



# PEOPLE ADVANCING SCIENCE

TO-15 VOC Sampling and Analyses



# What We Will Discuss Today

- State guidance documents and what to watch for
- Considerations when ordering sampling media from the lab
- What to bring with you to the field
- Leak checking and deploying sampling media
- Troubleshooting canister issues
- Interpreting lab data

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STATE GUIDANCE DOCUMENTS

# What You Need To Know:

## State Guidance Documents

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## What they typically cover

- Sample collection timing/frequency
- Number and location of samples per site
- Leak check methods
- Analyte list and screening values
- Sometimes:
  - Canister size
  - Batch vs. individual certification

**What You  
Need To  
Know:**

**State  
Guidance  
Documents**

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## State Guidance Specifics

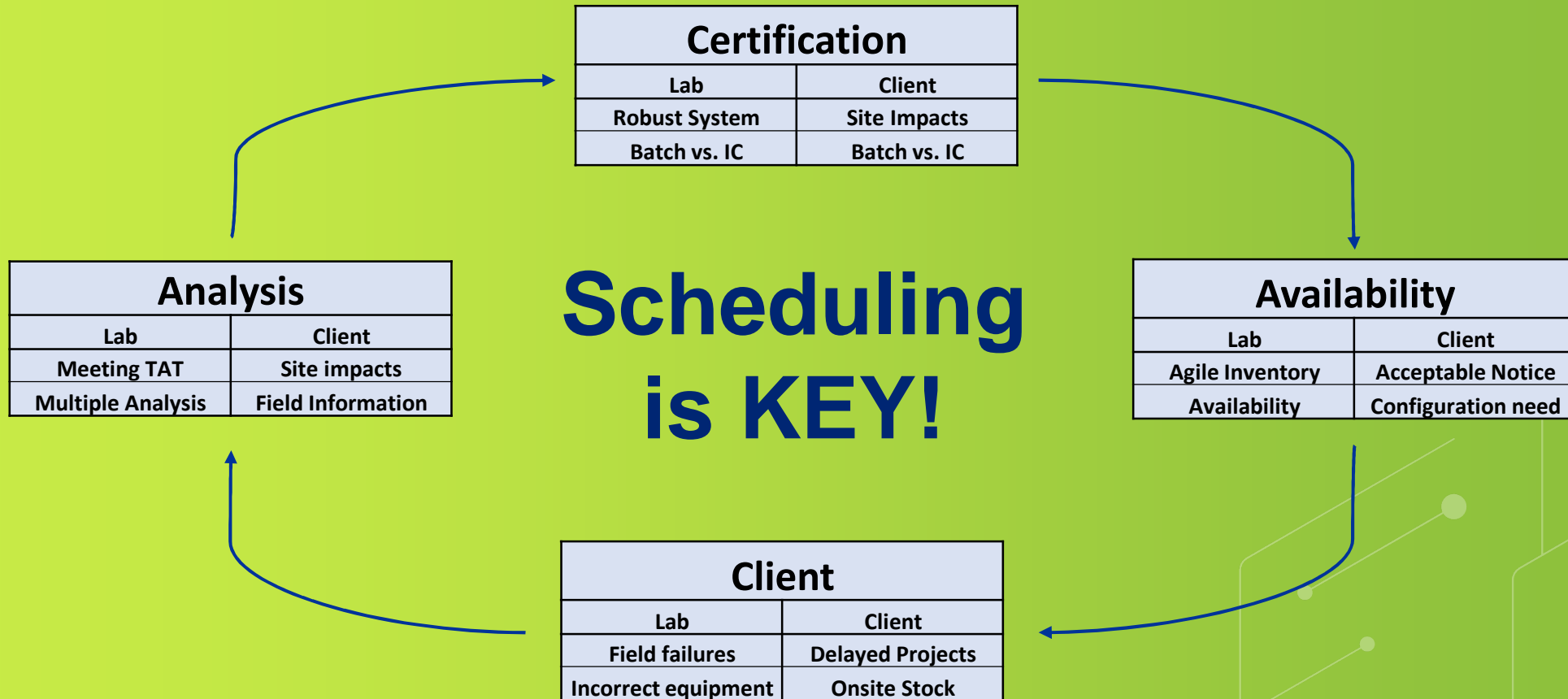
- WV – Requires 6L cans for soil gas/subslab
- MN – A lot of individual certification
- CA – Dual gauges on flow controllers for soil gas
- NJ – Cans must be analyzed in the same lab they were certified in
- WI – Draft guidance includes passive analysis

