

Want the ENTIRE PICTURE?

LIBS · UV-VIS-NIR · RAMAN

Analyze Your World Instant Geochemistry & Mineralogy

The range of SciAps field portable products allows a wide variety of diagnostic information to be collected on geological samples. The combination of geochemistry and mineralogy provides a powerful tool for understanding geological materials in the context of their environment.



Get Real-Time Geochemistry

LIBZ Laser Induced Breakdown Spectroscopy
Field Testing for Even the Lightest of Elements: Na, Li, C, Mg, N, Be
Detailing 50µ Spots or Averaging Over Large Areas



Get Real-Time Mineralogy

UV-VIS-NIR Spectroscopy 350-2500nm
Mineral Mapping & Exploration - High Speed Measurement with No Sample Preparation

Raman Spectroscopy 1030nm
Nondestructive Analysis for a Wide Range of Minerals & Compounds Examination with Optional XY Stage and Video Microscope



SciAps

GEOCHEM
Instant Geochemistry & Mineralogy



Analyze Your World

Field portable analyzers provide instant, in-field mineral phase identification measuring a wide range of major and trace element discriminators.

LIBZ TECHNOLOGY LIBZ - Instant results for transition metals, heavy metals, Na, Mg, Li, Al, Be, B, C and many more

UV VIS NIR 350nm - 2500nm NIR - In-field mineral analysis

RAMAN Raman - Pinpoint mineral analysis of veins & inclusions



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- YES!** Geochemical Element Ratios
- YES!** Trace Element Geochemistry
- YES!** Base Metals



More Elements Analyzed for Better In-field Geochemistry

The Z-500 measures elements beyond the reach of any other handheld technology. These "major elements" as well as trace elements constitute significant components of the main mineral phases and allow discrimination between mineral groups.

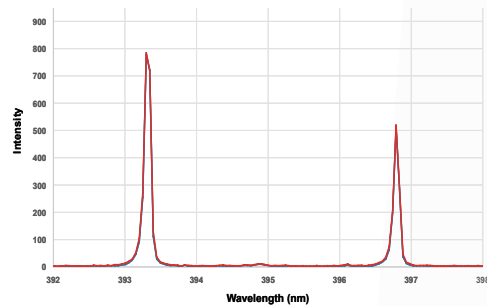
Geochemical Element Ratios In the Field

With the Z, you can determine a variety of critical geochemical element ratios in the field, allowing better discrimination of rocks types, and a better understanding of igneous rocks in general. For example, measure Na, Mg, Al, K and Si - even at low concentrations - instantly, in the field. Benefits include: • Geochemical element ratios such as Ca/(Na+Ca) and K/Na. • Aluminium-driven ratios including A/CNK (Al/ Ca+Na+K) and A/NK (Al/Na + K), in particular for igneous rock formations. • Si - measure silicon in-field as well to analyze geochem ratios versus SiO₂ concentrations.

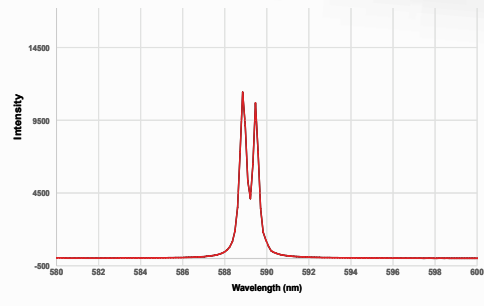
SODIUM	POTASSIUM	MAGNESIUM	ALUMINIUM	CALCIUM	SILICON	IRON
Na	K	Mg	Al	Ca	Si	Fe

For LIBZ, some of the strongest emissions come from critical elements Na, Si, Al, K and Ca. LIBZ is the optimal analyzer for in-field geochemistry.

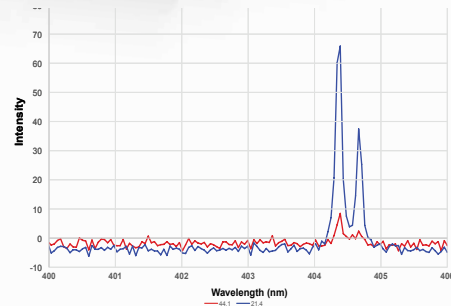
Calcium Measurements, 2 different locations on a sample, 1.0% 10 second tests.



