

National Human Exposure Assessment Survey (NHEXAS)

Maryland Study

Quality Systems and Implementation Plan for Human Exposure Assessment

Emory University
Atlanta, GA 30322

Cooperative Agreement CR 822038

Standard Operating Procedure

NHX/SOP-L01

Title: Purchase of Consumables

Source: Harvard University/Johns Hopkins University

U.S. Environmental Protection Agency
Office of Research and Development
Human Exposure & Atmospheric Sciences Division
Human Exposure Research Branch

Notice: The U.S. Environmental Protection Agency (EPA), through its Office of Research and Development (ORD), partially funded and collaborated in the research described here. This protocol is part of the Quality Systems Implementation Plan (QSIP) that was reviewed by the EPA and approved for use in this demonstration/scoping study. Mention of trade names or commercial products does not constitute endorsement or recommendation by EPA for use.

1. Title of Standard Operating Procedure

Harvard University/Johns Hopkins University Standard Operating Procedure:
L01 Purchase of Consumables, Rev. 1.0

2. Overview and Purpose

This SOP covers the procedures for specification, purchase, and inspection of consumable materials (e.g., reagents, filters, pipet tips) to be used at HSPH's Trace Metals Laboratory.

3. Discussion

The Trace Metals Laboratory routinely does analyses with detection limits of 0.001 µg/L and lower. It is essential that consumables be of the highest quality available, conform to strict specifications, and be properly handled to maintain the best levels of accuracy and precision.

4. Personnel Responsibilities

4.1 Preparation of Procurement Documents

Procurement documents will be prepared by designated laboratory technicians and approved by the Laboratory Supervisor.

4.2 Receiving and Inspection of Delivered Materials

Delivered materials will be inspected by designated laboratory technicians. The Laboratory Supervisor will be consulted when necessary. The QA Officer will make spot checks.

5. Required Equipment and Reagents

specifications memo (to be written by QA Officer)
procurement documents
Materials Safety Data Sheet (MSDS) for each reagent
computer with database software

6. Procedure

6.1 Procurement Documents

Procurement documents will include specifications and other requirements that define the desired characteristics of the materials. All of the information in Section 6.2, "Labels," will be known before a consumable is ordered.

Control over procurement documents will be established so that changes in specifications or other requirements are not made without proper review and approval.

6.2 Labels

Manufacturers' labels should include appropriate information relating to:

- identification and composition, e.g., concentration and grade of an acid
- levels of contaminants, especially maximum concentrations of metals
- safety hazards and stability
- storage and handling requirements
- expiration date, if any

6.3 Receiving and Inspection of Delivered Materials

Acceptance of equipment and materials will be based on verification that specifications and other requirements have been met through inspection upon receipt or through supplier's certification. The person who is designated to receive consumables for a laboratory will:

- Check the labels against the packing slip and the procurement documents to ensure delivery of the proper items (e.g., acids of the correct grade). If a label is missing or thought to be incorrect, the item will be returned.
- If the manufacturer's label does not supply all the information (e.g., metals analysis), photocopy the information from the catalog and tape it to the container.
- Enter information into the "consumables log" section of the computer database (see Table 1), which will allow tracking of all materials used in the analysis of any sample. The HSPH lot number is for tracking solutions made from the consumable.
- File the Materials Safety Data Sheet (MSDS) for each reagent in the proper file.
- Record the date of receipt on the container, and make sure that there is a space for the person who opens the container to record the date of opening.

6.4 Tracking of Quality and Usage

A "to do" list will be generated from the log each month, listing consumables that will reach their expiration date that month. Expired materials will be disposed of properly.

The person who opens a container (e.g., a bottle of acid) for the first time will record the date on the container and in the log.

When a reagent is prepared for use in the preparation of samples for analysis, it will be analyzed for metal content (using the instrument to be used for analysis of samples) before being used in the analytical process. A record of the analysis will be kept, along with the date and the initials of the person who prepared the reagent.

If appropriate for the type of filters to be used for the collection of air particulate samples, each filter will be inspected for pinholes by holding it up a strong light source. Defective filters will be returned to the supplier for exchange.

Blank filters used in analysis will be from the same lot numbers as filters used for samples.

Reagents used in analysis of blanks and samples will be from the same batch.

Table 1 -- Consumables Log

Name of Consumable	
Type or Grade	
Manufacturer's Lot #	
Amount or Size	
Supplier	
Manufacturer	
Purchase Order #	
Date Received	
Received by	
Storage Location	
HSPH Lot #	
Expiration Date (if applicable)	
Date Opened	
Opened by	

6.5 Specifications for Consumables

The QA Officer will write a memo listing specifications for each type of consumable to be purchased. Examples:

Concentrated nitric and hydrochloric acids used to prepare samples for analysis will be of trace-metal or super-analyzed grade.

Acids used for cleaning will be of reagent grade.

Cellulose ester membrane filters will be used for collection of indoor, outdoor, and personal air particulate samples.

7. Quality Assurance Procedures

The consumables log will be a computer database, which will allow tracking of all materials used in the analysis of any sample. The information will include manufacturer, supplier, procurement number, type of item (e.g., concentrated nitric acid, trace-metal grade), lot number, date received, expiration date if any, initials of inspector, and storage location. This database will be backed up after every change, and backup disks kept in a secure location.

Training of laboratory technicians will include procedures for preparation of procurement documents and receiving and inspection of consumables.

The Laboratory Supervisor will oversee procurement, receiving, and inspection of consumables. The QA Officer will make spot checks.

8. References

Harvard University/Johns Hopkins University Standard Operating Procedures:

- F01 Field Sampling -- General Information
- L02 Cleaning of Glass and Plastic Containers
- L06 Extraction of Metals from Sampling Media
- L07 Analysis of Metals by GF-AAS
- G09 Training of Laboratory Technicians

Memo "Update on Purchasing Procedures," from Cindy Reyes to HSPH Environmental Science and Engineering Program faculty, staff, and students, April 15, 1994 (copy attached)