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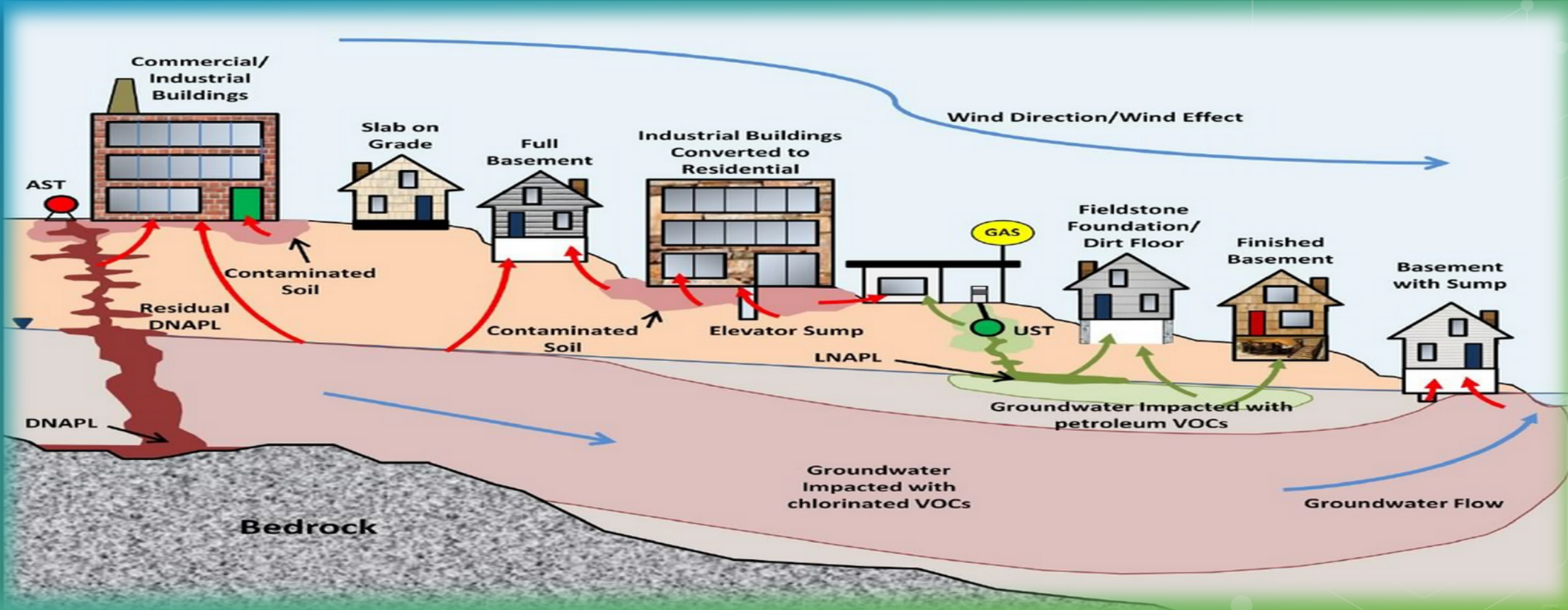
SAMPLING MEDIA – THE CANISTER CYCLE AND HOW TO  
ORDER FROM THE LAB

# What You Need to Know: Equipment Cycle



# What You Need to Know: Project Goals

## What is the Matrix (Sampling Type)?



# What You Need to Know: Project Goals

What are the Project Requirements?

- Certifications
- Soil gas or subslab vs. indoor air or ambient air
- Methods required
- Reporting limits
- QA samples



# What You Need to Know:

# Preparing Equipment for Deployment

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## What are the Lab Requirements?

