Chrissy Wiseman
Lab analysis completion	1/31/2019	
Data		
Lab data QA reviewed	2/28/2019	Sara Sekerak
Lab data loaded into PTDB	2/28/2019	Sara Sekerak
Lab data to Compliance Lead	2/28/2019	Sara Sekerak
Data quality narrative	2/28/2019	Sara Sekerak

c. Data Gaps Study Event		
Product Collection, Processing, and Laboratory Work	Due date	Lead staff
Product collection completion	2/28/2019	Chrissy Wiseman
Product logging-in completion	3/15/2019	Chrissy Wiseman
Internal data QA completion	3/31/2019	Chrissy Wiseman
All lab analysis completion	5/31/2019	
Data		
Contract Lab data reviewed by MEL QA	6/15/2019	
All Lab data QA reviewed	6/30/2019	Sara Sekerak
Lab data loaded into PTDB	6/30/2019	Sara Sekerak
Lab data to Compliance Lead	7/10/2019	Sara Sekerak
Data quality narrative	7/10/2019	Sara Sekerak

5.5 Budget and funding

Table 3 presents the estimated costs of product collection/purchasing and laboratory analyses totaling \$143,437. Funding for product purchases and laboratory analyses were allocated from the PT budget by the PT Steering Committee.

When establishing this plan, the exact number of samples that needed to be cryomilled and/or sent to the contract laboratory was not known. Contract laboratory costs were estimated from the price of paraben testing from a previous study.

Purchasing events will include online product purchasing occurring from May-July, 2018; October-December, 2018; and January-February, 2019

Table 3. Estimated Study budget allocations.

Analyte/ Analyte Group	Products/ Samples [^]	QC Samples*	Cost per Product/ Sample	MEL Subtotal	Contract Lab Subtotal	MEL Contract Fee
Product Collection	300 ⁺	---	\$12		---	---
Cryomilling	40	---	\$115	\$4,600	---	---
Metals	160	26	\$200	\$37,200	---	---
Phthalates	120	20	\$460	\$64,400	---	---
Parabens [#]	60	9	\$375	---	\$25,875	\$7,763
MEL Subtotal				\$106,200	---	---
Contracting Subtotal				---	\$33,638	
Lab Services Grand Total				\$139,838		
Product Collection Subtotal				\$3,600		
Estimated Study Grand Total				\$143,438		

⁺Includes multiple purchases of one product to meet minimum testing quantity.

[^]Actual numbers of products and samples estimated to ≤ the number value presented in the table. Some products may be tested for more than one analyte group.

* QC includes those tests that are not included in the cost of analysis (lab duplicates, matrix spikes, and matrix spike duplicates, cryomill processing blanks)

[#] Contract lab price estimated from previous study pricing

6.0 Quality Objectives

6.2 Measurement quality objectives (MQOs)

Measurement quality objectives (MQOs) are shown in Table 4.

Table 4. Measurement quality objectives.

Analyte Group	Rinsate and Method Blanks	LCS (recovery)	Matrix Spikes (recovery)	Lab Duplicate (RPD)	Matrix Spike Duplicates (RPD)	Surrogate Standards (% recov.)	Reporting Limit (ppm) ^Ω
Metals	< 1/2 LLOQ	85 - 115%	75 - 125%	≤ 20%	≤ 20%	n/a	1.0
Phthalates	< 1/2 LLOQ	50 - 150%	50 - 150%	≤ 40%	≤ 40%	50 - 150%	25 - 50
Parabens	< 1/2 LLOQ	60 - 140%	60 - 140%	≤ 20%	≤ 20%	70 - 140%	5.0 - 30

LLOQ = lower limit of quantitation

LCS = laboratory control sample

RPD = relative percent difference

ppm = parts per million

+ Lab duplicate may be a matrix sample or LCS if dictated by requirements in method procedure.

^ΩIndividual lab reporting limits may vary based upon specific analyte and matrix type.

7.0 Study Design

Specific study tasks are listed in Section 4.4, and specific procedural elements are highlighted in Section 8.0.

7.5 Possible challenges and contingencies

Success in performing follow-up testing on specific products is contingent on locating and purchasing the exact products from the earlier study to include in this study.

