

Evaluation of a new generation ICP-OES for applications in geochemistry

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ICP-OES is a widely used analytical tool in the geochemistry field. To establish an ICP-OES as analytically suitable for the high throughput mineral exploration and geochemistry applications we have evaluated and documented the performance in the following areas:

- Plasma parameters
- Linear dynamic range
- Robustness especially with high solids, high acid matrices
- Sensitivity and detection limits
- Long term stability
- Interference management
- Accuracy and reproducibility

To achieve satisfactory performance in the areas described above required careful optimization of the pre-optics focus, torch geometry and plasma gas flows. Optimization was achieved using high speed imaging, computer simulation of the Ar gas flows and torch geometries, followed by an extensive evaluation process. An overview of the optimization and results will be discussed.