- \* Cleaning and certification
- \* Batch vs. Individual certification
- \* Highly contaminated canisters
- \* Flow rate verification for FC
- \* Leak check and connection check for threading
- \* Documentation of certification
- \* Verification prior to shipment

JA 05042021

Pace Analytical<sup>®</sup>  
National Center for Testing & Innovation

Can #: 12405  
Clean Date: 3/25/21

Final evacuation prior to shipment - 28 Hg  
verified by CSC Date: 04/08/21

Individually Certified MS1-0325-09

	Date	Time	Pressure	FC#	Rec'd Pressure
Start	4/20/21	08:13	-2.8	010602	2
Stop	4/20/21	17:18	-3.5	010602	

Comments:  Analyzable  Not Analyzable

CLEANED AND CERTIFIED BY METHOD TO-15

12065 Lebanon Rd. | Mt. Juliet | TN | 37122



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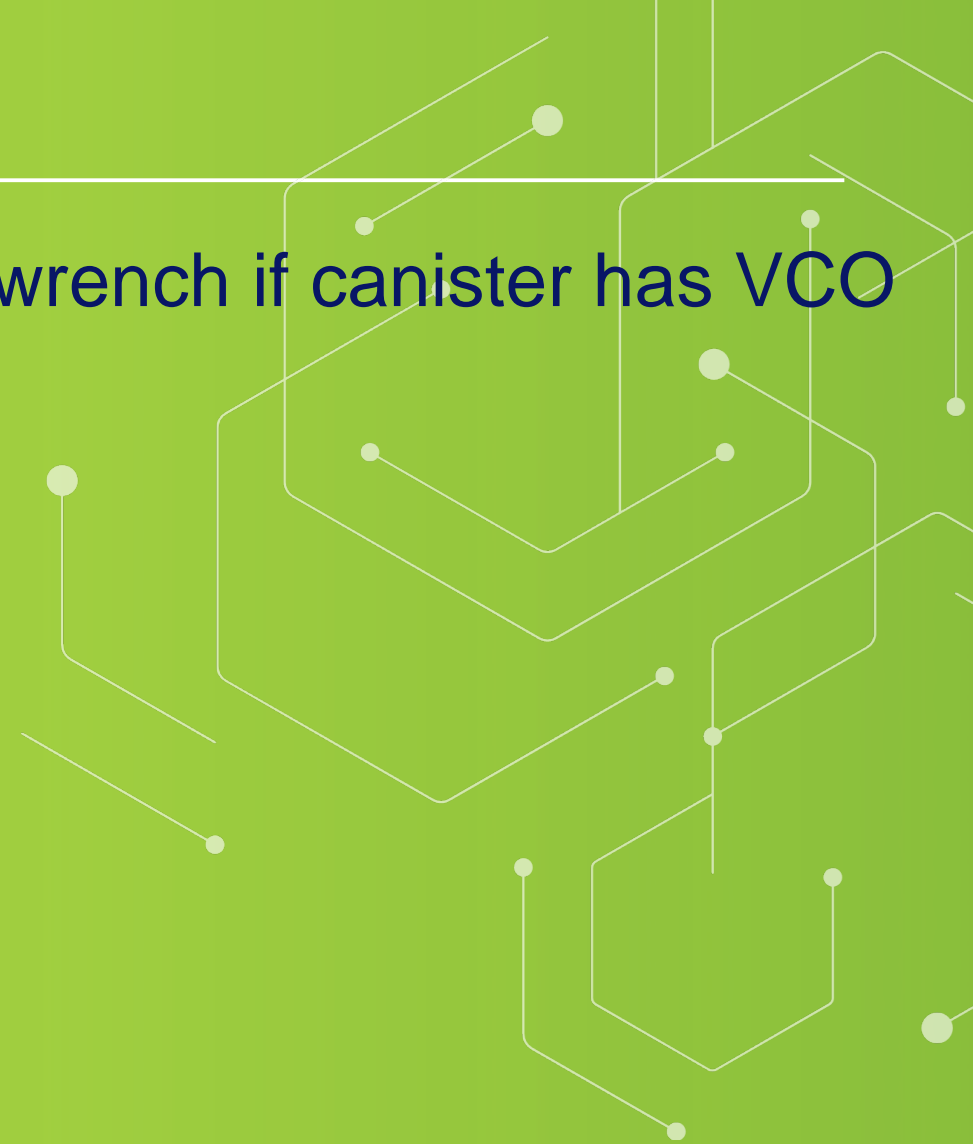
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WHAT TO BRING WITH YOU IN THE FIELD