7.5.1 Logistical problems

A comprehensive assessment of availability of the target products identified for follow-up was not completed during this plan design. There are limited benefits of this task as some manufacturers stop producing certain products or change types of products they produce over time. Products that may have been available a few years ago, or even today, may or may not be available in the marketplace during the purchasing event. This plan presents a strategy for collecting alternate products to mitigate limited product availability.

Online-purchased products may not be included in the study if they become delayed during shipping. For exact target products that are found online, purchasing the additional faster or 'guaranteed' shipping options will be considered. The project manager or CSPA Compliance Lead will make these determinations.

7.5.2 Practical Constraints

Staff resources and availability may impede the capacity to perform thorough searches to locate exact target follow-up products within scoped deadlines. Immediately prior to the purchasing event, internet research will be used to provide information to determine if the product is still manufactured and where it is likely available for purchase.

The limited availability of the Ecology credit card and the restrictions of its usage may place additional constraints on purchasing events. The plan will be forwarded to the office overseeing the allocation and use of the credit card to provide notification of the approximate dates of our purchasing events.

Trips to retail outlets will be planned with a goal to maximize product acquisition and minimize inefficient and unproductive outings.

A combination of online and in-store purchasing will be used for acquiring products efficiently.

8.0 Sample Procedures

8.2 Sampling and measurement SOPs

Noting the study specifics described in following sections, normal product collection, cataloging, and preparation procedures will be conducted per the Product Testing Program (PTP) SOPs:

- PTP001 SOP for Consumer Product Sample Collection and Processing, Version 2 (Wiseman, 2018a)
- PTP002 SOP for Consumer Product Data Entry and Database Use, Version 2 (Wiseman, 2018b)
- PTP003 Operation of the Thermo Fisher Scientific Niton XL3t 700 X-ray Fluorescence Analyzer (XRF) (Sekerak, 2018)

Product Selection

Clothing, Footwear and Accessories Follow-up Study Event

Products assessed in the original study will be candidates for inclusion in this follow-up study event.

Products may be purchased from both online sources and retail stores, and it is not necessary that they be purchased from the original point of purchase. Purchasing the same products tested previously (i.e., ones having the same UPC) is preferred.

If exact products do not exist in the current marketplace, a reasonable effort will be made to locate and purchase target products. The Sampling Lead and CSPA Compliance Lead will coordinate this strategy.

Where the exact product cannot be found for purchase, a similar product, made by the same manufacturer and preferably the same brand or product line, will be purchased in its place. This replacement product should be from the same clothing, footwear, or accessory Brick⁶ as the target product. In addition, two other clothing products from the same manufacturer will be purchased; these products will be from an alternate clothing, footwear, or accessory Brick. The additional products may be from a separate product line.

For example:

A targeted T-shirt, where the CHCC was found in the screen print when originally tested, is not available for purchase. However, a screen-print pajama set is available for purchase from the same manufacturer and product line. The pajama set product can be purchased in place of the T-shirt. A jacket and ball cap that are from the same manufacturer, both containing screen printing, would be purchased as well. T-shirts and pajamas are in separate Bricks, under “clothing.”

Cadmium and Other Metals in Children’s Jewelry Study Event

Products assessed in the original study or other partner states will be considered for inclusion in this follow-up study event.

Products may be purchased from both online sources and retail stores, and it is not necessary that they be purchased from the original point of purchase. Purchasing the exact previously tested product, with the same UPC, is preferred.

Similar to the clothing follow-up, it is highly probable that exact products may not exist in the current marketplace.

⁶ Brick: The most specific level in the GPC hierarchical classification scheme, which includes, from top-down: Segment, Family, Class and Brick. At this level, products are grouped by category based on their essential properties as well as their relationships to other products.

Where the exact product cannot be found for purchase, a similar product, made by the same manufacturer, and preferably the same brand or product line, will be purchased in its place.

For jewelry sold with apparel, where the jewelry is the target, the manufacturer of the jewelry may not be easily discernable. In this case the, the manufacturers and brands of the apparel, where violations occurred previously, should be used to select products for follow-up.

