

Section II

(previously Section I of Oregon OSHA's Technical Manual)

SAMPLING, MEASUREMENTS METHODS and INSTRUMENTS

CHAPTER 1: PERSONAL SAMPLING FOR AIR
CONTAMINANTS

CHAPTER 2: OCCUPATIONAL SKIN EXPOSURE

CHAPTER 3: TECHNICAL EQUIPMENT: ON-SITE
MEASUREMENTS

CHAPTER 4: [SAMPLE SHIPPING AND HANDLING](#)

All information within this section and chapter has been reproduced from the Oregon OSHA Technical Manual (circa 1996) unless otherwise stated within the "Chapter Revision Information", located at the beginning of each chapter.

SECTION II: CHAPTER 4

SAMPLE SHIPPING AND HANDLING

Chapter Revision Information:

- *This chapter was previously identified as Section 1, Chapter 4 in Oregon OSHA's circa 1996 **Technical Manual**. The Section number was modified from Section I to Section II in December 2014 to provide uniformity with the Federal OSHA Technical Manual (OTM).*
- *In December 2014, the original "Sample Shipping and Handling" chapter was updated.*

SECTION II: CHAPTER 4

SAMPLE SHIPPING AND HANDLING

TABLE OF CONTENTS

I.	<u>INTRODUCTION</u>	4
	A. Sample Collection	4
	B. Interference	4
	C. Bulk Samples	5
II.	<u>MAILING INSTRUCTIONS</u>	5
	A. Sample Identification	5
	B. Filter Cassettes	5
	C. Solid Sorbent Tubes	6
	D. Midget Impinger or Fritted Glass Bubble Samples	6
	E. Wipe Samples	6
	F. Bulk Samples	6
	G. Soil Samples	6
III.	<u>FEDERAL MAILING REGULATIONS</u>	7
	A. Jurisdiction	7
	B. Responsibility	7
	C. Hazardous Materials	7
	D. Notice to the Carrier	8

I. Introduction

This chapter contains sample handling, packaging, and mailing instructions for industrial hygiene samples to be shipped to the Oregon OSHA Lab or another accredited facility. Certain Department of Transportation (DOT) Regulations (49 CFR) may apply to shipment of materials. Contact the Oregon OSHA Resource Center to see a current copy of the Code of Federal Regulations Title 49 for Department of Transportation regulations. Online access to 49 CFR, Subtitle B, Chapter I, Subchapter C – Hazardous Materials Regulations, is available at: [eCFR/Hazardous Materials Regulations](#)

A. Sample Collection

CHEMICAL INFORMATION FILE

Collect all samples following the procedures outlined for the specific chemical or agent in the [OR-OSHA Lab Sampling Procedures](#). These procedures outline the media to use, recommended flow rates and volumes, and special sampling and shipping instructions.

B. Interferences

Lab notification: Laboratory analysis methods and their results may be susceptible to interference by compounds sometimes present in the sample. For this reason, the laboratory must be notified if a suspected interfering substance may be present in the sample by noting it on the Sample Submittal Form.

Interfering substances may include:

- **Solvents:** Solvents with the same boiling point and polarity as the substance being tested may cause interference. Mass spectral identification will usually resolve any conflict.
- **Free silica:** The following chemicals should be noted on the Sample Submittal Form if they are considered to be present in the work environment or as part of the sample:
 - aluminum phosphate
 - feldspars (microcline, orthoclase, plagioclase)
 - graphite
 - iron carbide
 - lead sulfate
 - micas (biotite, muscovite)
 - montmorillonite
 - potash
 - sillimanite
 - silver chloride
 - talc zircon
 - zircon (zirconium silicate)
- **Asbestos:** All fibrous materials and high nonfibrous dust levels.
- **Metals:** High concentrations of other metals and inorganic dust.

C. Bulk samples

Bulk samples should be submitted to the laboratory in the following circumstances:

- When an analysis is required to support a potential violation (e.g., 1% silica in sand-blasting operations).
- As an analytical reference, or to assess solvent or interference.
- When the chemical composition of the material is incomplete or unknown. Discuss composition of an undefined sample with the supervisory CSHO and the manufacturer of the material.

The analysis of bulk samples will generally be semi-quantitative and cannot be evaluated on the basis of the sampling analytical errors (SAEs) calculated by the Oregon OSHA Lab.

Bulk samples are recommended for analyses of the following:

- asbestos
- mineral oil and oil mist
- silica (quartz, cristobalite)
- isocyanates
- petroleum distillates

II. Mailing Instructions

A. General Information

Samples sent to the laboratory should be packaged with a copy of the original Sample Submittal Form to identify the samples. If the form is not included with the samples, notify the lab that the form will be available in the LIMS system. Samples are usually sent by shuttle, but for those areas outside the shuttle's service area, U.S. Mail or other appropriate methods (UPS, Senvoy) may be used. When such methods are used, carrier receipts shall be retained by the field office until the samples arrive at the lab.

If any submitted materials could be considered hazardous, consult and follow appropriate shipping regulations to assure safe handling during shipment (See internal procedures or contact the Oregon OSHA Laboratory for instructions). All samples should be properly sealed with a lab custody seal.

B. Filter Cassettes

Pack filter cassettes inside a sturdy cardboard box with sufficient packing material so the samples will not be damaged by outside shocks or striking against each other.

- NOTE: Asbestos cassettes should not be used with polystyrene packing (Styrofoam™) or other static-producing packaging material because the static electricity may cause the fibers to cling to the sides of the cassette instead of the filter. Take extra care to ensure that the cassettes are not loose in the box during shipping.

