

DRAFT 10/19/00

California Department of Pesticide Regulation
Environmental Hazards Assessment Program
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STANDARD OPERATING PROCEDURE

Instructions for Calibration and Use of an Andersen Series 110 Constant Flow Air Sampler

1.0 INTRODUCTION

1.1 Purpose

Monitoring air quality requires the use of equipment to collect air samples through sampling media for analysis. This document will define the calibration and use of the Andersen Series 110 Constant Flow Air Sampler Model 114 for use as an air pump to collect samples for analysis of air contaminants.

1.2 Scope

This document will provide specific instructions for the calibration and use of the Anderson Series 110 Constant Flow Air Sampler Model 114.

2.0 MATERIALS

- 2.1 Anderson Series 110 Constant Flow Air Sampler Model 114
- 2.2 Energy source
- 2.3 Rotameter
- 2.4 Sample tube
- 2.5 Chain of Custody form
- 2.6 Dry Ice and ice chest

3.0 PROCEDURES

3.1 Calibration

The flow rate of the pump will be determined by the project leader. The Andersen air sampler ranges from 0 to 30 liters per minute (lpm). The flow rate is set with the flow adjust knob located on the left side of the front inside panel (Figure 1). Adjust flow to desired rate on the rotameter located on the air sampler. Check flow with hand held rotameter. Adjust the flow if off more than 10 percent of target flow rate. If unable to achieve target rate, replace sampler with another. Adjust the elapsed time dial to read 0000.

3.2 Sampler location

Sampling locations will be specific to the experimental plot and the study objectives. The sampler should be located in an area with no restriction of air flow. The sampler should be positioned to avoid exposure from engine exhausts, running motors or other sources of non-target air contaminants that may interfere with sample collection and chemical analysis. If using a generator for a power source, make sure to place sampler a sufficient distance away to avoid drawing exhaust fumes into sample container. Choose an area where the equipment is secure and access is available when necessary.

3.3 Sampling methods

3.3.1 Glass sample tubes (described in SOP number FSAI001.00)

- 3.3.1.1 Place sample tube in tubing or tube holder on sampler arm (Figure 1). If placed in tube holder, tighten holder by hand. To check for leaks around the sample tube, turn on pump and cover sample opening with hand. Vacuum gauge level should read at least -24 to -25 in. Hg. If gauge is reading less negative, check tubing and sample tube connection for leaks.
- 3.3.1.2 Place rotameter over sample opening and turn sampler on. Adjust flow with the flow adjust knob to desired flow rate on the rotameter. Remove rotameter. Note flow rate, elapsed time meter reading and clock starting time on chain of custody.
- 3.3.1.3 Upon completion of desired sampling time, repeat rotameter reading and note on chain of custody. Remove sample tube and place caps or corks on ends. Note ending time and elapsed time reading. Complete chain of custody and place with sample in plastic bag. Place on dry ice.

3.3.2 Teflon® Cartridges (described in SOP number FSAI001.00)

- 3.3.2.1 Remove sample cartridge from plastic bag and save plastic bag. Remove caps from sample cartridge. Place small end of sample cartridge into tube attached to the Andersen air sampler.
- 3.3.2.2 Place hand-held rotameter over sample cartridge opening and turn sampler on. Adjust the flow adjust knob to desired flow rate on the rotameter. Remove rotameter. Note hand-held rotameter flow rate, elapsed time meter reading and starting time on chain of custody.
- 3.3.2.3 Upon completion of desired sampling time, repeat hand-held rotameter reading and note on chain of custody. Remove sample cartridge and screw caps on both ends. Place cartridge back in plastic bag. Note ending time and elapsed time reading. Complete chain of custody and place with sample in plastic bag. Place on dry ice.

4.0 REPORTING REQUIREMENTS

4.1 Chain of custody

A chain of custody form should be completed for each sample according to SOP ADMN006.1. The following information should be recorded on the chain of custody:

- 4.1.1 Study number
- 4.1.2 Sample number
- 4.1.3 Sample location
- 4.1.4 Date and time of sampling
- 4.1.5 Machine identification
- 4.1.6 Flow rate at beginning and ending of sample period
- 4.1.7 Exact run time for sampling pump
- 4.1.8 Sampling personnel
- 4.1.9 Chemical being sampled

5.0 STUDY-SPECIFIC DECISIONS

The following study-specific decisions are the responsibility of the study project leader, and should be made in consultation with the study field coordinator, senior scientists, and EHAP Quality Assurance Officer.

- 5.0.1. Sampling location
- 5.0.2. Flow rate
- 5.0.3. Sampling interval duration
- 5.0.4. Sampling tubes

Figure 1. The Andersen Series 110 Constant Flow Air Sampler

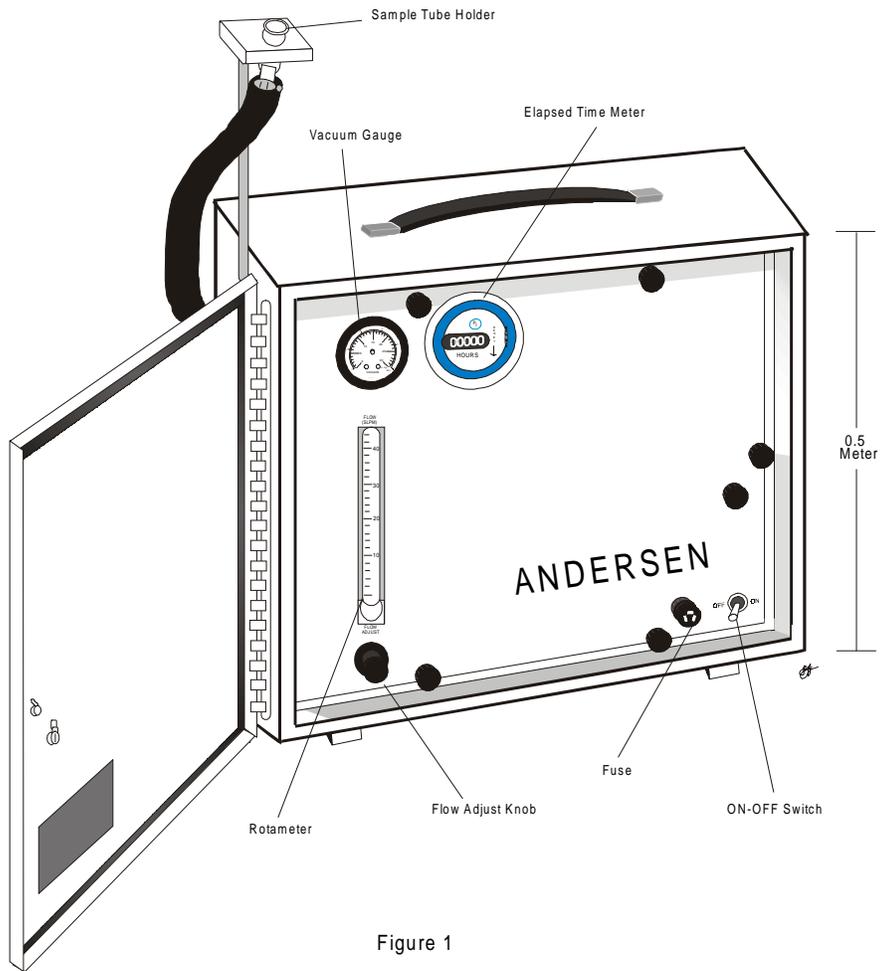


Figure 1