

Surface Wipe Sampling Procedure

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CONTENTS

- 1.0 SCOPE AND APPLICATION
 - 2.0 METHOD SUMMARY
 - 3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE
 - 4.0 INTERFERENCES AND POTENTIAL PROBLEMS
 - 5.0 EQUIPMENT/MATERIALS REQUIRED
 - 6.0 PROCEDURES
 - 7.0 CALCULATIONS
 - 8.0 QUALITY ASSURANCE/QUALITY CONTROL
 - 9.0 DATA VALIDATION
 - 10.0 HEALTH AND SAFETY
 - 11.0 REFERENCES
- APPENDIX A – FIELD Data Sheet

1.0 SCOPE AND APPLICATION

This surface wipe sampling procedure outlines the recommended protocol and equipment for collection of a wipe sample from potentially contaminated surfaces. For best results, this procedure is recommended for smooth, hard surfaces with minimal surface imperfections. This sampling method is appropriate for surface contaminants with non-volatile species of analyses. Sample size should be based upon detection limit desired and the amount of sample requested by the analytical laboratory. Minimum sample size for contaminant investigation is 100 square centimeters (cm²). Based upon sampling location, the sample size may be modified depending on site conditions, equipment limitations, or limitations imposed by the procedure or other procedure limitations. In all instances, the ultimate procedures employed should be documented and associated with the final report. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

2.0 METHOD SUMMARY

Since surface situations vary widely, no universal sampling method can be recommended. Rather, the method and implements used must be tailored to suit a specific sampling site. The sampling location should be selected based upon the potential for contamination. The recommended sampling locations are untreated wood, painted wood, hair, and table tops or similar surfaces. Wipe samples are collected from a measured surface to indicate surface contamination. While wearing a new pair of thin nitrile gloves, open a sterile gauze pad or pre-moistened wipe and stroke firmly over the sample surface, vertically and horizontally, to ensure complete coverage. The pad or dust wipe is then transferred to the sample container, labeled and sent to the laboratory for analysis.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Samples should be stored in a glass sample jar, labeled, stored in a cool dry place until shipped to the laboratory performing the analysis. The laboratory will provide the shipping labels and containers. The amount of sample required has been determined in concert with the analytical laboratory.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

This method has few significant interferences or problems. Typical problems result from rough porous surfaces, which may be difficult to wipe. Rough surfaces will damage the Palintest pre-moistened wipe sample, thus gauze pad is suggested on difficult surfaces. The choice of using a dry or moistened wipe should be made based on potential contaminant and recommendations of the analytical laboratory.

5.0 EQUIPMENT/MATERIALS REQUIRED

Equipment required for performing wipe sampling is as follows:

- Clean 4 oz. glass sample jar (typically supplied by laboratory)
- Pre-measured template or measured sample area
- Sample notebook or surface wipe sampling form
- Sample labels
- Disposable thin nitrile gloves
- Sterile wrapped gauze pad (4 in. x 4 in.) or Pre-moistened wipes
- Distilled water (if using moistened gauze wipes)
- Chain of Custody records (typically supplied by laboratory)

6.0 PROCEDURES

Wipe sampling is accomplished by using a pre-moistened wipe or sterile gauze pad wiping a pre-determined, pre-measured area. The sample will be placed in a glass sample jar, labeled, and packed in shipping containers provided by the lab. Each gauze pad is used for only one wipe sample (Use second gauze pad to clean the rest of the surface, see 6.9 below)

- 6.1 Choose an appropriate sampling surface. Without contacting the surface measure off the designated area or use the pre-measured template (10 cm x 10 cm).
- 6.2 Record surface area to be wiped.
- 6.3 Don a new pair of disposable surgical gloves.
- 6.4 Open a new pre-moistened wipe or sterile package of gauze pads.
- 6.5 Wet the sterile gauze pad with approximately 1-2 mL of distilled water.
- 6.5 Wipe the marked surface area using firm strokes. Wipe vertically, then horizontally to insure complete surface coverage. Note use of NIOSH or OSHA Surface Wipe Methods as seen in Appendix.
- 6.6 Place the pre-moistened wipe or gauze pad in a glass sample jar.
- 6.7 Seal the sample jar, attach the label and place in shipping container.
- 6.8 Record all pertinent data on the field data sheets.
- 6.9 Using a new pre-moistened wipe or gauze pad, clean the remainder of the surface and dispose of template and cleaning gauze pad properly.
- 6.10 Complete the sampling analysis request form and chain of custody record (this can be done by the office staff).

