



Sample Setup Guide

Sampling Train — Single Sorbent Sample Tube



Sorbent tube sampling is the NIOSH/OSHA-approved method for collecting most hazardous gases and vapors from the air. The sorbent tube is glass with breakable end tips and contains a specially prepared high-activity sorbent. Most tubes have two sections: one for sample collection and the other for backup. This configuration provides a check against saturation of the primary sorbent bed. This Sample Setup Guide demonstrates how to set up a **Sampling Train Using Sorbent Sample Tubes**.

Required Equipment

1. An **air sample pump** capable of sampling at the recommended flow rate with the sampling medium in line, such as:
 - SKC Pocket Pump® TOUCH with Low Flow Tube Holder Cat. No. 222-3 Series
 - SKC AirChek® Series with All-in-One Low Flow Adapter/Holder Cat. No. 224-27
2. An **airflow calibrator** such as:
 - SKC Low Flow chek-mate Calibrator Cat. No. 375-00205N
 - SKC chek-mate Calibrator with CalChek Cat. No. 375-0550N
3. The **sorbent sample tube** specified in the method
4. The **appropriate protective tube cover**

Optional Equipment

1. SKC **Tube Breaker** Cat. No. 222-3-50 (for 6 and 7-mm OD tubes) or 222-3-51 (for 8 and 10-mm OD tubes)

Introduction

This guide shows sampling and calibration trains with the SKC Pocket Pump TOUCH sample pump. **For the low flow Pocket Pump TOUCH**, use the single low flow tube holder. **For SKC AirChek Series sample pumps**, use the All-in-One low flow adapter/holder for sampling at flow rates below 1000 ml/min (not necessary for flow rates greater than 1000 ml/min).

To determine the correct flow rate for the chemical of interest, refer to the appropriate analytical method. *See the operating instructions for the applicable pump to ensure that it can sample at the correct flow rate.*

1. Preparing the Sorbent Tube

Using a tube breaker, break off both ends of a representative sorbent tube to provide an opening of at least one-half the internal diameter of the tube. This tube will be used for calibrating the flow and not for collecting the sample.

2. Setting up the Sampling and Calibration Trains — Figures 1 and 2

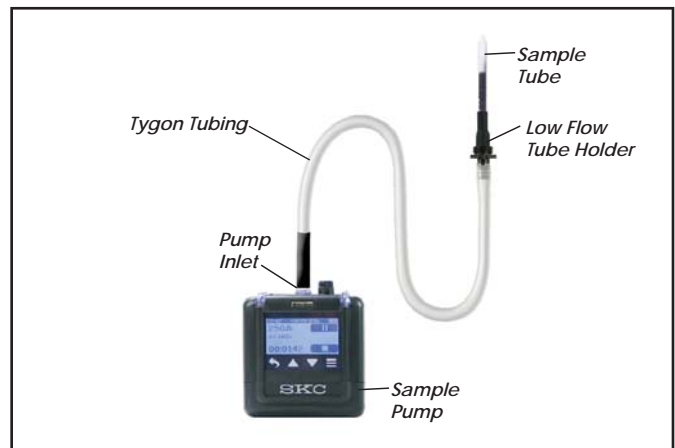


Figure 1. Sampling train with single (non-adjustable) low flow tube holder and Pocket Pump TOUCH

For a low flow pump: connect flexible tubing from the pump inlet to the tube holder. Place the sorbent tube into the black rubber sleeve of the tube holder. The printed arrow on the sorbent tube shows the direction of airflow and should point toward the pump. If there is no arrow printed on the tube, insert the end of the tube with the smallest sorbent section (backup section) into the tube holder.

For an AirChek Series pump: connect the All-in-One flexible tubing to the pump inlet. Place the sorbent tube in the black rubber sleeve on the tube holder. The printed arrow on the sorbent tube shows the direction of airflow and should point toward the holder. If no arrow is printed on the tube, insert the end of the tube with the smallest sorbent section (backup section) into the holder.

