QUALITY ASSURANCE
IN THE METALS LABORATORY
FACTORS YIELDING HIGH QUALITY

- Control all parameters
- Ruggedize system
- Regular maintenance
SAMPLE INTRODUCTION SYSTEM

VISIT BOOTH # 2727
www.geicp.com
CONTROLLING UPTAKE RATE

Transport Efficiency vs. Uptake

%Efficency

Uptake Rate (ML/Min)

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CONTROLLING UPTAKE RATE

Real-Time Sample Flow Measurement

- Worn pump tubing?
- Worn pump rollers?
- Improperly adjusted pump tension?
- Clogged nebulizer?
- Kinked sample capillary?

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www.geicp.com
How it works: Thermal Flow Measurement

Flow Rate is related to \((\text{Temp}_A - \text{Temp}_B)\)
CONTROLLING UPTAKE RATE

Features of TruFlo:

- Adjustable damping
- Settable alarm limits
- Digital display
- Recordable graph
- Range: 0 to 4mL/min

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CONTROLLING TEMPERATURE

IsoMist Configurations:

- Standard glass cyclonic Twister spray chamber; e.g. KT-1013
- Quartz cyclonic Twister spray chamber; e.g. KT-1013Q
- High purity PFA cyclonic spray chamber; e.g. KT-1013P
- Low volume Twinnabar spray chamber; e.g. KT-1013T
- Glass, quartz and PFA spray chambers are interchangeable

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CONTROLLING TEMPERATURE

- Higher accuracy
- Higher productivity
- Greater reproducibility
- Better experiments
CONTROLLING TEMPERATURE

ENHANCED SENSITIVITY FOR PRECIOUS METALS

Average Intensity (cps) vs. Temperature (°C)

- Ir 212
- Pt 214
- Ru 240
- Au 242
- Pd 340
- Rh 343

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CONTROLLING TEMPERATURE

IMPROVED ACCURACY FOR PRECIOUS METALS

![Graph showing the relationship between temperature and percent platinum (Pt 214, Pt 265, Pt Gravimetric Value)]

16.0
15.9
15.8
15.7
15.6
15.5

Percent Platinum (%)

15 20 25 30 35 40 45

Temperature (°C)

Pt 214
Pt 265
Pt Gravimetric Value

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CONTROLLING INTERFERENCES

Internal Standardization:

- ICP-MS
  - Ionization
  - Space-charge
  - Suppression
- ICP-OES
  - EIE
  - Suppression
  - Noise

Trident Internal Standard Kit

- Modular construction
- Zero dead-volume connections
- Built-in mixing chamber

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DEALING WITH HIGH TDS

- SeaSpray nebulizer
- Twister spray chamber
- Argon Humidifier
- Ceramic outer tube
IMPROVED STABILITY

Fully Ceramic D-Torch – Less Maintenance & Improved Stability with High TDS

Glass Expansion October 2013 Newsletter, “How to Achieve High Accuracy with Difficult Samples.”

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ENHANCE DAY-TO-DAY REPRODUCIBILITY

- Re-usable inline filter.
- Nebulizer cleaning tool.
- Black flushing adapter.
- Real-Time sample monitor.

QA Kit: P/N KT-1136

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QC SUMMARY

- Control sample uptake
- Control spray chamber temperature
- Control interferences
- Control down-time