# Items to Bring With You in the Field

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- 9/16” wrench – preferably two (adjustable wrench if canister has VCO adapter)
- Extra fittings and ferrules
- Short lengths of Masterflex tubing
- Bentonite clay for sealing vapor points
- Pump for purging (if not using a syringe)
- Equipment for securing or disguising a canister if in a public location



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LEAK CHECKING AND DEPLOYING SAMPLING MEDIA

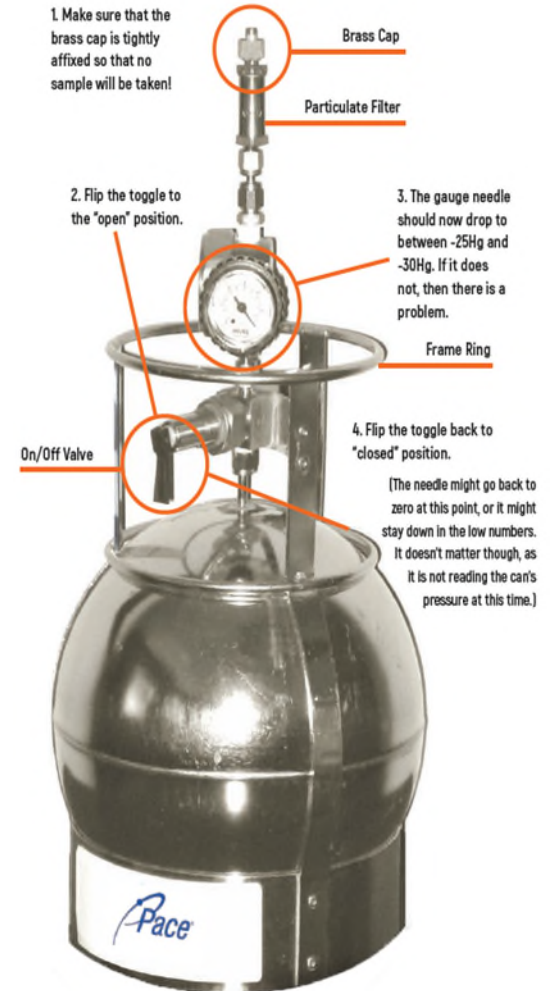
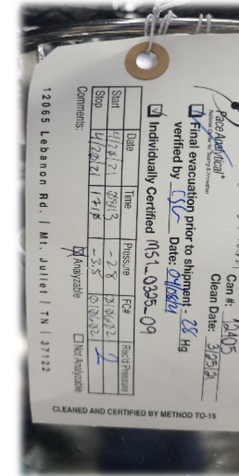
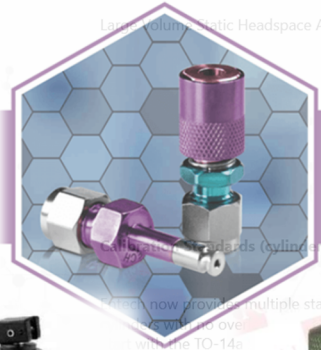
# What You Need to Know:

# Preparing Equipment for Deployment



## What are the Field Requirements?

- \* Swage connections vs quick connects
- \* Leak checks prior to sampling
- \* Purge lines
- \* Verify initial vacuum



# What You Need to Know:

## Preparing Equipment for Deployment

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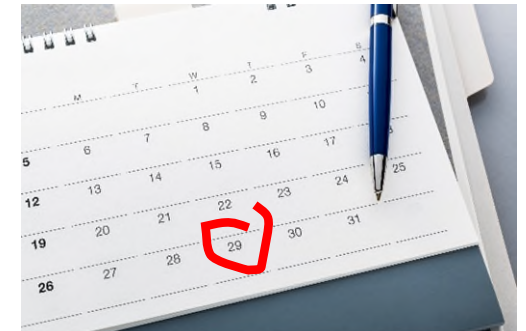
### What are the Sampling Requirements?

