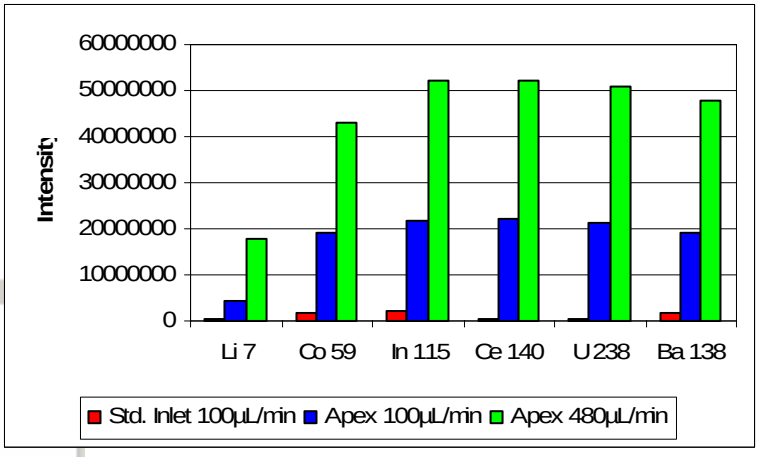
apex

High Efficiency Sample Inlet System

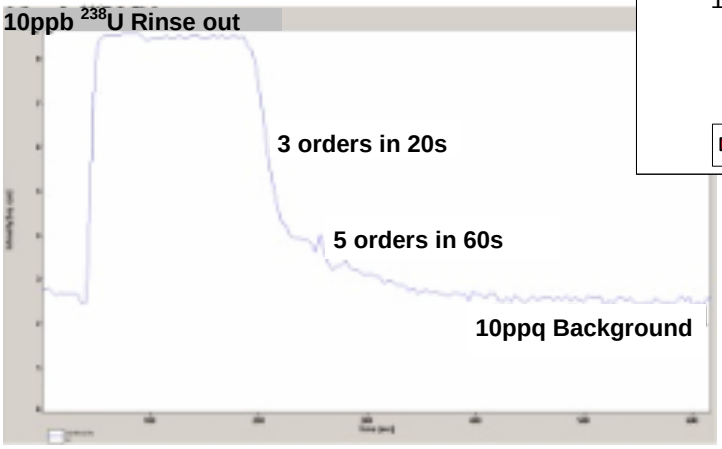
The apex enhances sensitivity by increasing sample transport efficiency and improving the quality of aerosol introduced to the ICP instrument. Liquid samples are nebulized with the PFA MicroFlow nebulizer into a heated cyclonic spray chamber and desolvated by a Peltier cooled condenser. This gives unsurpassed stability and sensitivity.

- Increases sensitivity up to 10x, depending upon sample flow rate
- Quartz or PFA Teflon flow path
- Uses PFA MicroFlow Nebulizers from 10 to 700 µL/min
- Improves transport efficiency
- Enhances signal stablility
- Fast rinse-out
- Optional membrane desolvation



The apex Q is over 90% efficient at transporting the sample analyte to the plasma

Rapid rinse out, over 6 orders of magnitude rinse out of ^{238}U in 60 seconds



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There are 4 apex models:

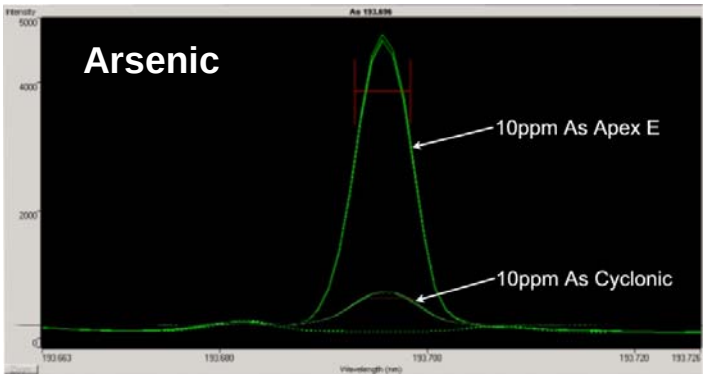
apex E – Low cost unit designed primarily for ICP Emission systems.

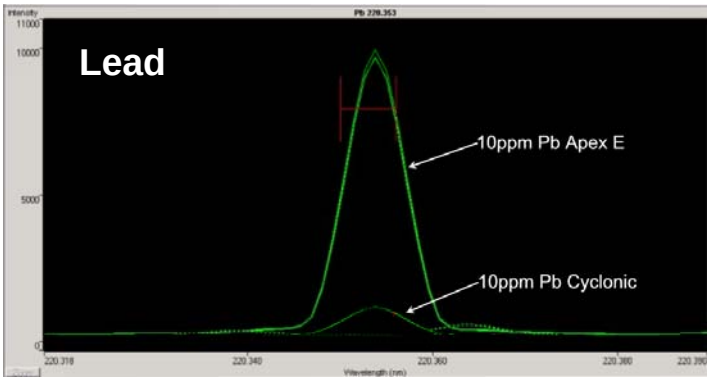
apex Q – An o-ring-free Quartz flow path gives high sensitivity and low background.

apex IR – An additional mixing chamber enhances signal stability for Isotope Ratio analysis.

apex HF – A high-purity PFA Teflon flow path gives resistance to HydroFluoric acid.

Performance





Wavelength scans from a radial ICP-OES of 10ppm solution of Arsenic and Lead introduced with both standard cyclonic spray chamber and the apex E sample inlet system.

Sr Ratios (NBS 987)	Standard Error (abs.) x 10^{-6}		
	SIS/PFA-50	apex IR/PFA-100	
	200 ppb	10 ppb	100 ppb
$^{84}Sr/^{86}Sr$*	15.3	25.8	2.8
$^{87}Sr/^{86}Sr$*	3.9	7.8	2.7
$^{88}Sr/^{86}Sr$	123	111	49.8
*Ratio normalized to $^{88}Sr/^{86}Sr$ Thermo Neptune			

Sensitivity comparison (1µg/L) apex HF vs. Crossflow Nebulizer Elan DRC II

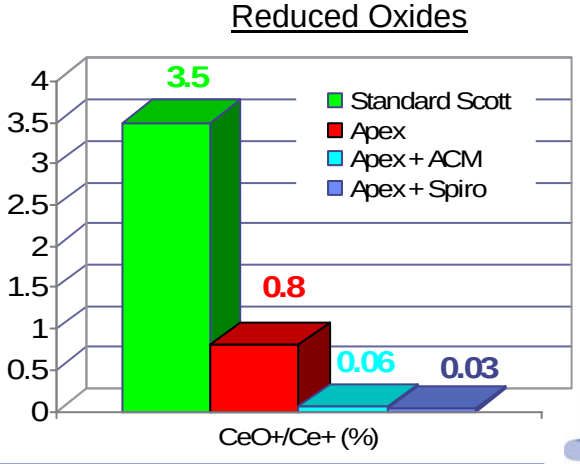
	Mg (24)	In (115)	Ba (138)	Ce (140)	Pb (208)
CrossFlow	10091	27470	26366	21499	12885
apex HF	207329	265083	302756	246960	183914

Optional Membrane Desolvation

The addition of the ACM or Spiro can further dramatically reduce the amount of water vapor in the aerosol, reducing oxide interferences.

ACM Module

Spiro TMD Module



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