Schneider Laboratories, Inc
Sample Collection, Preservation and Storage Guidelines

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1. Scope and Application

This document details the guidelines for sample collection, preservation, and storage for samples commonly received at SLI. The information herein is offered as a guideline and source of information for SLI personnel who advise clients on proper sample collection, or as a direct resource to clients via the lab's website. More detailed information is available from published methods.

SLI is a testing facility that encourages its clients to collect or obtain samples according to the relevant guidelines. SLI provides instructions for sample collection at the request of its clients, and makes an effort to contact clients if improperly collected samples are discerned by laboratory personnel. The ultimate responsibility, however, for proper sample collection lies with the submitting agency, as the laboratory cannot monitor the collection process. SLI maintains a policy of "samples tested as received" for all samples.

This document is a *general summary* of collection notes and explanations, *not intended to replace or override the guidance of current, approved methods or charts for sample collection requirements.* See the charts provided by New York State's Environmental Laboratory Approval Program Certification Manual, Items 241, 242, 243, and 244, current editions, for more specific summary information for each analysis category, including containers, preservation, and maximum holding times. These documents are available from the laboratory upon request if not available as an attachment to this document.

2. Basic Sample Acceptance

It is the responsibility of the client (or the sampler/subcontractor appointed by the client) to provide the proper, full, and complete documentation appropriate to the sample collected, generally including: sample identification, the location, date, and time of collection, collector's name, preservation type, sample type, and special remarks.

Submitted samples should be clearly labeled with a unique identification corresponding to written documentation. Sample labeling and documentation should be done in indelible ink. Containers, sample volumes, holding times, and shipping conditions should be appropriate to the analysis requested.

Laboratory staff evaluates samples for signs of damage, contamination, and temperature control. Observations to indicate improper sample handling are noted in laboratory documentation and the client is notified. Sample results may be reported with qualifying statements at the discretion of the department manager or his/her designee.

3. Asbestos Air Samples

3.1. Asbestos air samples are collected onto a 0.45 - 1.2 µm pore-size cellulose ester membrane filter, 25 mm in diameter, with a conductive cowl on the cassette.

3.2. Samples are generally collected using a personal or area pump with a flow rate calibrated to 0.5 to 16 L/min. Ideally, the pump rate is adjusted to give 100 to 1300 fibers/mm^2.

3.3. Field blank submissions are recommended at the rate of 10% of samples.

3.4. Samples are sealed with the protective plugs after collection and labeled in a way which distinguishes it from other samples within the same group.

3.5. Samples must be clearly identified and submitted with corresponding paperwork. Paperwork should include the name of the employee (when applicable) and the sample time and flow rate. This information is necessary for appropriate reporting of sample results.

3.6. Samples should be handled without rough treatment to assure that fibers lodged in the collection filter remain intact during shipping. Samples are otherwise stable and require no special preservation, handling, or shipment.

4. Asbestos Bulk Samples

4.1. Bulk samples for asbestos testing must be representative samples of the material to be tested; the sample should contain all layers of the questioned material. Samples from multiple locations should be bagged separately to avoid cross-contamination.

4.2. Bulk samples for asbestos must be submitted in a sealed container. Ziploc™ plastic bags or screw top plastic vials are recommended containers.

4.3. Although no special sample preservation is necessary, the sample should be handled without exposure to extreme conditions or rough handling so that the received sample is intact and all layers of material in the sample may be examined by analysts handling the material.

4.4. Samples must be clearly identified and submitted with corresponding paperwork.

5. Air Samples for Metals and/or Gravimetrics

5.1. Metals air samples must be collected on the proper sampling media: MCE (matched weight) 37-mm, 0.8 mm pore size cassettes. Gravimetric samples must be collected on PVC – 5µm pre-weighed filter media.

5.2. Personal samples are generally collected at a flow rate of 1 to 4 liters per minute. Area samples are generally collected at a flow rate of 10 liters per minute.

5.3. Field blank submissions are recommended at a rate of 1 blank per 10 samples.

5.4. Air samples must be collected with the airflow direction moving over the filter toward the backup pad. Cassettes are marked with the proper air flow direction.

5.5. Samples must be properly labeled and submitted paperwork must contain complete flow and time information for each sample. Failure to include this information with samples will result in incomplete sample reports.

5.6. Although special sample handling and preservation is unnecessary, cassettes should be handled gently so as not to disturb dust lodged in the collection filter.

6. Paint Chip Samples for Metals

6.1. Paint chip samples should be free of any substrate or material other than the questioned paint film.

6.2. Sufficient amounts of paint chips must be submitted for testing. Insufficient amounts (those with sample weight less then 200 mg) will be rejected or reported with a laboratory disclaimer. Protocol suggests a sample size of approximately 600 mg of paint chips. Collection of approximately one tablespoon of paint chips assures adequate sample.

