

# SPECTRAL EVOLUTION

## Buddingtonite as a Pathfinder Mineral for Gold and Silver

Buddingtonite is an ammonium bearing feldspar with the chemical formula  $\text{NH}_4\text{AlSi}_3\text{O}_8$  that can be a pathfinder mineral for gold and silver deposits in hydrothermal alteration systems. Buddingtonite can occur with clays including, kaolinite, illite, and alunite. Buddingtonite has also been found in shale oil deposits and high sulfur coal deposits.

Buddingtonite can be identified using NIR reflectance spectroscopy. A field NIR spectrometer delivers fast scanning, multiple information from each scan and has no sample preparation or any effect on the sample. Every mineral produces a distinct NIR spectra that can be used for identification. Buddingtonite exhibits absorption features at 1560nm, 2020nm and 2120nm. The 2120nm feature is the main absorption feature that distinguishes buddingtonite from other minerals.

Working with an oreXpress, oreXplorer or oreXpert field spectrometer from Spectral Evolution, a geologist can identify buddingtonite in the field by scanning at an outcrop, bench or pit. The spectrometers are also used to quickly scan core and save the data in a core shack.

The oreXpress, oreXplorer and oreXpert spectrometers cover the spectral range from 350-2500nm. The oreXpress offers high resolution/high sensitivity, the oreXplorer offers higher resolution, while the oreXpert is the highest resolution field instrument available. They are designed for field use with a rugged and durable chassis, battery power for a full day of scanning and a backpack for portability. They can be equipped with contact probes to provide consistent illumination for scanning your samples.

These spectrometers are available with EZ-ID mineral identification software and access to three mineral spectral libraries: the USGS library and the optional SpecMIN and GeoSPEC libraries for a total of 2600 spectra of over 1100 minerals. EZ-ID allows a geologist to perform un-mixing of minerals in a sample using match regions to focus on different absorption features for different minerals.

oreXpress, oreXplorer, oreXpert and EZ-ID software are trademarks of Spectral Evolution, Inc.



*The oreXpress with the exclusive Miniprobe's 3mm spot size for field or core shack use.*



*EZ-ID provides over 2600 spectra for more than 1000 minerals. Above is a sample spectra matched to a buddingtonite sample in the SpecMIN library.*

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