- \* Final Vacuum (-2 to -5Hg) – Document
  - Allows for lab to verify reliability of data (leaks/transportation)
- \* Sample volume (2-400cc)



### What are the Scheduling Requirements?

- \* Project scheduling: Canister certification timeframe
- \* Rental agreements
- \* Quality Considerations
  - Lost vacuum
  - Compound performance



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TROUBLESHOOTING CANISTER ISSUES

# What You Need to Know:

# Trouble- shooting canister issues



## **CANS NOT PASSING LEAK CHECK**

Make sure valve is closed, remove flow controller, wipe threads, and try reattaching. Flow controller should not wobble once attached.

## **CAN ARRIVED WITH LOW/NO VACUUM**

This indicates there may be a leak in the canister valve. Contact the lab for replacement.

## **CAN IS FILLING SLOWER THAN EXPECTED**

Confirm correct flow controller was selected. May be due to a tight soil formation or a clogged critical orifice. Try to collect as much sample as possible.

## **CAN IS FILLING FASTER THAN EXPECTED**

Usually a leak in the sampling train. Option to pause sampling and reconnect or stop sampling early. If already at zero, determine if you want to proceed with analysis.

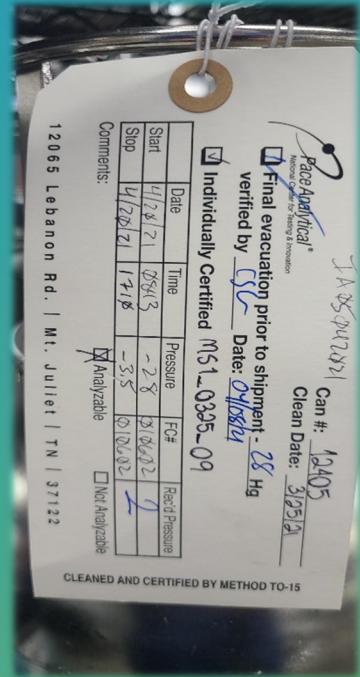
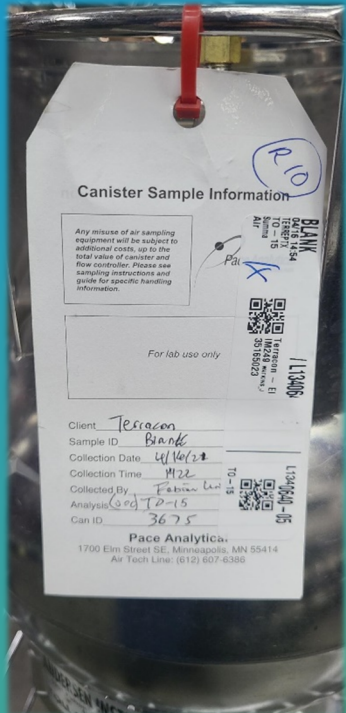
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A decorative graphic of white circuit lines and nodes is positioned on the right side of the image, extending from the top right towards the bottom right. The lines are thin and connect various circular nodes of different sizes, creating a network-like pattern against the green background.

INTERPRETING LABORATORY DATA

# What You Need to Know: Lab Process

## What about Sample Receipt and Instrument Analysis?



**Linde**

Premium Gases Office, Sales Office,  
1 Greenwich Street Suite 100,  
Stewartsville, WARREN, 08886, USA

Enquiries / Renseig.: 1-800-932-0624  
Facsimile / Fac-simile: 1-908-801-9710

Sold to / Vendu à:  
PACE NATIONAL  
12065 LEBANON RD  
MOUNT JULIET 37122-2508

Ship to / Expédier à:  
PACE NATIONAL  
12065 LEBANON RD  
MOUNT JULIET 37122-2508

Page: 1 of/de 5

**QUOTATION / DEVIS**

Quote Ref / Réf. de Devis: 10450790  
Customer Ref / Réf. Client: 2736575  
Quotation Date / Date de Devis: 14.01.2021  
Valid to Date / Date de Validité: 14.02.2021  
P.S.T. :

Item No./ No d'Art.	Description/ Description	Material No./ No de Matériel	Qty/ Qté	Price/ Prix	Unit/ Unité	Tax exempt/ Exempt de taxe GST - 99%	Value/ Valeur
000010	99 COMP PPB CUSTOM 152SZ ISO-17034	24106918	1.000	26,615.00	CYL		26,615.00

This mix will be entirely remade, new solutions, and a second gas source where it is available. Many of the individual gas components (CRMs) would be from the same lot of the previously supplied mix.

