

First Ever In-field Quantitative Measurements of Lithium in Soils

For the first time ever a handheld device was used for quantitative on-site lithium in soil measurements as part of a lithium exploration project. The lithium analysis was performed using the Z-300 handheld laser-induced breakdown spectroscopy (LIBS) analyzer, manufactured by SciAps Inc. Woburn, MA, USA. The Z is the world's ONLY handheld LIBS-based analyzer capable of performing geochemical sample analysis. It is the world's only handheld analyzer capable of measuring for low atomic number elements Li, Be, B, C, F, and Na. The Z, like other analyzers also measures elements Mg and higher atomic numbers.

As with the more established field portable XRF (fpXRF) technique, the Z analyzes transition and heavy metals. But the Z offers greatly improved performance for low-atomic number elements Mg, Al, Si, K, Ca compared to fpXRF. And the Z measures elements Li, Be, C, B, Na, and F which cannot be analyzed at all with fpXRF. Because the Z uses laser rather than X-ray, the regulatory challenges of travelling with an X-ray emitting device are eliminated.

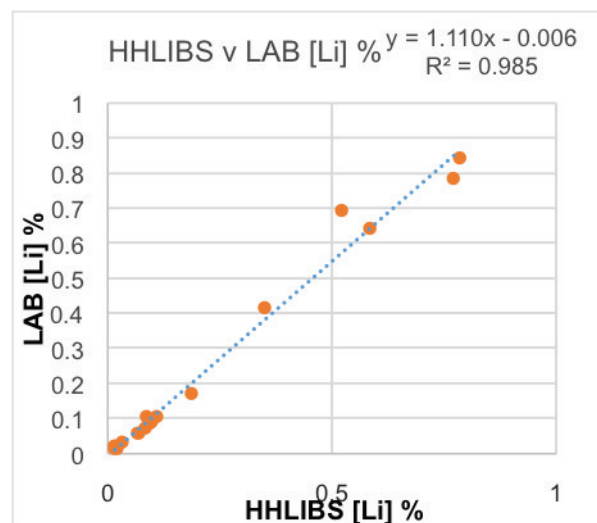
What the users are saying:

"Lithium Australia has worked for some time with SciAps to perfect the use of LIBS technology in geochemical applications. The extension of technique to the real-time control of drilling in lithium clays, is a breakthrough that should reap immediate financial benefits, by maximizing the effectiveness of our first round of drilling in Mexico."

–Managing Director of Lithium-Australia, Adrian Griffin

Source: Lithium-Australia ASX announcement, Nov. 4th 2016.

SciAps Z can be used to generate both quantitative multi-element analysis of samples as well as elemental distribution maps to better understand the distribution of important elements within specific minerals in a geological sample.



The good correlation between laboratory and field measurements of Li is shown in the figure. Field samples were pressed with a simple field pressed (5 - 10 ton) in a metal holder and presented to the analyzer for 3 second tests. To reduce the effects of sample non-homogeneity, several spots were tested and averaged, making the total test time approximately 10 - 15 seconds. Several geological reference samples were first used to build the lithium calibration on the Z-300 LIBS analyzer. The resulting data shows good agreement with the laboratory results, with detection limits in the 5 - 10 ppm range, depending on the soil matrix.



For the first time ever, get the complete geochemical picture:



HH LIBS for Li, Be, B, C, F, Na, Mg, Al, Si plus the transition and heavy metals.



HH XRF: the proven field technology for fast, easy analysis of transition and heavy metals.

SciAps

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