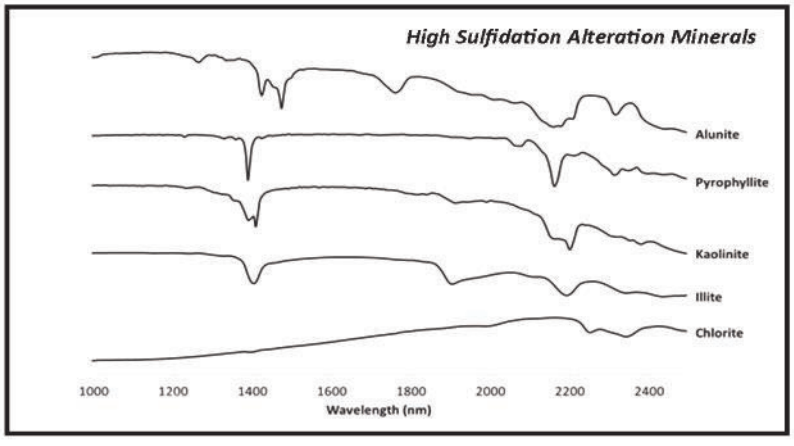
# SPECTRAL EVOLUTION

## Identifying Minerals in High Sulfidation Epithermal Deposits

High sulfidation epithermal deposits are created by fluids from hot magma. The fluids interact with groundwater to form very strong acids which dissolve surrounding rock to leave behind vuggy silica. Gold and copper rich solutions also rise from the magma and leave their metals in the vuggy silica bodies. Rocks that come in contact with the fluids are altered and definable zones of alteration minerals are formed in layers around the fault zone. Neutralization of high sulfidation fluids by rock produces alteration away from the core characterized by mineral assemblages dominated by alunite, pyrophyllite, kaolinite, illite, and chlorite rich clays.

With an oreXpress high resolution/high sensitivity full range field spectrometer and EZ -ID mineral identification software, a geologist can quickly scan outcrops, walls, pits and trenches to gain valuable information for interpreting the type of alteration system and potential deposit. In turn, this will increase the efficiency of the sampling and drilling program and reduce laboratory associated analytical time and costs. In addition the spectra and associated data can be used to create a database for the project— core logging data can subsequently be added after core scanning for a complete digital project archive.

With the oreXpress and EZ-ID, your target mineral can be matched against known mineral spectra in two libraries: the USGS and SPECMin mineral libraries. Adding match regions to your scans can help you focus on the most important absorption features for identifying minerals in mixtures. For example you can focus on alunite's key features at 1440,1475,1760,2165/2206 and 2320nm; pyrophyllite at 1396,2066/2078, 2168 and 2320nm; kaolinite at 960,1400/1412,2160/2206,2310,2350 and 2380nm; illite at 1410, 2215 and 2340nm; chlorite at 2260 and 2355nm.






*oreXpress with EZ-ID for identifying and mapping alteration zones.*

*Pyrophyllite spectra identified with EZ-ID.*

*Illite spectra identified using three spectral match regions.*

1 Canal Street ◊ Unit B1
Lawrence, MA 01840 USA
Tel: 978 687-1833 ◊ Fax: 978 945-0372
Email: sales@spectralevolution.com
www.spectralevolution.com

SPECTRAL EVOLUTION