



# Canister Sampling

When sampling using a canister, there are two sampling approaches: “GRAB” sampling and “TIME INTEGRATED” sampling. For GRAB sampling, the canister valve is simply opened and the vacuum inside the canister draws in a sample within a matter of seconds. GRAB sampling is most often used for discrete odor events, or for static concentration sample streams. TIME-INTEGRATED samples utilize a flow controller or critical orifice to collect the sample over a particular time frame or at a given flow rate. Flow controllers/critical orifice assemblies are equipped with particulate filters and are calibrated by the laboratory for a user-defined duration or flow rate.

## Required Items and Equipment



**1L size canister with analog gauge and critical orifice assembly**

- REQUIRED: 9/16" Wrench, Adjustable Crescent Wrench
- Summa or Silco canister – Cleaned and certified by ALS, and leak checked prior to shipment. Canisters are available in several sizes, including 6L and 1L.
- Flow controller/regulator – Used to collect a time-integrated indoor air or ambient air sample. Flow controllers are calibrated by the laboratory for your project-specific requirements; please do not adjust any of the settings or knobs.
- Critical Orifice Assembly (COA) – Used to collect a time-integrated soil gas, sub-slab, SVE system, or other vapor sample. COAs are calibrated by the laboratory for your project-specific requirements; please do not disassemble the device.
- Analog Gauge – Gauge on Swagelok ¼" Tee fitting, used to monitor pressure during sampling. Note that these gauges are for general reference purposes only, and canister vacuum is checked prior to shipping and upon receipt at the laboratory.

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## Procedure

### Check Initial Canister Vacuum

- Ensure that the canister valve is fully closed (the canister valve should be turned completely clockwise).
- Using a 9/16" wrench, remove the brass cap from the valve on the top of the summa canister.
- Attach the analog gauge on a Swagelok Tee to the valve on the top of the canister. Tighten down with your fingers first, then tighten gently with 9/16" wrench. Stabilize the valve with an adjustable crescent wrench.
- Re-attach the brass cap to the top of the analog gauge. Tighten down with your fingers first, then tighten gently with 9/16" wrench.
- Open the can approximately 1 ¼ turns, and note the initial vacuum reading on the chain of custody. Please note that if the gauge does not equilibrate within 30 seconds or appears to be losing vacuum, the canister is leaking due to a loose fitting. Close the canister valve immediately and tighten the fittings.

### Grab Sample

- If collecting a GRAB sample, disconnect the brass cap from the top of the canister and open the canister valve, turning the valve counterclockwise until there is no resistance. Then turn back clockwise slightly until resistance is detected. You may hear a hissing noise as the vacuum dissipates and draws air in.

### Time Integrated Sample

- If collecting a TIME INTEGRATED sample, disconnect the brass cap and attach the analog vacuum gauge and flow regulator to the canister. Tighten the fitting with your fingers first, then tighten gently using 9/16" wrench.
- Perform a flow regulator SHUT IN test as described on the next page.
- To begin sampling, turn the valve counterclockwise until there is no resistance. This is approximately 1 ¼ turns. Then turn back clockwise slightly until resistance is detected. Because the flow controller restricts the air flow, you will NOT hear a hissing noise as the vacuum dissipates and draws air in.

### Sampling Completed

- At the end of the sampling period, close the canister valve by turning the knob clockwise. Do not tighten with a wrench.
- Remove all attached equipment from the canister and wrap in bubble wrap for shipment.
- Replace the brass cap on the canister valve. Tighten using a 9/16" wrench.
- Label the sample with the tag provided, and attach the tag to the canister with the provided plastic ties.
- Complete a chain of custody form. Please note the canister barcode ID number on the COC. For time-integrated sampling, please also note the flow controller or critical orifice assembly identification number with the corresponding canister.
- Place the chain of custody form, the bubble-wrapped flow controller, and the canister back into the original boxes in which they were shipped to you.



**Proper use of wrenches to tighten fittings**