21% NaO 10 second tests.



K₂O at 1.75% and 29.5%, 10 second test



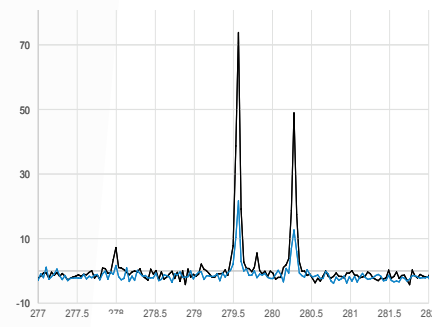
ABOVE CHARTS - SciAps LIBZ technology provides key low atomic element chemistry for common geochemical ratios. Shown in the figures are spectra for elemental sodium (Na), Potassium (K), Aluminum

(Al) and Calcium (Ca). These elements are easily measured in seconds in geochemical samples, along with transition, heavy metals and low atomic number elements Li, Be, B, C and others.

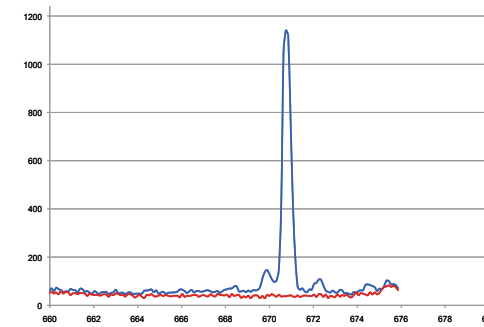
Trace Element Geochemistry In the Field

LITHIUM	BERYLLIUM	BORON
Li	Be	B

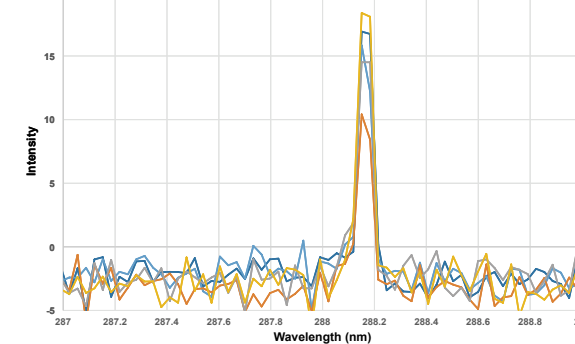
Yields understanding of specific chemistry of mineral phases - Measure Li (lithium) to very effectively to discriminate mica group minerals Biotite and Muscovite, Measure Be, B and other trace elements to understand Pegmatite's relationships to Granitoids, especially with Pegmatite's a potential source of rare-earth elements (REE's).



Measure low concentrations of Mg in clays, laterites and other minerals in seconds. Shown are spectra for 0.19% Mg (black) and 0.06% Mg (blue).



LIBZ spectra showing the lithium at a few hundred pm for biotite, versus muscovite which contains little lithium.



Silicon Measurements, 5 sample locations, 0.56% Si, 10 second tests. Measures Si content, allowing for common geochemical ratios to be compared to Si concentration.

Base Metals

TITANIUM	MANGANESE	IRON	NICKEL	COPPER	URANIUM
Ti	Mn	Fe	Ni	Cu	U

Of course, the Z also analyzes common base metal including Cu, Mg, Al, Mn, Fe, Ti, Ni, U and other commercially sought metals. In many cases, detection limits are superior to other handheld technologies due to the ease of laser-based excitation.

So Many LIBZ Advantages!

The Google Android Powered LIBZ Global Connectivity & Instant Local Test Results

Tap · Create · Print · Email Tap the SHARE icon, pick a device including your cell phone Hotspot. Then instantly create a test report or export data. Print, or email data anywhere, right from the Z.



No Regulatory Restrictions

The Z LIBZ technology uses an eye-safe laser and meets Class 1M standards. It's regulated no differently than a common laser pointer used in presentations. Travel freely anywhere in the world, without licensing, registration, or burdensome documentation. No safety training or certifications required.

On-Board, High Resolution Camera&Video

The Z's camera, and the 50 um laser, can hone in on particular regions for non-homogenous samples. Or save sample pictures for photo-documentation.

