



ADVANCED TECHNOLOGIES IN MINERAL EXPLORATION

At AXIOM GROUP, we leverage cutting-edge technologies to provide unparalleled geological field services. Our suite of advanced tools—including TerraSpec, XRF, LIBS, and ioGAS software—enables us to deliver precise and efficient mineral exploration solutions. Each tool plays a crucial role in gathering essential chemical and mineralogical data, directly influencing the success of exploration programs.

PORTABLE AND FIELD TECHNOLOGIES: TERRASPEC, XRF, AND LIBS

TerraSpec Halo Mineral Identifier: The TerraSpec Halo is a portable near-infrared (NIR) spectrometer designed for rapid, in-field mineral identification. It measures the visible and shortwave infrared spectrum (350-2500 nm), providing immediate on-site results. TerraSpec is instrumental in identifying alteration minerals, making it invaluable for exploration geologists seeking to quickly delineate alteration zones, speed up core logging, and confirm ore mineralogy. This device's ease of use and rugged design make it a reliable tool in even the most challenging environments.

XRF (X-ray Fluorescence) Analyzer: XRF technology is a cornerstone of geochemical analysis, offering fast, non-destructive elemental analysis in the field. The portable XRF analyzer emits X-rays onto a sample, causing the atoms to emit secondary X-rays characteristic of the elements present. This tool is particularly useful for identifying elemental composition in rocks, soils, and drill cores, providing real-time data that guides exploration decisions. XRF is essential for identifying geochemical alterations and cryptic lithological boundaries and vectoring future exploration efforts.

LIBS (Laser-Induced Breakdown Spectroscopy): LIBS is a versatile tool for elemental analysis. It is particularly effective for detecting light elements such as lithium, beryllium, and aluminum, which are challenging for XRF to analyze. LIBS ablates a small portion of the sample using a high-intensity laser, creating a plasma that emits light indicative of the elements present. This technology is ideal for rapid, on-site analysis, allowing geologists to make informed decisions quickly and efficiently during exploration campaigns.





RS-230 Spectrometer: AXIOM GROUP also leverages the RS-230 Spectrometer to significantly enhance our clients' surficial exploration programs for uranium and rare earth minerals. The RS-230's high-sensitivity Bismuth Germanate (BGO) detector provides precise and reliable gamma-ray spectrometry, essential for identifying and quantifying uranium and rare earth elements in various geological settings. By utilizing this advanced tool, we can conduct thorough field surveys pinpointing areas with high mineral potential. The RS-230 enables us to deliver accurate, actionable insights to our clients, optimizing their exploration efforts and increasing the likelihood of successful mineral discoveries.

HYPERSPECTRAL ANALYSIS

Hyperspectral Analysis: AXIOM GROUP utilizes advanced hyperspectral analysis for macro-scale mineral exploration and these portable tools. Our capabilities include satellite data acquisition and analysis using multispectral and hyperspectral imaging (e.g., Sentinel, Aster). Axiom's extensive spectral mineral library and proprietary processing algorithms enable us to explore vector targets effectively. We create analogs of known mineralization patterns by integrating AI, machine learning, and deep learning techniques to identify potential deposits on new properties.

GEOLOGICAL FIELD SERVICES

Our use of these advanced technologies enhances AXIOM GROUP's comprehensive geological field services. Our offerings include:

- **Exploration Program Design and Management:** From initial planning to execution, Axiom Group provides end-to-end management of exploration projects.
- **Drill Target Design and Development:** We utilize advanced data analysis tools to design precise drill targets that maximize exploration success.
- **Core Logging and Sampling:** Our expertise in core logging is complemented by real-time data from TerraSpec, XRF, and LIBS, ensuring accurate and efficient sample analysis.
- **Advanced Spectral Analysis:** We offer specialized services in spectral analysis, leveraging our TerraSpec analyzer, XRF technology, and ioGAS software to deliver high-quality, actionable insights.

Contact AXIOM GROUP today to learn more about how our advanced technologies can elevate your mineral exploration projects to new heights.