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3. Calibrating the Flow Rate — Figure 2

Allow the pump to equilibrate from one temperature extreme to another and to run for 5 minutes before calibrating. To calibrate the flow rate, connect the open end of the sorbent tube to an external calibrator. Calibrate to the flow rate specified in the analytical method for the chemical of interest. If using the All-in-One, turn the flow adjust screw on the holder to adjust flow rate. See the pump and calibrator operating instructions for calibrating the flow rate. When the flow rate has been calibrated and verified, remove the sorbent tube used to calibrate the flow and set it aside. This tube will be used to verify the flow rate after sampling. Record the pre-sample flow rate. Remove the external calibrator.

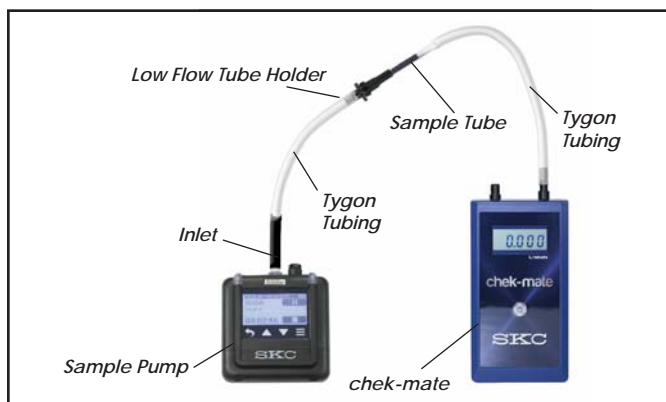


Figure 2. Calibration train using a single (non-adjustable) low flow tube holder and Pocket Pump TOUCH

4. Sampling — Figure 3

When ready to start sampling, break off both ends of a new sorbent tube in the same manner used for calibrating the flow. Insert the sorbent tube into the rubber sleeve of the tube holder (printed arrow on the tube should point toward the pump; if there is no arrow, insert the end of the tube with the smallest sorbent section into the holder). Place the protective cover over the sorbent tube, clip the tube to a worker's collar, and attach the pump to the worker's belt. The sorbent tube should be placed in a vertical position during sampling. Turn on the pump and note the start time and any other sampling information.

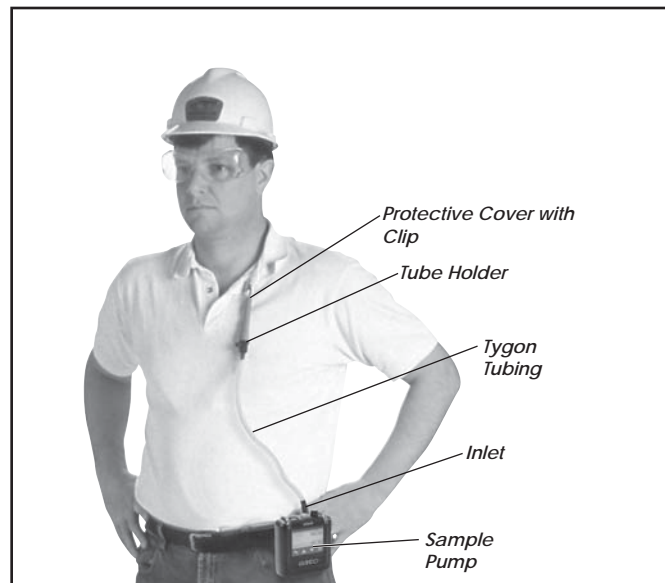


Figure 3. Worker wearing a sorbent tube sampling train

5. After Sampling

At the end of the sampling period, turn off the pump and note the ending time. Remove the sorbent tube, seal the ends of the tube with the caps provided, and record pertinent sampling information.

Using a calibrator, calibrate the flow rate with a representative sorbent tube in line to verify that the flow has not changed by more than 5%.

Submit field blanks from the same lot number as the sample tubes. Field blanks should be subjected to exactly the same handling as the samples (break, seal, and transport) except that no air is drawn through them.

Pack the sample sorbent tubes, field blanks, and all pertinent information securely for shipment to a laboratory for analysis.

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