

SPECTRAL EVOLUTION

Identifying Minerals in Porphyry Copper Alteration Zones

NIR spectroscopy can be a valuable vectoring tool for mineral exploration in copper mining. Using an oreXpress™, oreXplorer™ or an oreXpert™ spectrometer and SPECTRAL EVOLUTION'S EZ-ID™ software can result in fewer drill holes and better results by identifying minerals in associated alteration zones.

Assemblages of alteration minerals associated with porphyry copper include:

- ◆ Potassic alteration: k-feldspar, biotite, sericite, chlorite, quartz
- ◆ Phyllic alteration: quartz, muscovite, pyrite, chlorite
- ◆ Argillic alteration: kaolinite, dickite, muscovite, montmorillonite
- ◆ Propylitic alteration: chlorite, calcite, epidote, pyrite, albite

With an oreXpress, oreXplorer or oreXpert spectrometer and EZ-ID mineral identification software, a geologist can identify minerals indicating copper in real-time, in the field. EZ-ID matches your samples against three spectral libraries of over 1100 minerals: the USGS, SpecMIN, and GeoSPEC libraries. EZ-ID allows the geologist to unmix the minerals in a sample using match regions to focus on specific absorption features and match only to those features. In addition EZ-ID provides the geologist with scalars. Spectral scalars can enhance the geologist's understanding of crystallinity changes, alteration pattern shifts and geochemical conditions.

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, oreXplorer and oreXpert deliver full range, UV/VIS/NIR capabilities from 350-2500nm, are lightweight, rugged, include integral autoexposure and auto-dark shutter, and are available with a rugged ALGIZ 8X tablet with digital camera, GPS, and voice notes that can be tagged to your spectra.

In addition, our DARWin Data Acquisition software saves your scans as ASCII files for use (without pre-processing) with third party software, including chemometric analysis software. In addition, there is optional conversion of ASD files for use with EZ-ID—save your existing libraries and databases.

oreXpress, oreXplorer, oreXpert and EZ-ID software are trademarks of Spectral Evolution, Inc. SpecMIN is a trademark of Spectral International, Inc.



oreXpress, oreXplorer and oreXpert spectrometers are ideal for single-user field mining exploration.



EZ-ID software identifies minerals in real-time by matching your target spectra against a known spectra in the USGS, SpecMIN or GeoSPEC libraries. EZ-ID includes match regions for unmixing minerals and scalars for a better understanding of mineral geochemistry.

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