Navigator

Portable NIR Reflectance Spectroscopy for Mineral Analysis

SciAps introduces a truly portable, field hardened absorption spectrometer. The wide spectral range from 350 nm to 2,500 nm captures signature absorption patterns spanning the ultraviolet (UV) through the near infra-red (NIR). The spectral range allows for a wider variety of minerals and compounds to be identified, including critical minerals in clay mineralogy, sulfates, carbonates, REE's and many more.



250+ MINERAL LIBRARY

Tablet-driven

Shoulder/ backpack for spectrometer. Nearly all the spectrometer and internal battery weight is distributed in the shoulder pack for easy carrying of the unit. View spectra, spectral overlays, and library matches on large tablet which is standard equipment.

Ultra-light probe

Weighs < 1 lb with android based phone or device, Test all day without fatigue. Probe uses internal motorized white reference standard, & automatic calibration. No more lost or dirty spectralon panels.

Mineral Identification

Navigator includes a comprehensive 250+ mineral library, with proven HQI matching algorithms.

TSG and SPECMIN

Navigator exports to both TSG and SPECMIN software programs. Fully Customizable Mineral Library: Users may add their own mineral spectra and create custom mineral libraries

Robust Spectrometer

The Navigator is designed for water, dust and shock resistance, meeting IP 54 standards. Features internal temperature stabilization and automated drift correction. Deliver reliable performance in excessively hot or cold climates. Batteries are internal, removable and rechargeable - no extra batteries to carry in the field. And there's no moving spectrometer components. It's built for the daily wear and tear expected of field-based analytical instruments.

Universities, Field Geology & Chemistry Programs



The Navigator makes a great field and lab teaching tool. It can be taken anywhere, the Tablet-based platform offers great compatibility with other devices. Quickly demonstrate the value of absorption spectrometry for both field and laboratory mineral and compound identification.

Some of the mineral ID's with the Navigator

GOLD

Field mapping and exploration of gold deposits - Paleoplacer deposits, Skarns, Greenstone, Carbonate deposits, Massive sulphide deposits

Porphyry Gold

Alunite/kaolinite epithermal deposits, Breccia pipe deposits, Orogenic deposits

Alteration Minerals. Clay mineralogy, Low Sulfidation Deposits: illite, kaolinite, chlorites, illite/smectite, buddingtonite, epidote, montmorillonite, zeolites, quartz, calcite, hematite

High Sulfidation Deposits: alunite, opal, dickite, pyrophyllite, diaspore, zunyite, topaz, illite, kaolinite, chlorites, illite/smectite, epidote, quartz, montmorillonite, geothite, jarosite, hematite

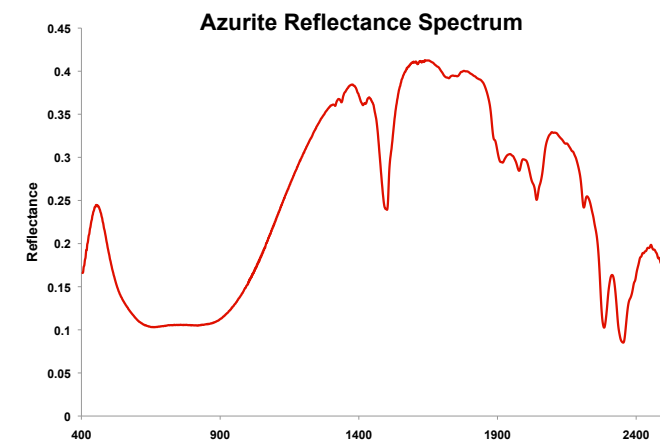
COPPER

Mineable copper deposits, alteration zone mineralogy, diagnostic minerals. Porphyry copper - with alteration minerals: goethite, jarosite, hematite, alunite, muscovite, kaolinite

Leach cap + mica, jarosite, alunite, kaolinite, Potassic, Alunite, Muscovite, Tourmaline

Phyllic: Alunite, kaolinite, jarosite

Uranium Deposits: Uraninite, Chalcopyrite, Pyrite, Chlorite, Sericite, Chlorite, Kaolinite, Dickite



The Navigator displays high resolution reflectance spectra on the tablet display and the probe display for easy viewing. Also shown are the mineral IDs from the on-board HQI mineral matching algorithm. Operators may use the included mineral library, customize to add their own, or export to TSG or SPECMIN for mineral ID.

