

SAMPLE SETUP GUIDE



Sampling Train — Filters

Filters are used to sample airborne chemical hazards in particulate form. Filter samples are collected using a small, porous filter typically 25 or 37 mm in diameter. Filters are placed into blank cassettes for sampling. This Sample Setup Guide demonstrates how to set up a **Sampling Train Using Filters**.

Required Equipment

1. An **air sample pump** capable of sampling at the recommended flow rate with the sampling medium in line, such as:
 - SKC AirChek® Touch Series
2. A **flowmeter** such as:
 - SKC Medium Flow chek-mate® Flowmeter with CalChek Cat. Nos. 375-0550N, 375-0550, and 375-0550S
3. **Filters, support pads or screens, and blank cassettes** as specified in the method
4. **Filter Cassette Holder** Cat. No. 225-1

Optional Equipment

1. **Cassette shrink bands** Cat. No. 225-25 Series
2. **Luer adapter, PVC** Cat. No. 225-13-2

Introduction

See the appropriate analytical method to determine required sampling media and flow rate. See the pump operating instructions to ensure that it can sample at the correct flow rate and back pressure characteristics of the sampling medium.

1. Preparing the Filter Cassette — Figure 1

The filter cassette holds the filter securely in place during sampling. The cassette consists of an inlet section, an outlet section, and possibly a middle ring or extension cowl. The cassette, with all three sections, can be used with the inlet in place (closed face) or with the inlet removed (open face), depending on the sampling method.

To load the cassette, place the specified support pad or screen in the outlet section of the cassette and then the required filter (conditioned and weighed according to the method used). Add the extension cowl or middle ring, if required, and close the cassette by aligning and installing the inlet section; use hand to press down firmly and evenly on the inlet section. Insert the plugs into the inlet and outlet.

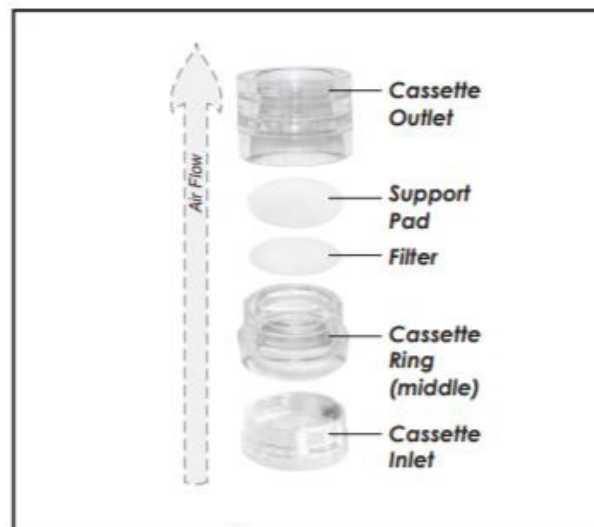


Figure 1. Filter cassette assembly

2. Setting Up the Flow Rate Verification Train

Note: If using a Universal Pump, ensure that it is in the high flow mode. When verifying the flow, use a filter cassette that has been loaded with a filter representative of the type to be used in the field. Remove the plug from the cassette outlet and use flexible tubing to connect the cassette outlet to the pump inlet and the cassette inlet to a flowmeter outlet. Luer adapters can be used to connect the filter cassette to the tubing.

3. Verifying the Flow Rate

Allow the pump to equilibrate from one temperature extreme to another and to run for 5 minutes before verifying flow rate. With the representative sampling medium in line, verify the flow rate specified in the analytical method. See the pump and flowmeter operating instructions for verifying flow rate. When the flow rate has been adjusted and verified, remove the filter cassette and flowmeter used and set aside. Both will be used to verify the flow rate after sampling. Record the pre-sample flow rate.

4. Sampling — Figure 2

When ready to start sampling, prepare a new filter cassette identical to the one used for verifying the flow. Seal the cassette with a cassette shrink band (optional). The band will shrink around the cassette upon drying. Insert the loaded filter cassette into a filter cassette holder with the inlet facing down. Secure the cassette with the spring-loaded hold-down plate and insert the adapter on the end of the short piece of spring reinforced rubber tubing into the cassette outlet. Connect the long piece of Tygon tubing to the pump inlet. Clip the filter holder to a worker's collar in the breathing zone and the pump to the worker's belt. The inlet of the cassette should be facing down. Remove the plug from the cassette inlet, if applicable, and turn on the pump. Note the start time and any other pertinent sampling information.

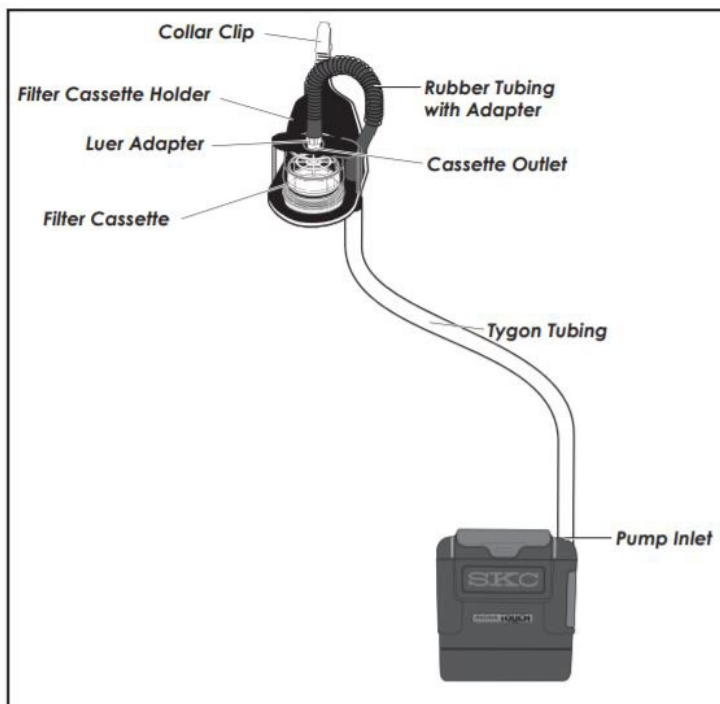


Figure 2. Sampling train with filter cassette in Filter Cassette Holder

5. After Sampling

At the end of the sampling period, turn off the pump and note the ending time. Remove the filter cassette from the holder and cap the inlet and outlet of the cassette with the plugs provided. If open-face sampling was used, align and install the inlet section; use hand to press down firmly and evenly on the inlet section. Install inlet and outlet plugs provided. When removing cassettes from the sampling train, handle them carefully to avoid losing sample. If desired, seal the cassette with a cassette shrink band. Reinststate the flow rate verification train and verify that the flow has not changed by more than 5%. Along with the sample filter cassette, submit field blanks from the same lot number as the sample filters. Field blanks should be subjected to exactly the same handling as the sample (load, seal, and transport) except that no air is drawn through them. Pack the sample filter cassette, field blanks, and all pertinent sampling information securely for shipment to a laboratory for analysis.

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