SAMPLE SETUP GUIDE

Sampling Train — Using Sample Bags with the Vac-U-Chamber

The SKC Vac-U-Chamber is a rigid air sample box that allows sample bags to be filled directly by using negative pressure provided by a personal air sampling pump. Both sample and pump contamination are eliminated because the air sample does not pass through the pump. The Vac-U-Chamber features rigid walls that will not collapse under vacuum conditions. All surfaces in contact with the sample are constructed of inert materials.

Required Equipment

1. An **air sampling pump** capable of sampling at the recommended flow rate, such as:
   - SKC Universal Series
   - SKC AirChek® Series

2. An **air sample bag,** such as:
   - 1, 8, 10, and 25-liter SKC Bags with single polypropylene fitting

3. **SKC Vac-U-Chamber:**
   - Small Cat. No. 231-940
   - Large Cat. No. 231-939
   - Extra-large Cat. No. 231-944
   - Jumbo Cat. No. 231-946

Optional Equipment

1. **Nitrogen** (99.999% pure)

2. An **airflow calibrator** such as:
   - SKC chek-mate® Calibrator with CalChek Cat. No. 375-0550N

Note: *Calibration is required when sampling according to a method.*

Introduction

Figure 1 shows the SKC Large Vac-U-Chamber Cat. No. 231-939 with an air sample bag in a sampling train with an AirChek XR5000 Sampler.

To determine the correct flow rate for the chemical of interest, refer to the appropriate analytical method. Consult the sample pump operating instructions for further details on using the pump.

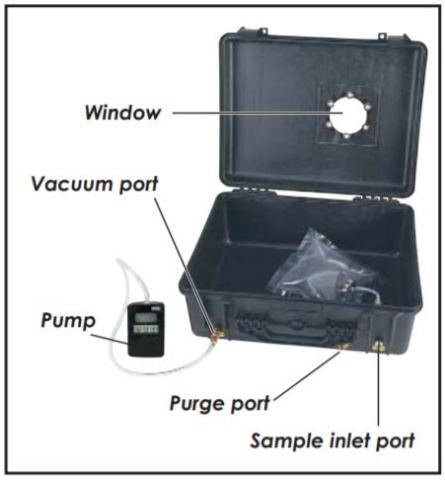

Figure 1. AirChek XR5000 Sampler connected to a Large Vac-U-Chamber for sampling

1. Calibrating Pump Flow Rate

The pump must be calibrated if taking a bag sample according to an analytical method that specifies a flow rate. **Note:** Calibration is not necessary if simply taking a grab sample. Care should be taken to ensure the bag is not filled more than 80% of its maximum volume *(Figure 2)*.

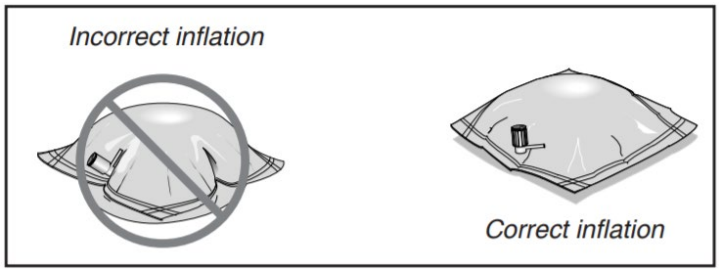

Figure 2. Bag inflation

Allow the pump to equilibrate from one temperature extreme to another and to run for 5 minutes before calibrating. Use flexible tubing to connect the pump inlet to the outlet (suction) port of a calibrator. **Note:** If using a Universal Series Sampler, ensure that the pump is in the high flow mode. *See pump operating instructions.*

Publication 1302 Rev 2020.07

www.skcinc.com

SKC Inc.	SKC South	SKC Gulf Coast	SKC West
724-941-9701	434-352-7149	281-859-8050	714-992-2780

Calibrate the pump to the flow rate specified in the analytical method. Refer to pump and calibrator operating instructions for details on calibrating pump flow rate or request SKC Sample Setup Guide: *Calibrating a Pump Using a Film Flowmeter* (SKC Publication 1163) or *Calibrating a Pump Using an Electronic Calibrator* (SKC Publication 1366).

