

# SPECTRAL EVOLUTION

## Lithium Exploration

Used in batteries, lighting and other technologically critical applications, lithium is exceptionally light with a high specific heat capacity and high electrochemical potential. Lithium is typically recovered from brines or minerals in pegmatites. Finding potential lithium deposits in pegmatites can involve identifying the minerals lepidolite and spodumene.

With EZ-ID mineral identification software, the oreXpress can provide geologists with a tool for identifying and mapping potential lithium deposits in the field.

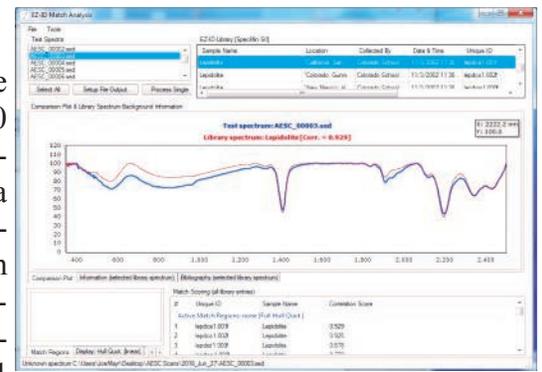
The oreXpress is a high resolution/high sensitivity, field portable NIR spectrometer. Covering the full UV/VIS/NIR range from 350-2500nm, an oreXpress is lightweight and rugged with photodiode array design for no moving optical parts. oreXpress allows a geologist to take spectra in the field within seconds so that a detailed mineral map can be constructed. Scans of a sample taken with an oreXpress and a contact probe can be analyzed on a laptop using Spectral Evolution's EZ-ID mineral identification software and matching to known samples from the USGS and SPECMin libraries.

In a samples from Australia, a lepidolite scan collected with the oreXpress and identified with EZ-ID shows an iron feature in the 580nm range, water feature at 1400nm, and distinct lepidolite absorption features at 2190nm and 2340nm. EZ-ID software matches the measured spectra (blue line) to a sample from the SPECMin library (red line) of lepidolite for a strong identification.

The spodumene spectra shows absorption features at 550nm, 1400nm, 1980nm and 2320nm with a match to a spodumene sample in the SPECMin library with a 0.984 correlation coefficient. EZ-ID uses the USGS and SPECMin libraries to provide known samples of 600 minerals with over 1500 individual spectra.



Ore sample from Australia



Identifying the mineral lepidolite using Spectral Evolution's EZ-ID software



Spodumene is a mineral associated with lithium

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