Data Gaps Study Event

Products, numbers, and types purchased will be dependent on manufacturer identified and based upon availability of their products for purchase. Review of the CSPA database will determine the target manufacturers.

Products may be purchased from both online sources and retail stores.

Sample Size

For all sampling events, components not requiring cryomilling will be reduced in size to 5 mm x 5 mm pieces. Where product components are not size-limited due to construction (e.g., zippers), samples will contain no less than 2.5 grams in weight for the analysis of any one analyte group.

Paraben samples will be submitted to the contract laboratory in their original bottle or in contract-lab-provided jars, at the agreed upon quantity.

Cryomilling

For all three quarters, component samples may need to be cryomilled to obtain a homogenous sample aliquot for analysis. In general, cryomilling will not be performed on paraben samples, most fabrics/textiles, and all metal matrix samples.

Estimates of cryomilling are for up to 40 component samples. The actual number of component samples necessitating cryomilling cannot be determined at the time of this plan development. The project manager will update MEL with as much advance notice as possible before submitting the samples needing cryomilling. Samples requiring cryomilling will be clearly marked on the chain of custody. MEL will perform all cryomilling and rinse-blank acquisition according to their cryomill SOP.

9.0 Laboratory Procedures

9.1 Laboratory procedure table

MEL is anticipated to conduct all metals and phthalates analysis. MEL will post the bid solicitation to secure an accredited laboratory to perform the paraben analyses. The actual paraben preparation method, analysis method, and analysis instrument will be contingent on the laboratory awarded the contract. MEL will manage the contract and perform data verification on the contract data.

Table 5. Table of methods, instrumentation, and lower limit of quantitation.

Analyte Group ⁺	Lower Limit of Quantitation ^Ω	Preparation Method	Analysis Method	Analysis Instrument
Metals	1.0	EPA 3052 [†]	EPA 6020B	ICP-MS
Phthalates	25 - 50	EPA 3546	EPA 8270D	GC-MS SIM
Parabens ^δ	5 - 30	EPA 3580	EPA 8321	HPLC-MS

ICP-MS = inductively coupled plasma – mass spectrometry, GC-MS SIM= gas chromatography – mass spectrometry, selective ion monitoring, HPLC-MS = high performance liquid chromatography – mass spectrometry

⁺ Specific analytes are listed in Table 1.

^Ω Individual reporting limits may vary based upon specific analyte and matrix type.

[†] Preparation method modified to omit the use of hydrofluoric acid (HF).

^δ Preparation method, analysis method, and analysis instrument dependent on contract laboratory.

9.4 Laboratories accredited for methods

Paraben analyses in consumer products are non-standard methods. In the absence of a laboratory accredited for EPA 8321 or method capable of meeting the MOQs listed in Table 4, a signed waiver (form 070-152) will be necessary.

Sections 10-14 remain the same as in the original program QAPP (Version 1).

15.0 References

Mathieu, C. and S. Sekerak, 2015. Chemicals of High Concern to Children in Children's Clothing, Footwear and Accessories. Washington State Department of Ecology, Olympia, WA. Publication No. 15-03-039.

<https://fortress.wa.gov/ecy/publications/SummaryPages/1503039.html>

Sekerak, S., 2016a. Quality Assurance Project Plan: Product Testing Program, Version 1.0. Washington State Department of Ecology, Olympia, WA. Publication No. 16-03-113.

<https://fortress.wa.gov/ecy/publications/SummaryPages/1603113.html>

Sekerak S., 2016b. Cadmium, Lead, and Other Metals in Children's Jewelry. Washington State Department of Ecology, Olympia, WA. Publication No. 16-03-007.

<https://fortress.wa.gov/ecy/publications/SummaryPages/1603007.html>

Sekerak S., 2018c. Product Testing Standard Operating Procedure: Operation of the Thermo Fisher Scientific Niton XL3t 700 X-ray Fluorescence Analyzer (XRF). Document No. PTP003.

Wiseman, C., 2018a. Standard Operating Procedure for Consumer Product Sample Collection and Processing, Version 2. Document No. PTP001.

Wiseman, C., 2018b. Standard Operating Procedure for Consumer Product Data Entry and Database Use, Version 2. Document No. PTP002.