6.3. For results in weight percent, HUD Sample Collection Procedure offers this method:

Using a sharp tool, score the area of paint to be removed; then slide a thin sharp blade along the score and under the paint, removing the section of paint down to, but not including, the substrate ensuring all layers of paint are intact.

6.4. For results in mass per unit area (mg/cm^2), HUD Sample Collection Procedure offers this method:

Apply a clear adhesive material over an area larger than the sample size desired.

Cut through the adhesive and paint layers using a punch or template and sharp knife.

Remove the adhesive, paint, and a thin layer of the substrate using a sharp chisel.

6.5. Some surfaces, especially wood and steel, are candidates for paint removal using a heat gun. See a manufacturer's instructions for guidelines for proper, safe use.

6.6. Samples should be collected into a sealable container such as a Ziploc™ bag or plastic vial.

6.7. No special preservative or handling instructions are applicable.

6.8. Samples should be submitted to the laboratory with the appropriate descriptive paperwork.

7. <u>Wipe Samples for Metals</u>

7.1. The standard sampling area for wipes is one square foot. HUD Sample Collection Procedure offers this method:

Identify, without disturbing the dust, a one square foot area to be sampled.

With a gloved hand, use a pre-moistened ghost wipe to collect a sample. Assure that the wipe is not contaminated by discarding the top wipe in a stack or using individually wrapped wipes.

Proceed to wipe the area with an "S" motion over the entire surface in a north-south direction, pressing firmly with the palm.

Fold the wipe in half with the contaminated side facing inward; repeat the wipe motion in an east-west direction. Attempt to include all visible dust.

Fold the wipe again with the contaminated side facing inward, and insert into the container for transport.

7.2. Include sample dimensions on the submission form.

7.3. SLI recommends submission of a blank wipe for testing with each group of samples if non-standardized media is used, or if the media has not been tested for the analyte of interest.

7.4. Sampling materials meeting ASTM E 1792, Standard Specification of Wipe Sampling Materials for Lead in Surface Dust, are recommended for dust wipe sampling. Laboratory detection limits and quality control programs are based on this media.

7.5. Wipes should be submitted in a clean centrifuge tube. Schneider Labs does provide centrifuge tubes upon request. The container should be clearly labeled with the client's unique identification.

7.6. Although no particular preservation or sample handling is required, prompt submittal to the laboratory is suggested due to the tendency of the soiled wipes to mold if processing is excessively delayed.

8. Soil and Bulk Samples for Metals

8.1. Because obtaining soil samples tends to be an easy process, getting adequate sample is not usually a problem. The laboratory recommends submission of 600mg to 1000mg samples of soil.

8.2. Usually soil collection protocol is determined by the project or field manager. Because of the nature of soil testing, the laboratory does not offer a standard procedure for the frequency or depth for soil testing.

8.3. If paint chips are present in the sample and accessible to children, include them in the soil sample.

8.4. Preferable soil collection sites are free of organic material. However, if a clear site cannot be found, submit the organic components with the sample to the laboratory.

8.5. Soil samples are usually taken near entrances to buildings; in areas near suspect leaded paint is recognized, from play areas, and at parking lot or roadway edges.

8.6. Avoid using tools to collect the samples unless the tool can be thoroughly cleaned between samples to prevent cross-contamination.

8.7. No special preservation or handling is required.

8.8. Samples should be submitted with the appropriate descriptive paperwork.

8.9. All soil samples are tested "as received" unless noted on the report as "Sample dried before testing."

9. <u>Drinking Water Samples for Metals (other than Lead and/or Copper)</u>

9.1. Samples are collected into one (1) liter plastic containers. When possible, the containers are pre-acidified so that preservation takes place at the time of collection.

9.2. Sample volume of 1 liter is recommended but not required.

9.3. Upon receipt into the laboratory, the sample's pH is tested. If the pH is greater than 2, indicating that the sample was not acid-preserved in the field, 1 ml of nitric acid is added to the unfiltered sample to lower the pH to less than 2. The maximum time

allowed before acidifying the sample is 14 days. Once acidified, the sample must stand a minimum of 18-24 hours before proceeding with analysis.

9.4. Once preserved, a holding time of six (6) months is allowed before the sample would be considered invalid.

10. Drinking Water Samples for Lead and/or Copper

10.1. Samples are collected into one (1) liter plastic containers. When possible, the containers are pre-acidified so that preservation takes place at the time of collection.

10.2. Samples for analysis of lead and copper should be a volume of not less than 1 liter.

10.3. Draws are taken in the morning or after a minimum of six (6) hours standing time. The maximum standing time is 18 hours.