LEAD TIME TO SHIP IS APPROXIMATELY 60 BUSINESS DAYS AFTER ACCEPTANCE OF PURCHASE ORDER

CYLINDER RENTAL IS \$24/MONTH

OUTGOING FREIGHT CHARGE IS ESTIMATED AND SUBJECT TO BE MORE OR LESS

TAX IS NOT INCLUDED AND WILL BE APPLIED AT THE TIME OF BILLING IF APPLICABLE

ALL ORDERS MUST BE PLACED UNDER LINDE'S TERMS AND CONDITIONS

# What You Need to Know: Lab Process

## What about Analytical Review and Reporting?



LEVEL I	LEVEL II	LEVEL III	LEVEL IV
Analytical Results	Analytical Results	Analytical Results	Analytical Results
Case Narrative	Case Narrative	Case Narrative	Case Narrative
Surrogate Recoveries, where appropriate	Surrogate Recoveries, where appropriate	Surrogate Recoveries, where appropriate	Surrogate Recoveries, where appropriate
Chain-of-custody	Chain-of-custody	Chain-of-custody	Chain-of-custody
	Method Blank	Method Blank	Method Blank
	Laboratory Control Sample (LCS) Summary	Laboratory Control Sample (LCS) Summary	Laboratory Control Sample (LCS) Summary
	Laboratory Control Sample Duplicate (LCSD), where appropriate	Laboratory Control Sample Duplicate (LCSD), where appropriate	Laboratory Control Sample Duplicate (LCSD), where appropriate
	Matrix Spike (MS) Summary	Matrix Spike (MS) Summary	Matrix Spike (MS) Summary
	Matrix Spike Duplicate (MSD) Summary, where appropriate	Matrix Spike Duplicate (MSD) Summary, where appropriate	Matrix Spike Duplicate (MSD) Summary, where appropriate
	Replicate/Duplicate, where appropriate	Replicate/Duplicate, where appropriate	Replicate/Duplicate, where appropriate
		GC/MS Tune	GC/MS Tune
		Initial Calibration	Initial Calibration
		Continuing Calibration Verification (CCV)	Continuing Calibration Verification (CCV)
			Raw Data – including instrument logs, data sheets, chromatograms, spectra, extraction logs, digestion logs, and instrument sequences



### ANALYTICAL REPORT

July 28, 2020

## Satisfied Client

Sample Delivery Group:

Samples Received:

Project Number:

Description:

Site:

Report To:

Entire Report Reviewed By:



Project manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures EN-SCP-MT.A-0067 and EN-SCP-MT.A-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

# What You Need to Know: Data User Review

\* Sample results – Critical Compounds  
Of Interest

\* Dilution Factors

\* Qualifiers

\* Questioned results ??

- Lab can review/provide certification data and previous canister data.
- Lab can review analyte identification, concentration, calculation errors
- Lab can review potential to add compounds

- **B(#):** Analyte detected in the method blank
- **A(#):** Tedlar Bag notations for holding time/transfer
- **C(#):** Confirmation or Carryover
- **C(x):** Continuing Calibration failure
- **D(#):** Dilution (matrix/interference)
- **E:** Estimated above calibration range
- **H(#):** Holding time
- **I(x):** Calibration, Verification, or ISTD
- **J:** Detection >MDL;<RL
- **D(#):** Dilution (matrix/interference)
- **L(#):** Laboratory Control
- **N9:** See Case Narrative for details.
- **S(#):** Surrogate



**THANK YOU**

**Mariah Peronto**  
Program Manager - Air

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