7.0 CALCULATIONS

Results are usually provided in milligram or microgram per wipe, or other appropriate measurement. Calculations are typically done by the laboratory.

8.0 QUALITY ASSURANCE / QUALITY CONTROL

- The following general quality assurance procedures apply:
All data must be documented on standard chain of custody forms, field data sheets.

- The following specific quality assurance activities apply to wipe samples:
For wipe samples, a blank sample should be collected at one out of every 20th sampling event. This consists of a pre-moistened wipe or sterile gauze pad placed in a sample container done at the sampling location. The blank will help identify potential introduction of contaminants via the sampling methods, the pad, and the sample container. Duplicate samples will be collected at one out of every 10th sampling event.

9.0 DATA VALIDATION

A review of the quality control samples will be conducted and the data utilized to qualify the wipe sample results.

10.0 HEALTH AND SAFETY

- 10.1 Hazard assessment: The actual task of taking a surface wipe sample typically does not cause significant personal health risks. This procedure may be performed in areas with chemical contamination, and these hazards must be assessed on a case-by-case basis. Chemical exposures are not anticipated, and physical or mechanical hazards are only those that would be found in any typical household environment.
- 10.2 Personal Protective Equipment: Appropriate personal protective equipment to protect the person collecting the sample must be used when implementing this procedure. At a minimum, disposable thin nitrile gloves must be used when contacting the surface material and handling exposed sampling media. The gloves must have sufficient impermeability to the surface contaminant and solvent used on the collection media to allow safe handling. Where the potential for contamination of the body can occur, the use of disposable clothing to cover the areas of contact is required. When the potential for exposure to airborne contaminants above the ACGIH TLV, STEL or Ceiling or OSHA PEL (which ever is lower) may occur, the person collecting the sample must use appropriate respiratory protection.

11.0 REFERENCES

Brookhaven National Laboratory Health and Safety Services Division, Industrial Hygiene Group, Standard Operating Procedure Field Procedure: IH75190, Revision 7, 10/17/02.

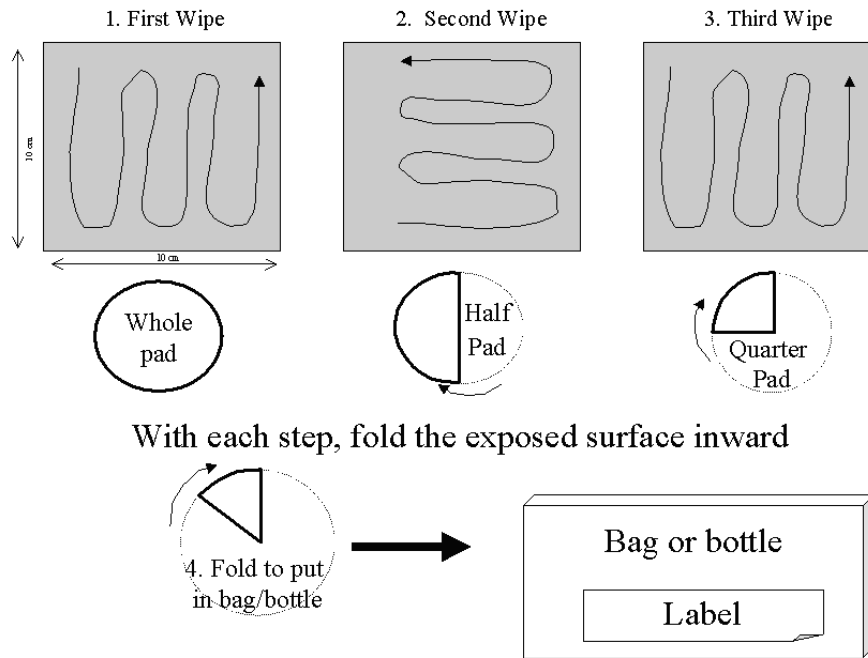
State of Nevada Division of Environmental Protection, Dry Wipe Sampling, SOP: Fallon CEA, Revision 1.0, 10/16/01

U.S. EPA Environmental Response Team, Standard Operating Procedures 2011, November 1994.

Health and Safety Plan, Prepared in Support of: CDC/NCEH Cross-sectional Exposure Assessment Study – Churchill County, Nevada. September 25, 2001.

Appendix:

NIOSH Surface Wipe Method:



OSHA Surface Wipe Method:

