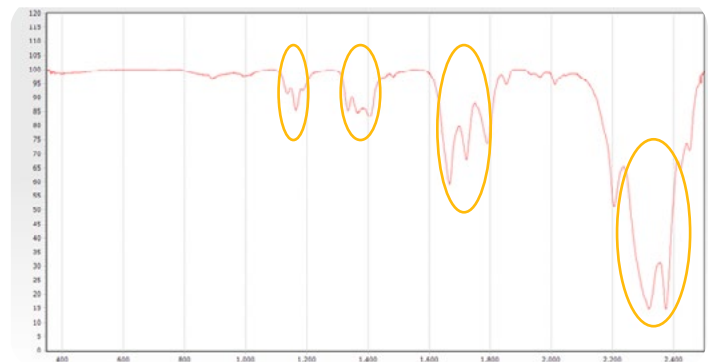




signature defined by reflectance or absorption as a function of wavelength. The spectra of soils that contain methane show characteristic absorption features at 1180nm and 1380nm and from 1680-1720nm and 2300-2450nm. Due to these absorption zones, a full range spectrometer (350-2500nm) is necessary to see the complete picture of your soil contents.



Methane shows absorption features at 1180nm, 1380nm, 1680-1720nm, and 2300-2450nm.

IDENTIFYING

METHANE IN SOIL

WITH AN NIR SPECTROMETER

Methane is a principal greenhouse gas responsible for changes in the environment and the ozone. Emissions of this gas are harmful to plants as it increases surface ozone causing leaves to yellow. Methane found in soil can be an indicator of the presence of hydrocarbons, reservoirs of natural gas, and oil, or leaks and spillage along pipelines and storage facilities. Traditional testing for methane in soil is costly and time-consuming. Field testing provides an opportunity to make assessments in situ ensuring that only the most relevant samples are sent out for further testing - saving both time and money.

NIR reflectance spectroscopy can be used to identify methane in soil. All matter has a unique spectral

Spectral Evolution offers a range of field spectroradiometers that cover the full spectral range in rugged, lightweight units with no moving optical components for reliable field operation. Different algorithms, modeling, and chemometric techniques can be used to manipulate the spectral data using our data acquisition software, DARWin™ SP. For easy and instant mineral identification, the EZ-ID™ add-on compares your target spectra against spectral libraries of known samples. In addition, the Custom Library Builder module allows you to create your own spectral library from field samples that pertain directly to your site, studies, or application.

INSTRUMENTS & ACCESSORIES

Spectral Evolution offers a variety of portable UV/VIS/NIR spectroradiometers and accessories to aid in your soil research. Each of our NIST-traceable calibrated instruments measure the full spectral range (350-2500nm) with just one scan. They are specifically optimized for use in the field with a rugged, all photodiode array platform & no moving gratings. Our fiber optics are detachable & field-replaceable, so you'll never get stuck on-site with a broken fiber. All Spectral Evolution instruments come with DARWin™ SP data acquisition software to collect critical data & save it in ASCII format - no post-processing necessary. DARWin is available with the EZ-ID™ add-on, which includes sample libraries from the USGS, SPECMIN, and GeoSPEC™ for instant & accurate identification.



RS-3500

- Tried and true full-range model
- Standard spectral resolution
- Lightweight and portable for field research



PSR+

- Lightest, most portable full-range instrument
- Internal memory & onboard controls - no PC needed for operation
- Use in "handheld" mode with battery that slots into device and option to attach lens instead of fiber optic
- Tripod mountable for repeatable data collection



NaturaSpec™

- Best signal to noise compromise in a field instrument
- High resolution & sensitivity
- Better quality data - especially from dark samples



SR-6500

- Highest-resolution portable field spectroradiometer on the market
- Better ability to quantify contaminants or nutrients at a lower detection level
- More easily identify minerals within mixtures



RS-8800

- Built-in computer with IoT operating system to control instrument with smartphone
- See field of view in real-time & record essential metadata with exclusive accessory Sensaprobe™



ILM-550

- Illuminates large spot size for standoff measurements
- Aluminum reflector for bright, uniform illumination across the entire spectral range
- Includes two tungsten-halogen bulbs for diffuse or spot illumination mode
- Easily mounted on lab benches, optical tables, or tripod for repeatable data collection



Rugged Handheld Tablet

- Real-time, wireless instrument control
- Instantly view scans & match soil components *in situ* with DARWin LT and EZ-ID
- 8", sunlight readable touchscreen
- Built-in GPS, camera, and microphone to collect & organize essential field data



Pistol Grip

- Ergonomic handle with external trigger holds fiber optic in place for precise standoff measurements
- Reinforced tripod mount for hands-free, repeatable operation
- Picatinny rail to mount optional scopes & laser sights for enhanced targeting accuracy



Benchtop Probe w/Compactor

- Ideal for loose samples such as soil, crushed stone, or powders
- Optional compactor for consistent sample preparation
- Hands-free measurement
- SMA-905 fiber optic connection
- Built-in tungsten halogen bulb
- Durable sapphire window



Contact Probes

- Ergonomic design with external trigger for quick contact measurements
- Built-in illumination for great signal to noise across the full spectral range
- Available in 10mm or 3mm spot sizes for flexible targeting
- Scratch-resistant sapphire window

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