

# SPECTRAL EVOLUTION

## Alunite Shift In Gold Exploration

Alunite is a potassium sulfate mineral that forms in hydrothermal systems. It is commonly encountered as an alteration mineral in high sulfidation epithermal gold deposits.

Alunite characteristics and composition can be a good indicator of gold potential in an epithermal system. In particular, the shift in the composition of alunite from potassium rich (K-alunite) to sodium rich (Na-alunite) can be used to vector to mineralization.

Alunite has a distinctive feature in the 1400-1500nm region that can indicate the subtle shift from K-alunite to Na-alunite as the sodium in the alunite increases. This shift typically at 1480—1490nm is thought to be a record of the mineralizing effect of magmatic and meteoric fluids on hydrothermal fluids.

Using the oreXpress high resolution/low noise field spectrometer with EZ-ID mineral identification software with two libraries of more than 600 minerals, a geologist can identify alunite and see the shift. Associated minerals such as kaolinitie, dickite, pyrophyllite, and zunyite can also be measured and identified.

With two lithium ion batteries, the oreXpress can be used in a backpack to take hundreds of field measurements in a day. With EZ-ID software the scans can be used to create a detailed mineral map that indicates areas of greater potential for drilling. The oreXpress and EZ-ID mineral analyzer system could pay for itself by eliminating one unnecessary and unprofitable drill hole.

EZ-ID software quickly provides accurate matching of an unknown target with a known mineral spectra. With an oreXpress spectrometer and EZ-ID a geologist can identify minerals indicating gold in real-time, in the field.

Benefits include:

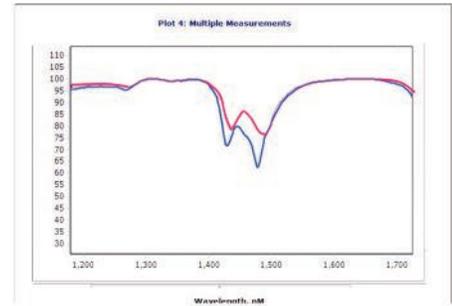
- ◆ Quickly collect a lot of scans
- ◆ Cover more ground in less time for better mapping
- ◆ Collect more accurate data for a more complete picture of the area you are exploring
- ◆ Get results immediately instead of waiting for lab analysis
- ◆ Drill fewer holes with better results
- ◆ In the core shack, correctly identify promising samples, save on assay costs, and save your valuable logging data

The oreXpress delivers full range, UV/VIS/NIR capabilities from 350-2500nm, is lightweight (under 7 lbs), rugged with no moving optical parts, include integral autoexposure and auto-dark shutter, and comes with a handheld GETAC microcomputer with digital camera, GPS, and voice notes that can be tagged to your spectra.

All scans are saved as ASCII files for use (without pre-processing) with third party software, including chemometric analysis software.

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*Multiple scan shift close-up of two alunite samples in DARWin window. Shift occurs as sodium (Na) content increases and potassium (K) decreases.*



*EZ-ID software identifies minerals in real-time by matching your target spectra against known spectral libraries of 600 minerals with 1600 spectra. Or build your own with the Custom Library Builder module.*

