

# Canister Sampling Instructions

## Step-by-step guide in the handling of canisters and flow controllers

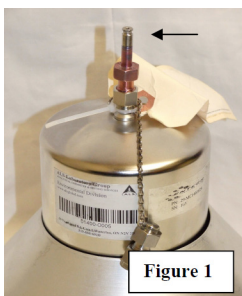
### Grab & Time Weighed Average Samples

These instructions provide guidance in the handling, air sampling, and shipping of canisters and flow controllers. Proper handling of the canister sampling train is critical to prevent contamination of the sample, especially when low detection limits are required. Provide adequate protection for the canister during sampling - DO NOT sample outside in the rain.

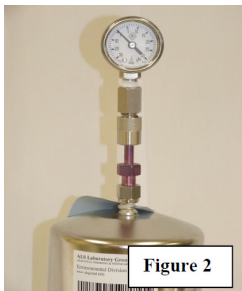
### Before Sampling:

1. Check the air media request sheet included with this sampling kit to confirm supplies shipped: canisters, canister support stands (not included for 6 L canisters), flow controllers, and pressure gauge.
2. Each canister and flow controller has a unique serial number. Use this serial number for identification on the chain of custody and sample tag.
3. Record any pertinent sampling data on the sample tag attached to each canister, including the flow controller used. DO NOT write on or mark the canister with anything (pen, marker, tape, etc.).
4. If possible, wear clean disposable gloves or wash hands with unscented soap when handling and connecting flow controllers and other parts of the sampling train to the canister. This is particularly important when collecting low-level ambient and indoor air samples.
5. Soil Gas Sampling - Reg. 153 QC Protocol:
  - **Blank:** Handling to and from the monitoring site should mimic the sample canisters. The blank should be left unopened and/or filled with high purity gas.
  - **Duplicate Sample:** Collection of at least one simultaneous or sequential duplicate sample is required per site.
  - **Tubing:** Tubing used to connect the canister to the well/soil probe must be low in VOCs (e.g. FEP & PFA Teflon®) and only used once to prevent significant cross-contamination.

### Sampling Instructions



- Remove the protective cap from the male quick-connect valve, located on the top of the canister. The cap is only finger-tightened, loosen to remove. Let the cap hang beside the canister. Do not remove the small end piece of the quick-connect valve (see arrow, Figure 1). Check and finger-tighten CLOCKWISE if loose.
- Before sampling is initiated, check the vacuum integrity. Attach the pressure gauge to the male quick-connect valve (Figure 2). Open the green Nupro® or Blue TOV™ valve on 6 L canisters (refer to Section 2 for details). The vacuum should be greater than 27 inches of Hg. If the vacuum is less than 25 inches of Hg, contact ALS. Close the valve (6 L canister only) and remove the pressure gauge. Record the canister pressure on the sample tag and the chain of custody form.
- When ready to begin sampling, attach the flow controller to the canister. Unscrew the brass cap from the filter cover, which is only finger-tight, and allow it to hang on the chain (Figure 3). Record the start time on the sample tag.
- When sampling is complete, close the valve (6 L canister only) and remove the flow controller. Record the end time on the sample tag.
- Finger-tighten the protective cap back on the canister and the brass cap back to the flow controller.
- Place canisters, flow controllers, and pressure gauge in the original shipping container. Pack the supplies securely to prevent damage.
- Fill out the chain of custody form.
- Return all sampling supplies to the laboratory immediately after sampling. Samples are stable at room temperature. Ship in a cooler with freezer packs if elevated temperatures are exposed.



Questions? Contact ALS!

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## Section 1: Detailed Instructions

1. All canisters have a male quick-connect valve located at the top. All flow controllers have a female quick-connect valve located at the bottom. To connect the flow controller to the canister, gently pull up on the bottom of the female quick-connect valve and push down over the male quick-connect valve and release. You will feel a click. Lightly pull up on the flow controller to ensure it is connected to the canister. Repeat if the flow controller is not seated properly. (Note: The flow controller can rotate to the left or right when securely connected to the canister.)
2. When the flow controller is attached to a 1.4 L canister or Bottle-Vac, sampling will begin immediately. Only connect the flow controller when you want to begin sampling.
3. To prepare the tubing for soil gas or other sampling, an ¼" outside diameter Teflon tubing with Swagelok nut and ferrule is required. Slide the nut, backside first, onto the tubing. Slide the flat top piece of the ferrule and the cone portion with the narrow end facing out. Insert the tubing into the male Swagelok fitting on the flow controller until it bottoms out, then finger-tighten the nut and ferrule. Hold the flow controller cap with one hand, then, using a 9/16" wrench, tighten the nut and ferrule about a one-quarter to one-half turn. The ferrule should slightly crimp the tubing so that it is securely attached and does not move. Do not over tighten the nut and ferrule or the tubing could be damaged.
4. Connect the tubing, then purge the well before attaching the flow controller to the canister. Refer to Figure 4 for an example setup.
5. Stop sampling when the canister pressure reaches 5 to 8 inches of Hg. Based on the sampling time requested, a flow controller has been calibrated to fill the canister to the proper pressure.
6. Some variation in fill times is normal. Stop the sampling based on pressure. A pressure of >12 inches of Hg will increase reporting limits and <2 inches of Hg could result in the canister reaching atmospheric pressure.
7. If a PID reading has been taken in the sample location, please provide that information on the chain of custody form.

## Section 2: Opening & Closing Nupro® or TOV™ Valve



- **Green Nupro® Valve:** To open, turn the green knob counter-clockwise until you feel a release in resistance. Turn the knob back to point of first resistance and then a one-quarter turn more. This is the correct point for air sampling. When finished sampling, fully close the Nupro® valve finger-tight using the "two finger and one thumb" rule only.
- **Blue TOV™ Valve:** To open, turn the blue knob counter-clockwise until fully open (about one turn). When finished sampling, fully close the TOV™ valve finger-tight only.