10.4. Upon receipt into the laboratory, the sample's pH is tested. If the pH is greater than 2, indicating that the sample was not acid-preserved in the field, 1 ml of nitric acid is added to the unfiltered sample to lower the pH to less than 2. The maximum time allowed before acidifying the sample is 14 days. Once acidified, the sample must stand a minimum of 24 hours before proceeding with analysis.

10.5. Once preserved, a holding time of six (6) months is allowed before the sample would be considered invalid.

11. Non-Potable Water Samples for Metals

11.1. Samples are collected into one (1) liter plastic, glass, or Teflon containers. Lab-supplied containers are pre-acidified so that preservation takes place at the time of collection. When the client does not use lab-supplied containers, the responsibility for providing acid preservative rests on the client.

11.2. Sample volume of 1 liter is recommended but not required.

11.3. Upon receipt into the laboratory, the sample's pH is tested. If the pH is greater than 2, the report will be noted to reflect the lack of field preservation.

11.4. Once preserved, a holding time of six (6) months is allowed before the sample would be considered invalid. For mercury, the holding time is 28 days.

11.5. See the attached tables for specific requirements regarding Chromium VI.

12. TCLP Samples for Metals and/or Organics

12.1. Samples for TCLP testing should be a representative sample of the waste stream.

12.2. Samples should be fully contained and appropriately labeled in jars or bags.

12.3. Samples should weigh a minimum of 55g measured without container.

13. High Volume Filter Samples (Metals and/or Gravimetry)

13.1. High volume filters should be folded in half on themselves, collection side in, in order to help contain collected matter, and put inside the provided sleeve *before* being submitted inside of an envelope.

13.2. Each filter should be inside its own bag or envelope.

13.3. Filters should be handled carefully to minimize loss of collected dust sample.

14. Organics Samples (Industrial Hygiene)

14.1. Industrial Hygiene samples for organic compounds are collected in accordance with the protocol in the appropriate NIOSH or OSHA method. Most analyses use charcoal as the collection sorbent, usually in either tubes or monitoring badges. However, specific methods of interest should be referenced to insure the proper choice for collection media for specific analytes.

14.2. The shipment, preservative, storage, and maximum holding time is dependent on the analyte(s) desired, so the method used for the specific analysis of the analyte(s) should be checked for handling requirements.

14.3. Collection media should always be fully sealed and appropriately labeled. Cracks and breaks in the media will adversely affect the sample results.

14.4. STORAGE: Samples are refrigerated upon receipt. Samples for formaldehyde are frozen upon receipt.

15. Organics Samples (Environmental)

15.1. All environmental samples for volatile or semi-volatile compounds must be shipped cooled, less than or equal to 4° C.

15.2. Volatiles samples are collected in acid-preserved containers supplied by the laboratory. Any aqueous samples, either volatile or semi-volatile, which contain free chlorine, must be treated with sodium thiosulfate before analysis or preparation for analysis.

15.3. Environmental organics samples must be fully sealed to prevent loss of volatile or semi-volatile substances.

15.4. Trip blanks are shipped with collection media to clients and are returned by the client to the laboratory for analysis at no cost to the client. Trip blanks are required by EPA Methods 8010B, 8020A, 8021B, and 8260B.

15.5. Samples should be appropriately labeled and shipped to the laboratory as soon as possible. The individual methods for the matrix and the desired analyses should be referenced for maximum holding times.

15.6. STORAGE: Organics samples are stored in the refrigerator upon receipt, with the exception of PCB Bulk samples and Tedlar bags, which are kept at room temperature.

16. Hydrogen Ion (pH) Testing

16.1. Hydrogen Ion (pH) testing is, by nature, an in-field test, based on the need for immediate analysis of samples, especially aqueous samples. Despite the fact that the recommended holding time cannot be met, pH is, at times, requested of samples that arrive in the laboratory.

16.2. The affect of ambient air on a sample's pH may be minimized if the sample is collected with zero headspace.

16.3. There is no appropriate preservation for pH samples. Samples are tested as received.

17. Wet Chemistry

17.1 Samples are collected into one (1) liter plastic, glass, or Teflon containers. Lab-supplied containers are pre-preserved as required by the selected method requested so that preservation takes place at the time of collection. When the client does not use lab-supplied containers, the responsibility for providing the correct preservative rests on the client.

17.2. See the attached tables for specific requirements regarding wet chemistry preservation as well as the associated holding times.

18. References

HUD Interim Guidelines (HUD, 1990)

HUD Risk Assessment Protocol (HUD, 1992)

NY Environmental Laboratory Approval Program Certification Manual, Items 241, 242, 243, and 244, Current Revision.

Individual SLI SOPs and published methods corresponding to individual tests done at Schneider Laboratories, Inc.