

FS 8100. Contaminated Surface Sampling

Use in conjunction with:

- FA 1000 Regulatory Scope and Administrative Procedures for Use of DEP SOPs
- FC 1000 Cleaning/Decontamination Procedures
- FD 1000 Documentation Procedures
- FM 1000 Field Planning and Mobilization
- FQ 1000 Field Quality Control Requirements
- FS 1000 General Sampling Procedures

1. SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) outlines the recommended protocol and equipment for collection of chip, wipe and sweep samples to monitor potential surficial contamination. Use these sampling protocols to determine if hazardous constituents have contaminated various surfaces or to evaluate the effectiveness of decontamination procedures. These sampling techniques are only applicable to non-volatile analytes.

- 1.1. Wipe samples are collected from smooth, non-absorbent surfaces.
- 1.2. Chip sampling is conducted on porous surfaces and is generally accomplished with a hammer and chisel.
- 1.3. Sweep sampling is used to collect dust or residue on porous or non-porous surfaces.

2. GENERAL CAUTIONS

- 2.1. Inform sampling personnel of the hazards associated with the selected solvent used for wipe samples and train them in taking appropriate precautions to prevent skin contact or inhalation of these solvents.
- 2.2. Ensure that the wipe material is compatible with the solvent used and the analyses to be performed and does not come apart during use.
- 2.3. Sample size is determined by the detection limit desired and the amount of sample requested by the laboratory.
- 2.4. Since surface situations vary widely, the method and implements used must be tailored to suit a specific sampling site. In all instances, the ultimate procedures employed must be documented.
- 2.5. These methods have few potential problems; the main concern is obtaining representative samples from irregular, porous surfaces.

3. EQUIPMENT AND SUPPLIES

- 3.1. Select sampling equipment based on the analytes of interest, the specific equipment use and the available equipment. Construction materials of the sampling equipment must conform to FS 1000, Tables FS 1000-1 and FS 1000-2.
- 3.2. Clean all sampling equipment and obtain clean sample containers using the appropriate protocols specified in FC 1000.
- 3.3. After appropriate decontamination wrap the equipment in new aluminum foil. Use each sampling device for only one sample, where practical.

FS 8110. SAMPLING TECHNIQUES

Typical sample area is one square foot. However, based upon sampling location, the sample size may need modification due to area configuration.

1. WIPE SAMPLING: Wipe sampling is accomplished by using a sterile gauze pad (cotton balls when collecting samples for PCBs), saturating the gauze or cotton balls with a solvent in which the contaminant is most soluble and that does not interfere with the analysis, and then wiping a premeasured sample area. Package gauze pad in an amber sample jar to avoid photodegradation.
 - 1.1. Choose appropriate sampling points and measure the designated sampling area.
 - 1.2. Record surface area to be wiped.
 - 1.3. Wearing a new pair of disposable surgical gloves, open a new sterile package of gauze pad or other appropriate sterilized material and soak the material with the appropriate solvent.
 - 1.4. Wipe the sample vertically, and then horizontally, using firm strokes ensuring that the entire surface area is covered.
 - 1.5. Place the gauze pad in a precleaned sample container with a Teflon-lined cap.
 - 1.6. Place the cap on the sample container, secure the label and custody seal, if applicable, and place the container in a plastic bag.
 - 1.7. Store the samples out of direct sunlight and cool to 4°C.
2. CHIP SAMPLING: Employed for sampling porous surfaces.
 - 2.1. Choose appropriate sampling points and measure the designated sampling area.
 - 2.2. Record surface area to be chipped.
 - 2.3. Wearing a new pair of disposable surgical gloves, remove a laboratory-cleaned chisel or equivalent sampling device from its wrapping.
 - 2.4. Using a precleaned hammer, chip the sample area horizontally and then vertically to an even depth of approximately 1/8 inch.
 - 2.5. Place the sample in a precleaned sample container with a Teflon-lined cap.
 - 2.6. Place the cap on the sample container, secure the label and custody seal, if applicable, and place the container in a plastic bag.
 - 2.7. Store the samples out of direct sunlight and cool to 4°C.
3. SWEEP SAMPLING: This technique is appropriate for bulk contamination. A dedicated, hand held sweeper brush is used to collect a sample from a premeasured area.
 - 3.1. Choose appropriate sampling points and measure the designated sampling area.
 - 3.2. Record surface area to be swept.
 - 3.3. Wearing a new pair of disposable surgical gloves, sweep the measured area using a dedicated brush and collect the sample in a dedicated dustpan.
 - 3.4. Transfer the sample from the dustpan to the sample container.
 - 3.5. Place the cap on the sample container, secure the label and custody seal, if applicable, and place the container in a plastic bag.

- 3.6. Store the samples out of direct sunlight and cool to 4°C.

FS 8120. DOCUMENTATION

1. Immediately following sample collection, identify each sample container with a unique field identification code.
2. Record the size and shape of the area sampled.
3. Record site-specific sampling information while still at the site and meet all of the requirements specified in FD 1000.

FS 8130. SAMPLE TRANSPORT AND HANDLING

Store the samples out of direct sunlight and cool to 4°C.

FS 8140. QUALITY ASSURANCE

1. WIPE SAMPLES
 - 1.1. Collect a blank for each sampling event. Saturate a sterile gauze pad with the project solvent and place it in a prepared sample container. Handle the blank in the exact same manner as the samples.
 - 1.2. Optionally spiked wipe samples can be collected. Prepare these by spiking a measured piece of foil. Allow the solvent containing the standard to evaporate, and collect the sample from the foil surface as described in FS 8110, section 1.
2. See FQ 1000 for quality control protocols for chip and sweep samples.