

RFP UJ 44/2025: PROCUREMENT OF AN ICP-OES SPECTROMETER

SPECTROMETER REQUIREMENTS:

- The instrument must allow simultaneous multi-element analysis using solid-state detector technology for fast and accurate results.
- The optical design must feature an Echelle-based polychromator for high-resolution spectral analysis.
- The optical system must be housed in a thermostated and purged enclosure to ensure stability under varying environmental conditions.
- The system must support dual view plasma configuration (axial and radial view, capable of operating in a sequential mode or independently for maximum flexibility. The radial plasma view must be computer-controlled for precise measurement adjustments.
- The instrument must be compatible with a single exhaust system with a minimum flow required for safe operation.
- The instrument must be a benchtop model to optimize laboratory space and layout.
- The instrument must handle temperature changes of up to 2 °C per hour without impacting analytical performance, ensuring consistent results in variable environments. The instrument should function reliably within laboratory conditions and accommodate various laboratory environments without performance degradation.
- The detector must support simultaneous full-spectrum measurement and allow capture of signals across a range of intensities. The system must read all wavelengths concurrently, ensuring faster analysis and high throughput. The detector must have anti-blooming features to prevent signal saturation and enhance accuracy in complex sample matrices.
- The torch should be designed for easy installation and alignment-free operation post-mounting, enhancing user convenience and consistency. Torch alignment should be automated for consistent RF coil and axial optical alignment.
- A double-pass glass cyclonic spray chamber should be included for efficient sample delivery and washout.
- The system should include a five-channel, computer-controlled peristaltic pump that allows rapid sample uptake and washout, improving productivity.
- Instrumentation should come with compatible software with full lifetime support of an instrument from the supplier also be updated free of charge.
 - The control software should run on a 64-bit Windows 11 Professional system.
- Peak display for complete analysis should be included.

- Background correction must be automated.
- Spectral interference correction with automatic IEC calculation should be available.
- Post-analysis spectral correction should be possible without re-running samples.
- Advanced QC checks including blanks, duplicates, and spike calculations should be present.
- Simultaneous background and emission data reading must be possible.
- Full-spectrum scans and calibration recall features are required.
- A comprehensive library with atomic and ionic lines of analytical wavelengths should be included.
- Calibration must support linear, quadratic, rational equations with weighted and blank-forcing options.
- Automated identification of optimal emission lines and spectral interferences must be included.
- The software should identify nebulizer blockages or leaks.
- Outlier detection features and usage-based maintenance counters are needed.
- Plasma, auxiliary, nebulizer, and makeup gas flows should be mass flow-controlled for precise and repeatable control, improving the reproducibility of analyses. Plasma, auxiliary, nebulizer, and makeup gas flow should allow increments for flexibility in plasma conditions.
- The RF generator must have an acceptable power range with adjustable increments, ensuring optimum power transfer efficiency.
- Power output must be stable to ensure reliable and consistent plasma generation.
- The system must exhibit linearity across five to six orders of magnitude for high-accuracy quantification.
- A comprehensive warranty of a minimum of 2 years covering parts, labour, and travel must be provided. Please submit a list of parts covered by warranty.
 - Please supply a list of local parts and their lead time and also if there are any import parts also supplier the list of those parts and lead time.
- The system must include an external water chiller that is not integrated into the instrument chassis to allow flexible placement.
- The instrument must be compatible with an autosampler capable of holding several samples for increased efficiency.
- The instrument controller must be a Windows 11 based system that feature an Intel 3 GHz processor, 8 MB cache, and 16 GB RAM. The computer should have at least a 500 GB hard drive for ample data storage. A minimum of two USB ports and two Network Interface Cards (LAN) are required.
 - Service and Maintenance for three years.