C. Sorbent Tubes

Sealed tubes should be put in a Whirl-Pak® bag or other sealable plastic bag to prevent individual tubes from being mixed with the packing material. For sorbent tubes which must be shipped cold, pack the tubes in a plastic bag with blue ice to prevent the tubes from slipping away from the ice during shipping, and then wrap the plastic bag with bubble pack, and ship in a sturdy container.

D. Midget Impinger or Fritted Glass Bubbler Samples

After sampling, unscrew the top portion from the impinger vial and place back on the empty vial and screw into place. The caps should be secured with sealing tape wrapped in the direction of the cap closure (clockwise) to prevent the caps from loosening. Return impingers as they were received following storage instructions in the [OR-OSHA Lab Sampling Procedures](#). If the sampling media needs to be kept cold, ship in a cooler with blue ice or other freezer pack. Do not ship prior to a weekend or holiday to ensure samples arrive at the lab in a timely manner. Ship by state shuttle mail or Senvoy, depending upon the requirements of the sampling media.

Safety Data Sheets (SDS's) for the media are available on the [Oregon OSHA lab website](#).

E. Wipe Samples

Wipe samples should be in liquid-proof containers to prevent cross-contamination from any source or contaminants in the mailing container. If a hazardous solvent was used to wet the filters, proper labeling and packaging may be required.

F. Bulk Samples

Important note: Bulk solvent samples should never be mailed to the laboratory in the same package with any other type of air sample to avoid cross contamination.

Bulk solvent samples should be shipped in vials with Teflon lined caps. The caps should be secured with sealing tape wrapped in the direction of the cap closure (clockwise) to prevent the caps from loosening. Place the vials in a Whirl-Pak® bag or other sealable plastic bag. The vials should be well packaged in adsorbent material, and sent in a sturdy container. If the material is hazardous according to DOT regulations, it should be properly labeled and packaged. If available, include a copy of the material safety data sheet (SDS) for the bulk sample.

G. Soil Samples

For contaminated soil, pesticide and other non-routine samples, contact the Oregon OSHA laboratory for instruction. Samples submitted for Class II combustible dust analysis by the Salt Lake Technical Center need to be submitted in two one liter Nalgene containers and accompanied by Federal OSHA Form 91S. Prior management approval is also required.

III. Federal Mailing Regulations

A. Jurisdiction

When shipping hazardous materials to the Lab, Department of Transportation (DOT) regulations must be followed. Such regulations may prohibit the use of the United States Postal Service (USPS) or the state shuttle service.

B. Responsibility

The shipper is responsible for compliance with applicable transportation or postal laws and regulations governing acceptability to the carrier and additional packaging requirements. All items that are acceptable for mailing are subject to provisions of Part 124, USPS Manual and Publication 52 of the USPS, Acceptance of Hazardous or Perishable Articles.

The Transportation Safety Act of 1974 extended the Department of Transportation's (DOT) authority over transportation of hazardous or restricted materials. The full text of the hazardous materials regulations is contained in Title 49, Code of Federal Regulations, Parts 100-199. It is the shipper's responsibility to comply with all applicable DOT regulations.

C. Hazardous Materials

The main categories of hazardous materials sent to the laboratory are:

- poisons
- flammable liquids
- oxidizers
- flammable solids
- corrosive materials (acids and alkalis)
- irritating materials
- biological samples

49 CFR Table 172.101 is vital to understanding current DOT regulations for domestic shipment of hazardous materials. If hazardous materials are to be shipped internationally, then either the International Civil Aviation Organization (ICAO) technical instructions or the International Air Transport Association (IATA) instructions are to be used. To ensure that current regulations are followed, it is important to use only the most recent edition of 49 CFR, ICAO, or IATA.

The USPS and private carriers base their shipping procedures for hazardous materials on the DOT 49 CFR regulations. These regulations are the minimum acceptable for hazardous materials. In some case, the carriers have chosen to be more restrictive than DOT regulations. In using these procedures, it is the shipper's responsibility to determine if the carrier they plan to use is more restrictive than DOT. The shipper must comply with the carrier's requirements.

D. Notice to the Carrier

For all modes of transportation, the carrier must be clearly informed that hazardous material is being tendered.

Notification must be given. Any person who violates a provision of Title 49 in shipping a hazardous material shall be subject to a civil penalty of not more than \$10,000 per violation, and if any such violation constitutes a separate offense. A person who willfully violates a provision of this title and is convicted of a criminal offense is subject to a fine of not more than \$25,000, imprisonment for a term not to exceed 5 years, or both.

The great variety of chemicals precludes the listing of each item that may be mailed. Publications available from the United States Postal Service give an indication of what can be mailed.

Certain chemicals are not allowed to be mailed as bulk samples and include:

- Nitric acid
- Aniline
- Gasoline
- Chloropicrin
- Perchloric acid
- Organic phosphate compounds
- Benzoyl peroxide
- Parathion (liquid)
- Class A poisons

Most solid sorbent tubes, silica-gel tubes, filters, and wipe samples will not be classified as hazardous materials and can be shipped as regular certified mail through the USPS.

When a restricted article is tendered for shipment, the customer is required properly to identify, classify, package, mark, label, and certify all articles as specified in Title 49. A Shipper's Certification and labels for restricted articles can be obtained from:

American Labelmark (Labelmaster)
5724 N Pulaski Rd
Chicago, IL 60646
(800)-621-5808
<http://www.labelmaster.com>

Since all samples are subject to possible litigation, there must be a chain and/or proof of custody of the samples from the field to the Laboratory. The preferred form is a certified mail receipt. Samples shipped by certified mail go first class (air mail). All samples should be properly sealed with a lab custody seal and accompanied by a Sample Submittal Form. Detailed instructions on sample shipping according to DOT regulations are available directly from the DOT.