

# Guidance on packaging and shipping vacuum socks used for the collection of *Bacillus anthracis* samples

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## BACKGROUND

Environmental sampling is an important tool to determine the presence of, and assess the risk for exposure to, *Bacillus anthracis* (*B. anthracis*) spores during a response. The Centers for Disease Control and Prevention (CDC) has developed a number of standardized sampling procedures for *B. anthracis* spores that meet a variety of needs during a response. These procedures are meant to be used to collect samples from smooth, non-porous surfaces and to complement validated laboratory processing methods. These procedures are available on the CDC website at <http://www.cdc.gov/niosh/topics/emres/surface-sampling-bacillus-anthraxis.html>.

Investigators may also choose to use other commonly accepted sampling methods in consultation with the receiving laboratories as needed. One such method is surface sampling on porous surfaces using a sampling sock attached to a high-efficiency particulate air vacuum cleaner. This sampling protocol is described on the CDC website at <http://www.cdc.gov/niosh/topics/emres/unp-envsamp.html>; however, it has not been validated, and sampling results using this protocol should be interpreted cautiously.

## PURPOSE

If not packaged appropriately for delivery to the laboratory, these samples could: (1) pose a health risk to the receiving laboratorians, (2) result in the inability of the laboratory to analyze the sample, and (3) cross-contaminate the laboratory, which could compromise their ability to analyze other samples. To reduce the potential occurrence of these problems, this document describes a protocol for packaging the socks for shipping which supplements existing sock sampling methods.

## FIELD SAMPLE PROCESSING

This document does not describe the sock sample collection procedure. It is described in the method referenced above. After the sample has been collected, the following steps should be followed immediately.

1. Remove the sock sample from the vacuum.
2. Remove the sock from any device to which it is secured during sample collection.

Note: It is common for the sock to be held in place with one or two cardboard tubes during collection. These tubes should be discarded with other sampling waste and should not be sent to the laboratory with the sample.

3. Twist the top, non-filter portion of the sock closed to secure its contents. Care should be taken to only twist the top (non-filter) portion of the sock to aid in laboratory processing.
4. Secure one cable or twist tie over the non-filter portion of the sock to prevent the sock from opening during transport. See figure 1. A 6 inch cable tie has been found to be easy to attach when working in personal protective equipment.



Figure 1. Example of sock with twist tie applied.

5. Place the sock in a sterile, leak-proof, screw-capped, wide mouth container.
6. Securely tighten the screw-cap and label the container (e.g., unique sample identifier, sample location, initials of the collectors and date and time sample was collected).
7. Apply a 2 inch wide piece of PARAFILM® M around the screw-cap (half on the screw-cap and half on the container) to prevent the cap from coming loose during shipment.

8. Place the sample container in a re-sealable 1-quart plastic bag. Securely seal and label the bag (e.g., unique sample identifier, sample location, initials of the collectors and date and time sample was collected). Wide mouth containers and re-sealable bags may be pre-labeled to assist with sampling efficiency.

Note: Remove excessive air from the re-sealable plastic bags to increase the number of samples that can be shipped in one container but be cautious not to over-pack samples.

## **SAMPLE BAG DECONTAMINATION**

1. Place multiples of the re-sealable 1-quart plastic bags into a 1-gallon re-sealable plastic bag. Securely seal the 1-gallon re-sealable plastic bag and label the bag (e.g., identify samples contained in the re-sealable plastic bag, sample locations, date and time samples were collected, and name of individual collecting the samples).
2. Decontaminate the outer surface of the larger re-sealable plastic bag using a pH-adjusted bleach solution (household bleach diluted 1:9; pH-adjusted to 6.8-8.0) with a 10-minute contact time before the re-sealable plastic bag leaves the contaminated area. This solution can be prepared by:

Step 1: Mixing one part household bleach (5.25 to 6.0 % sodium hypochlorite) with 5 parts water (v/v);

Step 2: Adding 1 part white vinegar; and

Step 3: Adding 3 parts of additional water.

Note: Additional information about decontamination is available at [www.epa.gov/opp00001/factsheets/chemicals/bleachfactsheet.htm](http://www.epa.gov/opp00001/factsheets/chemicals/bleachfactsheet.htm).

3. Thoroughly dry the outside of the re-sealable plastic bag.
4. Complete a chain of custody form.

Note: Once the outer re-sealable plastic bag is decontaminated, it should not be opened outside appropriate containment in a laboratory.

5. Place the larger re-sealable plastic bag into an appropriate container for shipping.

## **SAMPLE SHIPMENT**

1. Transport all samples to the processing laboratory on wet ice or cold packs.

Note: Samples may be stored at 2°–8°C prior to processing and should be processed within 48 hours of collection.

2. Appropriate chain of custody forms and analytical request forms should be included with each shipment sent to the processing laboratory. Containers used to transport the samples and accompanying contaminated documentation and equipment should be prepared and shipped according to the appropriate regulations for transporting infectious substances. The most current Code of Federal Regulations, International Air Transport Association guidelines, and other appropriate regulator or guidance publications should be consulted for complete instructions. The shipper is responsible for ensuring adherence to the most current and appropriate shipping regulations.

Note: Do not transport potentially contaminated equipment/supplies in the same container as the samples.

Note: The laboratory will not accept samples if the shipping container or its contents have opened during shipment.