Portable NIR - beyond the Core Shed

Designed to withstand the rigor of field work. Analyze hand samples, outcrops, core and chips · Instant mineralogy, · Ideal for vectoring to mineralization and assisting in deposit and pit mapping · Identify tracers or indicators to vector to mineral deposits.



Inspector 500

Raman Analyzer - High Selectivity, Handheld Mineral Identification.

Raman spectroscopy is finding increased in the analysis of rocks, minerals and gems. Utilizing a focused laser - approximately 25 μ m in diameter. Ideal for small spot analysis, can average many tests for bulk sample analysis.

RAMAN

- Raman is very sensitive to end-member functional groups like -OH and -CO₂. Especially well-suited to different silicate and carbonate minerals.
- With functional group sensitivity, Raman analyzes minerals blind to NIR, or that NIR cannot distinguish from other minerals.
- Raman also distinguishes different forms of carbon from amorphous, graphitic to diamond.

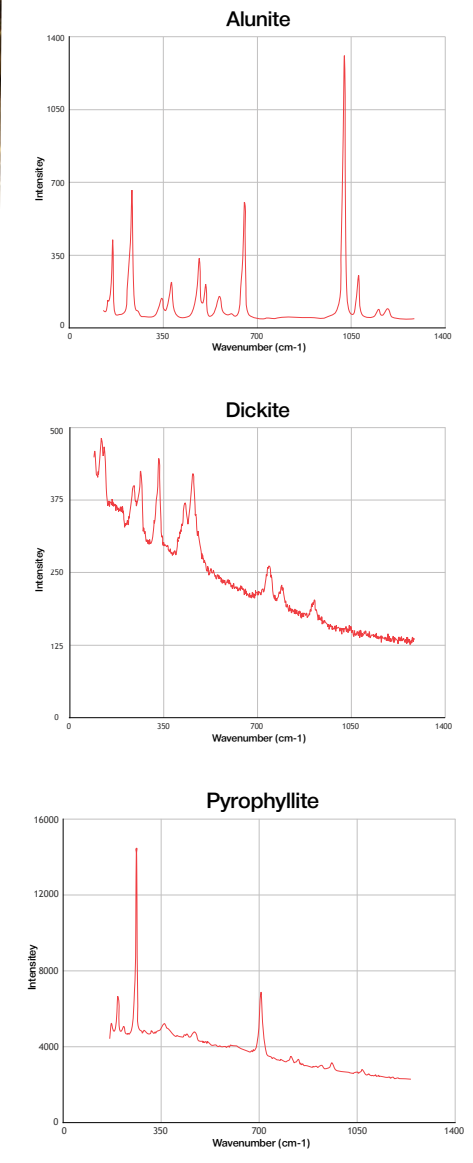


Field Hardened
Inspector 500 is sealed to moisture and dust, and meets IP67 and MilSpec 810g (US) ratings.



Inspector Scope

Viewing and analyzing small veins and inclusions - get mineral ID, in the field.
The Inspector 500 functions as a handheld Raman and docks seamlessly to a microscope and digital camera on an XYZ Stage. It's a powerful analytical tool capable of compound and mineral analysis of micron sized samples, fibers, inclusions, and mineral grains • 100X magnifying power and video for heterogeneous features or small samples • Position laser on target with 25 μ m spot size for fine samples



Raman Selectivity

The minerals alunite, dickite and pyrophyllite are very difficult to distinguish using portable NIR techniques. However with Raman, the peak structures are very unique, making the mineral ID quite easy. Shown are Raman spectra for each mineral taken with the Inspector 500.



Raman vs. NIR

When Raman is Beneficial

- Examine mineral veins, inclusions, or samples where striking a specific, small region is important.
- Analyze minerals that are blind to NIR such as quartz and albite.
- Easily distinguish minerals that have nearly identical NIR patterns.
- Wet samples - Raman is insensitive to moisture, whereas wet samples create a broad absorption at 1450 nm that can hide features in NIR spectra. Raman requires little or no sample prep.
- Analyzing specific forms of carbon from diamond to graphitic to amorphous - preg-gold, gold extraction applications.

250+ MINERAL LIBRARY

The Raman Library
Like the Navigator portable NIR units, the Inspector 500 Raman can be equipped with existing mineral libraries. The operator may create additional libraries at any time as well.