
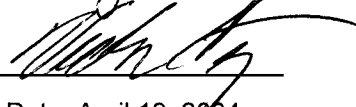


Hand Wash Samples
Chapter 8: MATRIX SAMPLES
AHETF-8.B.3.

Effective Date : January 1, 2006

APPROVAL <u></u>	DATE <u>01/05/06</u>
APPROVAL <u></u>	DATE <u>05 JAN 06</u>
Last Revision Date: April 19, 2004	Previous Version Number: 8.B.2.

1.0 PURPOSE AND SCOPE

- 1.1 This Standard Operating Procedure (SOP) provides a description of procedures for collecting pesticide residues from workers bare hands during the Agricultural Handlers Exposure Task Force (AHETF) exposure studies.

- 1.2 This SOP was revised to clarify the preparation of AOT solutions, as presented in sections 2.1.b, 3.1, and 3.2. Section 3.3 was modified to clarify the use of plastic bags as temporary containers of AOT solution. Sections 4.1 and 4.4 were changed to clarify the collection of interim handwashes. Section 4.3 clarifies the sampling sequence.

2.0 EQUIPMENT REQUIRED

- 2.1 The following materials are required for collecting dermal hand wash samples:
 - a. Metal or glass bowl (**Do not use plastic bowls for performing handwashes**)

 - b. Aerosol[®] OT Solution, 10% w/w. This is a concentrated solution of the anionic surfactant dioctyl sodium sulfosuccinate (also known as AOT) which will be diluted in water and used to wash hands (500 mL for each handwash).

- c. Distilled or deionized water (in 1 gallon jugs, or other appropriate container)
- d. Graduated cylinder or appropriate measuring device
- e. Glass jars with Teflon[®] lined lids, or equivalent
- f. Reclosable plastic bags (1 gallon size; optional for storage)
- g. Disposable gloves (*i.e.*, latex)
- h. Pipette(s) (*e.g.*, 2, 5, 10 mL, *etc.*)
- i. Cleaning solutions (*i.e.*, alcohol (methanol, isopropanol), alcohol/water mixture, acetone, *etc.*)
- j. Paper towels
- k. Cooler with dry ice or freezer

3.0 HAND WASH SOLUTION PREPARATION

- 3.1 The desired solution concentration is 0.01% v/v Aerosol[®] OT (AOT) in water (500 mL for each handwash). Sufficient quantities should be made for the projected number of handwashes to be collected on a daily basis, or within the allowable shelf life time period.
- 3.2 Pipette an appropriate amount of 10% w/w AOT solution into the water and dilute 1,000-fold to make a bulk 0.01% v/v AOT solution. For example, 3.8 mL of 10% AOT in one gallon of water or 4 mL of 10% OT in 4.0 liters of water. Document the brand of water (if store bought) and where it was purchased. If the water is **not** store bought, document the source. The AOT solution may be made up in plastic water jugs prior to use, for handwashes or field fortifications. Add the appropriate amount of AOT concentrate directly to the water in the jug or bottle, or other suitable container(s).

- 3.3 Store the bulk AOT solution in glass jars, plastic bags, water jugs, or suitable container(s). The shelf life of the 0.01% Aerosol[®] OT solution at room temperature is 48 hours. Reclosable plastic bags may also be used for short-term storage of AOT solution aliquots to facilitate collecting handwash samples in the field.

4.0 WASHING PROCEDURE

- 4.1 At the end of the sampling period, upon removal of the workers' personal protective equipment (PPE) and shoes/socks, the test subject will be taken to a designated clean "privacy area" for removal of exposed outer clothing. For interim handwashes during the monitoring period, follow steps 4.4 through 4.8.
- 4.2 Disposable paper, plastic mat, or aluminum foil will be placed on the chairs and floor of the changing area to reduce cross-contamination. The materials will be changed after the processing of each worker.
- 4.3 Handwash samples must be collected **after** the outer clothing and PPE have been removed, or after sock dosimeters were collected, as described in SOP 8.I, if applicable. Hand washes must be completed **before** the face/neck samples are collected.
- 4.4 Don clean disposable gloves, and carefully push up the whole body (inner) dosimeter cuffs from the worker's wrists. Have the test subject place both hands over a bowl, and pour approximately 400 mL of 0.01% Aerosol[®] OT solution over the subject's hands for approximately 30 seconds. The subject will scrub their hands while the wash solution is slowly poured over the workers' hands.
- 4.5 The worker shall then immerse their hands in the 400 mL of the wash solution in the collection bowl and scrub their hands in the solution for a minimum of 30 seconds.
- 4.6 The worker should lift their hands out of the wash solution, and while holding their hands over the bowl, the remaining approximate 100 mL of Aerosol[®] OT is poured over the workers hands to rinse. Allow the hands to drain for approximately five seconds.

- 4.7 Carefully pour the entire 500 mL of rinsate into a pre-labeled jar seal and place in cool storage. (A total of 500 mL must be collected for each handwash sample.)
- 4.8 Clean the bowl with solvent between workers. Rinse once with clean water, followed by two rinses with solvent, followed by a final rinse with water. Allow the bowl to air dry or wipe dry with a paper towel before reusing.

5.0 SAMPLING INTERVALS

- 5.1 Workers' hands will be washed with soap and water prior to the exposure period. If washing facilities are not available, a hand wash sample will be collected and discarded.
- 5.2 Handwash samples should be collected whenever the worker would normally wash his/her hands; (*i.e.*, before eating, before using the bathroom, *etc.*) unless specified differently in the study protocol. For interim handwashes, carefully unbutton the cuffs of the workers' outer shirt and push up the sleeves before washing hands.
- 5.3 After the replicate is completed, one final wash will be collected from each worker.

6.0 FIELD STORAGE

- 6.1 Place samples collected during the study in the field in a cooler with dry ice or portable freezer until processed and placed into frozen storage for shipping at the end of the monitoring day (or as soon as practical). If dry ice or portable freezer is not available, the Study Director must be notified before sample collection and other suitable storage conditions must be noted in the raw data.