AGAT Laboratories

Air Analysis Capabilities

Solinite™ Canisters

AGAT Laboratories has enhanced its air service capabilities with the adoption of Silonite Evacuated Canisters (SUMMA©) with the latest in SUMMA© testing technology.

Silonite canisters are passivated stainless steel vessels. The interiors of these specially designed canisters are electropolished and chemically deactivated, creating a chemically inert surface. This advanced surface treatment minimizes reactions with samples and maximizes recovery of target compounds. Silonite technology also increases the integrity of samples by preventing degradation from excessive exposure to sunlight or the permeation through the vessel walls. This resistance to degradation allows for easy shipping and storage over longer periods of time. All of our canisters and flow controller have all been treated with the Silonite technology. Canisters can be used to sample Volatile Organic Compounds (VOCs) PCH's, Sulphur Compounds, Matrix Gases and Light Hydrocarbons and are available in 2 sizes 1.4L or 6L.

AGAT Laboratories Expands Air VOC Analysis Using SUMMA Canisters

AGAT Laboratories has enhanced its air service capabilities with the adoption of the latest SUMMA technology. Sampling of Volatile Organic Compounds (VOCs) and hydrocarbon fractions is now easier and more effective using EPA methods TO-15A for air analysis. SUMMA canisters are widely used for collection of indoor air, ambient air, stationary air sources and soil vapour. Canisters can be used for sampling:

- Ambient Air
- Source Emissions Testing
- Indoor Air Quality
- Landfills
- Wastewater Treatment
- Soil Vapour Extraction (SVE)

SUMMA Canisters

SUMMA canisters are passivated 6 litre and 1.4 litre stainless steel vessels. The interiors of these specially designed canisters are electropolished and chemically deactivated, creating a chemically inert surface. This advanced surface treatment minimizes reactions with samples and maximizes recovery of target compounds. SUMMA technology also increases the integrity of samples by preventing degradation by exposure to sunlight and permeation of VOCs through the vessel walls. This allows easy shipping and storage over longer periods of time.

How SUMMA Works

Canisters are evacuated into a vacuum prior to use, making sampling as simple as opening the valve and allowing the negative pressure to draw air in. Collection of whole air samples can be taken as a grab sample in less than 5 minutes, or as an integrated sample taken over a controlled period of time. The VOCs are extracted from the canister and separated by gas chromatography and measured by a mass spectrometer (GC/MS analysis).

The Benefits of SUMMA

- No pump required: easy to set up and sample, saves time and cost-effective.
- Extended holding times.
- Easier to ship samples.
- Lower detection limits.

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SUMMA Air Services Utilized for the following analysis:

- Ambient Air
- Remediation
- Landfills
- Soil Vapour Extraction (SVE)
- Site Characterization
- Source Emissions Testing
- Indoor Air Quality/LEED Testing
- Wastewater Treatment Plants

Rental Program

AGAT Laboratories rents pre-cleaned, leak checked certified 1.4 and 6 litre canisters out to clients based on project needs. 1.4 litre SUMMA canisters are mainly used for higher concentration samples such as soil vapour, and 6 litre canisters are recommended for lower concentration samples such as indoor and ambient air samples.
AGAT Laboratories offers two types of canister cleaning certification, 10% and 100% depending on the requirements of the project.

For more information regarding renting SUMMA canisters for your next project, contact any of our Environmental Laboratories locations listed on the back.

Cleaning Certification

Depending on your project requirements, SUMMA canisters are provided with 10 per cent or 100 per cent certification.

10% Certification

- Canisters are certified free of approximately 60 VOCs using GC/MS analysis.
- Appropriate for routine ambient air applications and high concentration applications such as soil vapour and landfill gas monitoring.

100% Certification

- Each canister is individually certified that they are free of the client-specified list of target compounds using GC/MS.
- Appropriate for ambient and indoor applications driven by risk assessment or litigation requiring pptv (part per trillion by volume) sensitivity.

Types of Air Sampling

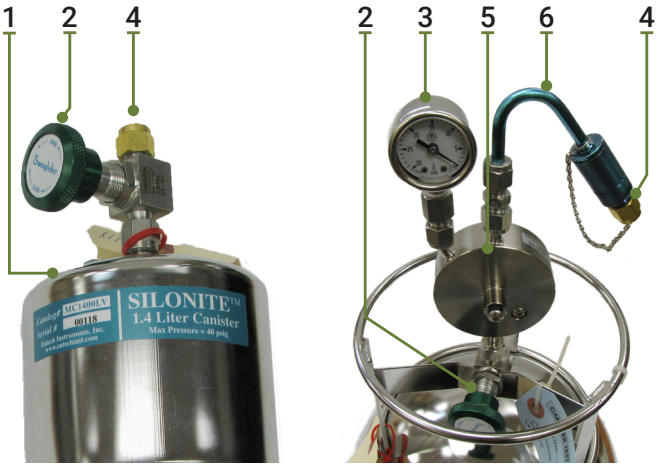
Grab sampling is taken over a short period of time, usually less than 5 minutes, and provides a "snap shot" picture of the air or gas stream composition at the moment of sampling.

Integrated Sampling uses a flow controller to regulate the rate of sampling over an extended period of time. This controlled rate of sampling is used when the concentration of target analytes in the air being sampled can possibly fluctuate over time or/and Time Weighted Average (TWA) concentration is desired.

Equipment

- SUMMA Canister (1): 1.4 or 6L canisters are available, cleaned and certified by AGAT Laboratories.
- Valve (2): The valve allows for the vacuum to be maintained prior to sampling, and seals off the canister once sampling is complete.
- Vacuum Gauge (3): Vacuum gauge is used to monitor the vacuum in the canister before, during and after sampling.

