High Throughput, High Sensitivity Quadrupole ICP-MS Analysis of Geological Samples after Preparation by Lithium Metaborate Fusion

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The preparation of geological samples by lithium metaborate fusion offers a series of advantages for applications in routine analytical geochemical applications.

In this paper a new method will be described for the ICP-MS analysis of geological samples after lithium metaborate fusion. Through a series of advances, including interface design, analysis periods are on the order of days not hours, allowing for >1500 fusion analyses to be processed per day without any downtime for maintenance. By prolonging periods between maintenance, sample throughput is improved, especially important in price sensitive commercial applications of ICP-MS such as exploration geochemistry.

The opportunities for improvement in sample throughput used in this presentation will be described in detail. These include:

- The use of advanced sample handling
- Single mode, full mass range analyses in He KED analysis mode
- Optimized interface design to allow for prolonged analyses of heavy sample matrices such as lithium metaborate fusions
- A single, flexible software package for complete control of the entire analytical process