

SPECTRAL EVOLUTION

Distinguishing Lepidolite from Muscovite

Lepidolite and muscovite are two micas that often occur together in pegmatites. Both are phyllosilicate minerals and members of the polyolithionite-trilithionite series.

Lepidolite is a source of lithium in minable quantities. Lithium is in demand for batteries from small batteries in phones to large batteries in electronic and hybrid vehicles.

An NIR full range (350-2500nm) spectrometer from SPECTRAL EVOLUTION can be used with EZ-ID mineral identification software to distinguish between lepidolite and muscovite.

Lepidolite has absorption features at 580, 2190 and 2340nm. Muscovite has features at 1400, 1900, 2190 and 2210nm.

SPECTRAL EVOLUTION provides the oreXpert, oreXplorer and oreXpress field spectrometers with EZ-ID mineral identification software that matches your target sample against three libraries of known samples—the USGS, SpecMIN and GeoSPEC high resolution library. EZ-ID's three libraries contain 2600 spectra for almost 1100 minerals. EZ-ID allows a geologist to unmix minerals from samples by using match regions to focus on certain absorption features. These match regions can be saved as pre-sets for easier discovery of similar minerals in the field. Scalars are also displayed to enhance the geologist's understanding of crystallinity changes, alteration pattern shifts and geochemical conditions.

SPECTRAL EVOLUTION'S field spectrometers for mining have the following features:

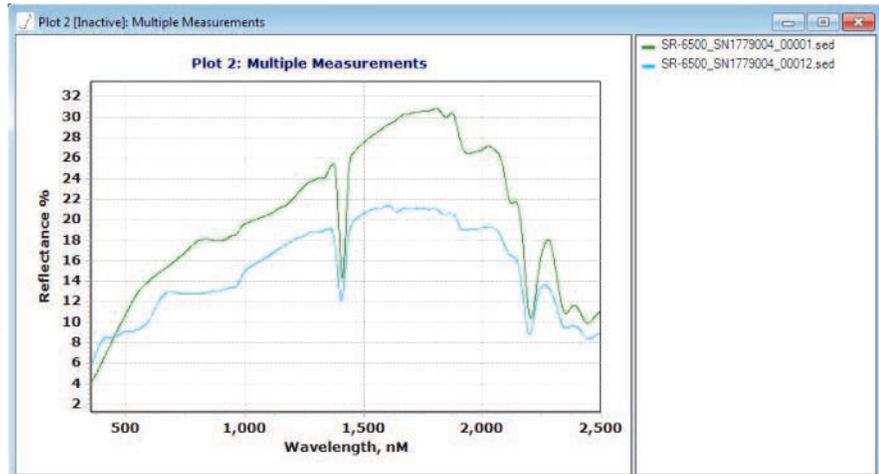
- ◆ Rapid data/spectra collection in the field – allowing you to take more scans in less time
- ◆ High resolution in a field instrument
- ◆ High signal-to-noise ratio for improved reflectance values
- ◆ Fast start-up and use with no optimization step required between scans
- ◆ Sturdy construction for harsh field environments
- ◆ Reliable operation with no moving optics and a robust fiber optic cable with quick-disconnect
- ◆ Rugged and reliable mineral contact probes for single click field measurements to measure outcrops, cores and chip trays

Our field spectrometers for mining include:

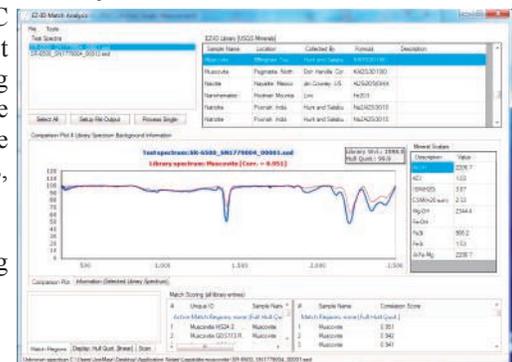
oreXpert—highest resolution field spectrometer with high sensitivity, accurate scans for mineral identification and analysis. Crucial for seeing additional features and unmixing different minerals from samples.

oreXplorer—higher resolution/high sensitivity for identifying hard to unmix minerals with similar features

oreXpress—quick reliable mineral analysis with a standard resolution of 3nm. oreXpert, oreXplorer, oreXpress and EZ-ID are trademarks of Spectral Evolution.



Scan of muscovite (green) plotted against a scan of lepidolite (blue) in DARWin SP Data Acquisition software.



A scan of muscovite matched to the GeoSPEC high resolution library.



A scan of lepidolite matched to the GeoSPEC high resolution library.

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