



PRESS RELEASE

Identify and analyze clays in soil with Spectral Evolution's RS-5400, PSR+ and RS-3500 field spectroradiometers

Soil analysis is essential for soil and plant health

Lawrence, MA, May 23, 2019 – Soils are a mixture of clay, organic matter, sand, and silt. Clays play an important role in nutrient availability as they have a large surface area and a negative charge. Plant nutrients typically have a positive charge. The ability to hold and store positively charged ions is called cation exchange capacity (CEC). The more clay in the soil, the higher the CEC. Clay also acts as a binder for soil particles, helping soil to retain moisture and minimize nutrient loss to leaching.

Familiar clay minerals are silicates and include: kaolinite, smectite, illite, and chlorite. An RS-5400, PSR+ or RS-3500 spectroradiometer from Spectral Evolution with EZ-ID sample identification software can be an important tool for identifying clays in soil.

Soil analysis using a full range UV/VIS/NIR Spectral Evolution spectroradiometer with a 350-2500nm spectral range is fast, non-destructive, affordable, and doesn't involve hazardous chemicals. With our handheld sample contact probe, soil spectra can be collected in the field from outcrops or a soil pit. Analysis with EZ-ID sample identification software running on a tablet or laptop matches high resolution target scans against three known sample libraries – the USGS library and the optional SpecMIN and GeoSPEC libraries. A researcher is able to see the absorption features characteristic of clays. For example, kaolinite has doublets at 1350-1450nm and 2100-2250nm. Smectite has pronounced absorptions near 1400, 1900 and 2200nm due to water bound in the interlayer lattices as hydrated cations. Illite has similar features to smectite with the addition of bands at 2340 and 2445nm. Chlorite absorption features at 1400, 1980, 2100, 2240 and 2340nm.

EZ-ID provides a best match based on examining the target spectra and the library spectras. A researcher can add or remove regions of interest to focus on only the prominent features in the spectra for a better identification in clay mixtures.

The PSR + can be combined with a wide range of accessories including a range of FOV options such as direct at 4°, 8°, or 14° lenses, 25° fiber optic, diffuser, or integrating sphere. Fiber mount options include 1, 2, 3, 4, 5, 8, and 10° lenses. The RS-5400 and RS-3500 are fiber mount units. All three spectroradiometers can be used with a sample contact probe, leaf clip, or benchtop probe with sample compactor. Communications interfaces include USB and Class 1 Bluetooth.

For more information, visit:

<https://spectralevolution.com/products/hardware/field-portable-spectroradiometers-for-remote-sensing/>

Or:

<https://spectralevolution.com/applications/remote-sensing/clay-mineralogy/>

About SPECTRAL EVOLUTION

Established in 2004, SPECTRAL EVOLUTION is a leading manufacturer of laboratory and handheld portable spectrometers, spectroradiometers and spectrophotometers. SPECTRAL EVOLUTION spectrometers are used worldwide for many mission-critical lab and field applications in mining, remote sensing, vegetative studies, ground truthing, environmental and climate studies, developing satellite calibrations, and more, due to their reliable, robust, rugged design and user-friendly one-touch features.

SPECTRAL EVOLUTION maintains a facility in Lawrence, Massachusetts which houses design, prototyping, manufacturing and service facilities for the instruments that it markets and sells worldwide, either through direct sales, OEM sales or through distributor agents.

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