



MINING, METALS & ALLOYS

Built for Complex, Dirty Samples



Engineered for the demands of modern mining and geochemical laboratories, the **Avio® 3000 ICP-OES** combines high-speed analysis, exceptional stability, outstanding sensitivity and robust matrix tolerance to deliver accurate, defensible results across a wide range of geological samples. From exploration and ore characterization to process control and environmental monitoring, the Avio 3000 helps labs maximize productivity while reducing operating costs and simplifying everyday analysis.

HeliPlate Plasma Technology: *Stable plasma performance with lower argon consumption.*

Proprietary HeliPlate™ plasma technology, first introduced on the Avio 3000, delivers a robust, stable plasma while reducing argon consumption compared to conventional helical-coil ICP-OES systems. This is particularly valuable for mining and geochemical labs analyzing high total-dissolved-solid samples and running large numbers of samples every day. With no external chiller required, HeliPlate also helps reduce operating costs, maintenance and laboratory infrastructure requirements.

High-Resolution Optical System: *Resolve complex spectra with confidence.*

Geological samples can contain many elements at widely varying concentrations, creating complex spectral scenarios. The Avio 3000's cutting-edge high-resolution optical system helps distinguish closely spaced emission lines and minimize spectral overlap, supporting reliable results without relying on extensive interelement corrections. The result is greater confidence when measuring elements across complex geochemical matrices.

Cutting-Edge Optical System & UV Boost Mode: *Exceptional spectral performance. Expanded analytical capability.*

The Avio 3000's advanced optical system delivers exceptional spectral performance for reliable, high-quality elemental analysis. And for applications where enhanced sensitivity at wavelengths below 243 nm is important, such as lubricant production, innovative UV Boost mode provides an additional performance advantage. Together, these technologies give laboratories the flexibility to confidently address a broad range of lubricant testing applications.

True Simultaneous ICP-OES: *Analyze more elements without sacrificing throughput.*

The Avio 3000 redefines true simultaneous ICP-OES, measuring multiple wavelengths at the same time, enabling rapid multi-element analysis from a single sample introduction. This is especially advantageous for mining laboratories processing large sample volumes and monitoring numerous elements for exploration, ore characterization and process control.

Vertical Dual View: *Confident analysis across challenging sample matrices.*

The Avio 3000 leverages Vertical Dual View technology, which provides the flexibility to analyze both aqueous and challenging samples with exceptional robustness. The vertically oriented plasma helps minimize matrix-related effects and provides the dynamic range needed to measure major, minor and trace elements in complex geological samples—from low-level exploration samples to concentrated ores and digests.

PlasmaShear: *Keep high-total-dissolved-solid samples from compromising performance.*

Mining samples can introduce significant levels of dissolved solids, salts and other matrix components that can build up around the torch and injector. Proprietary PlasmaShear™ technology on the Avio 3000 uses a precisely controlled air stream to prevent this material from reaching critical components, helping maintain clean optical surfaces and stable performance while reducing maintenance and downtime.

Universal Data Acquisition: *Capture more data in every analysis.*

Universal Data Acquisition (UDA) enables the Avio 3000 system to collect comprehensive spectral information across the full wavelength range during a single measurement. For geochemical laboratories, this provides greater flexibility to quantify a broad range of elements from one sample while retaining the data needed for additional analysis, helping reduce reruns and improve laboratory productivity.

Confident Results, Even in Complex Spectral Environments: *Three technologies. One powerful solution.*

The Avio® 3000 combines Automated Background Correction (ABC), Inter-Element Correction (IEC), and Multicomponent Spectral Fitting (MSF) to address the diverse spectral interferences encountered in complex geological samples. Together, these advanced capabilities help simplify method development, reduce the impact of overlapping signals and challenging backgrounds, and deliver more reliable elemental results with greater confidence.

Syngistix for ICP Software: *Streamlined workflows from sample to result.*

Syngistix™ for ICP software provides an intuitive environment for method development, analysis and data management, helping laboratories simplify complex multi-element workflows. Automated tools and streamlined operation make it easier to manage high sample volumes while delivering consistent, traceable and defensible results.

More productivity. Less maintenance. Lower operating costs.

Experience the next generation of ICP-OES for geological samples with the Avio 3000
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