  NOTE: Each canister is checked prior to shipment for mechanical integrity, however the vacuum of the canister should still be checked before use. Initial vacuum reading should be greater than 25 in. Hg. If the canister vacuum is less than 25 in. Hg, please contact your project manager.
- Brass Cap (4): Each canister comes with a ¼ Swagelok cap secured to the inlet of the valve assembly. The cap ensures that the valve is sealed, and there is no loss of vacuum or air prior or post sampling. The cap should be removed before sampling, and replaced following sampling collection.
- Diaphragm Flow Controller (5): Diaphragm flow controller combines a Critical Orifice Assembly (COA) with a flexible diaphragm to maintain constant sample flow over longer periods of time. AGAT Labs can provide a diaphragm flow controller for sampling up to 24 hours in 6L canisters.
- Particulate Filter (6): Flow controllers are provided with a 2 or 7-micron filter, which is a stainless steel frit compressed into a Swagelok fitting. Filters prevent particulate matter from plugging or damaging the flow controller.
- 9/16 or Adjustable Wrench (not provided).



Equipment Components

Commonly Requested Analytes

- 1,1-Dichloroethane
- 1,1-Dichloroethene
- 1,1-Dichloropropene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- 1,1,2,2-Tetrachloroethane
- 1,2-Dichlorobenzene
- 1,2-Dichloroethane
- 1,2,4-Trimethylebenzene
- 1,3-Dichlorobenzene
- 1,3-Dichloropropane
- 1,3,5-Trimethylbenzene
- 1,4-Dichlorobenzene
- Aliphatic >C10-C16
- Aliphatic >C6-C8
- Aliphatic >C8-C10
- Aromatic >C10-C16
- Aromatic >C8-C10
- Benzene
- Bromobenzene
- Bromomethane
- Carbon Tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- cis-1-2,Dichloroethene
- cis-1-3-Dichlorpropene
- Dichlorodifluoromethane
- Ethylbenzene
- Ethylene dibromide
- Hexane
- Isopropylbenzene
- m/p-xylene
- Methyl Ethyl Ketone (MEK)
- Methyl Isobutyl Ketone (MIBK)
- Methyl tert-Butyl Ether (MTBE)
- Methylene Chloride
- o-xylene
- Styrene
- Tetrachloroethene
- Toluene trans-1,3-Dichloropropene
- Trichloroethene
- Trichlorofluoromethane
- Vinyl Chloride

Note: Additional analytes and fractions are available.

For more information on sampling using SUMMA Canisters or for any analytical program, please contact your dedicated AGAT Project Manager at one of our listed locations.

SUMMA Canister Sampling Instructions

The following procedure describes the associated steps for collecting whole air samples using SUMMA canisters. There are two primary modes of sampling: grab and integrated.

Verify that you have all the equipment required for your SUMMA sampling.

Grab Sampling Procedure

1. Verify the initial vacuum reading of the canister, following the vacuum reading instructions.
2. Remove the cap on the canister.
3. Open the valve ½ turn (6 L canisters take about 16 seconds to fill). Then close the valve by hand tightening when complete.
4. Record the final vacuum reading, following the vacuum reading instructions.
5. Complete the chain-of-custody form and fill out canister sample tag.
6. Return SUMMA canisters and equipment to AGAT Laboratories in the original packaging provided.

Vacuum Readings

1. Ensure the canister valve is fully closed (the knob should be turned completely clockwise).
2. Remove the brass cap and attach the vacuum gauge. Use the 9/16 wrench to tighten ¼ turn past hand tight. Do not over tighten.
3. Open the canister and record vacuum reading. Close canister and remove the vacuum.
4. Remove the vacuum gauge from the canister and replace the cap.

Integrated Sampling Procedure

1. Verify the initial vacuum reading of the canister, following the vacuum reading instructions.
2. Ensure the canister valve is fully closed (the knob should be turned completely clockwise). Using the 9/16 wrench, remove the cap.
3. Attach flow controller assembly to the valve on top of the canister. Tighten with fingers, then gently tighten with wrench.
4. Place the cap at the end of the particulate filter on the flow controller, then quickly open and close the valve to check for leaks (if the vacuum needle drops, try refitting all connections).
5. Remove the cap on the particulate filter, record the time, and start sampling by turning the canister valve counter-clockwise ½ turn.
6. Monitor integrated sampling progress.
   Note: It is important to monitor the progress of the integrated sampling during the sampling interval, the volume of air sampled is a linear function of the canister vacuum. The canister should have half of the initial vacuum remaining mid-way through sampling.
7. At the end of the sampling period, close the canister valve by turning clockwise until hand tight.
8. Remove the flow controller assembly and wrap separately in bubble wrap for shipment.
9. Record the final vacuum of the canister, following the vacuum reading instructions (try to leave -5 in. Hg).
10. Complete the chain-of-custody form and fill out canister sample tag.
11. Return SUMMA canisters and equipment to AGAT Laboratories in the original packaging provided.

Shipping Instructions

1. Once sampling is complete, return all equipment to the original packaging.
2. Canister do not have to be kept cold, (do not put sampling on ice).
3. Record canister number and flow controller number (if applicable) on the Chain of Custody.
4. Record initial and final vacuum of each canister.
5. Record all canisters on the Chain of Custody, if a canister was not used please record the canister number for the sample id and mark as “not used”.
6. All equipment should be returned and shipped to the below address or dropped off at your local AGAT location.

Additional Information

1. Rental is for 2 weeks (additional rental charges may be applied if canisters have not been returned in a timely fashion).
2. Hold time, before and after sampling is 30 days.
3. Please ensure to mark on Chain of Custody, sample type as well as what regulation you require.