2. Assembling the Sampling Train

Connect the inlet stem of an appropriate size bag to the sample inlet (PTFE tubing) inside the Vac-U-Chamber *(Figure 3)* or use the PTFE tube adapter for bags with a vertical valve (Cat. Nos. 231 and 237 Series bags). Open the valve on the bag. *Refer to the bag operating instructions.*

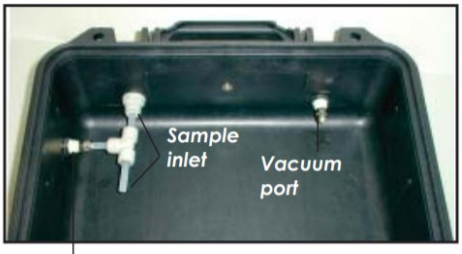

Figure 3. Ports inside a Small Vac-U-Chamber

3. Purging the Sample Bag

Attach the quick coupling on the end of the supplied Tygon® tubing to the purge port of the Vac-U-Chamber. Attach the open end of the tubing to the pump inlet *(Figure 4)*. Before evacuating the sample bag, ensure the red cap plug remains on the sample inlet port outside the Vac-U-Chamber. Activate the pump and allow it to run until the bag is completely evacuated. Turn off the pump.

4. Purging the Sample Line

To purge the sample line, remove the red cap plug and connect a long length of PTFE tubing to the sample inlet port on the outside of the Vac-U-Chamber *(Figure 4)*. Connect the loose end of the tubing to a clean air source. Turn on the pump for a period adequate to purge the line. Repeat as needed.

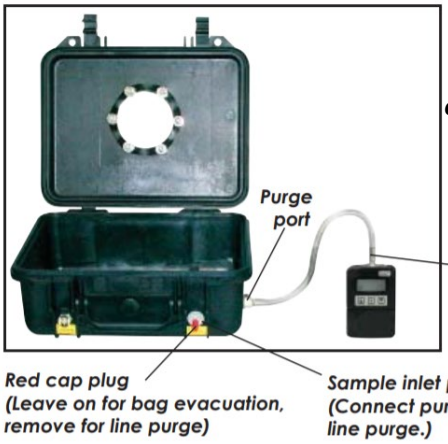

Figure 4. AirChek XR5000 Sampler connected to a Small Vac-U-Chamber for purging a bag or purging the sample line

5. Filling the Bag with a Sample

With the pump still attached to the Tygon tubing, detach the quick coupling from the purge port on the Vac-U-Chamber and insert it into the vacuum port *(Figures 1 and 5)*. Close the Vac-U-Chamber and secure both latches.

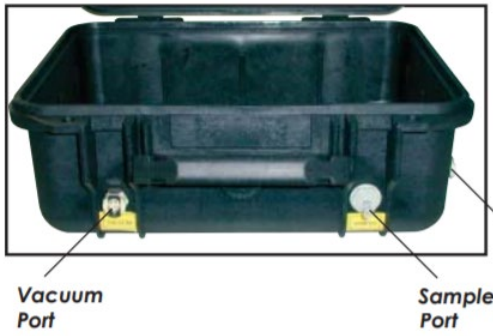

Figure 5. Ports outside a Small Vac-U-Chamber

Grab Sampling

Activate the sampling pump and view the bag inflating through the window on top *(Figure 1)*. Allow the pump to run until the bag is approximately 80% full. **Do not over-inflate the bag *(Figure 2)*.** Turn off the pump and immediately open the Vac-U-Chamber. If necessary, disconnect the pump to release vacuum. Close the valve on the bag.

Timed Sampling

Activate the pump calibrated to the recommended flow rate and record the start time. Sample for the time specified in the analytical method. Turn off the pump, record the stop time, and close the valve on the bag.

Samples can be analyzed directly from the bag using a color detector tube, or the sample can be sent to a laboratory for analysis.

6. Shipping Bag Samples

Keep sample bags being sent to a laboratory for analysis out of direct sunlight. Pack them loosely and with padding to minimize possible puncturing during shipment. Do not ship bag samples by air unless the cargo cabin is pressurized. A significant decrease in barometric pressure may cause sample bags to burst.

Publication 1302 Rev 2020.07
www.skcinc.com

SKC Inc. 724-941-9701 | SKC South 434-352-7149 | SKC Gulf Coast 281-859-8050 | SKC West 714-992-2780