

## Advanced Geological Analysis

The reflectance of vitrinite macerals is the most common indicator of organic maturation used by the energy industries. As the organic maturation, or rank, increases, the vitrinite changes and becomes more reflective. The reflectivity of vitrinite is in direct proportion to its rank and the amount of energy it can supply. This has been extensively modeled and test protocols have been developed both by ISO and ASTM.

The **508 Coal™** system was designed to measure vitrinite reflectance accurately, rapidly, and non-destructively. The 508 Coal™ system combines research quality petrographic microscopes with microspectrophotometers and a software package written specifically for petrographic analysis.

The 508 Coal™ system makes measurements per the ISO 7404-5 and ASTM D2798 standard test methods and presents the results in an industry standard format including histograms. The system can even be automated with the inclusion of a programmable stages and point counting.

The 508 Coal™ can also do much more. The 508 Coal™ can measure UV-visible-NIR range transmission, reflectance and even fluorescence microspectra of sub-micron samples. It can also do high resolution color imaging and sophisticated image analysis. The 508 Coal™ not only accomplishes today's standard tests but is future-proofed for tomorrow's new protocols.

SPECIFICATIONS	
Types of Measurements	Microphotometry (Vitrinite Reflectance) - Random and Mean-Max <sup>1</sup> Transmission vis-NIR Microspectroscopy <sup>1</sup> Reflectance vis-NIR Microspectroscopy <sup>1</sup> Fluorescence vis-NIR Microspectroscopy <sup>1</sup>
Spectral Range	546 nm for Vitrinite Reflectance per ASTM D2798 and ISO 7404/5 standards 350-1,000 nm for other Microspectroscopy <sup>2</sup>
Detector	High Sensitivity Scientific Grade CCD (16-bit ADC)
Accuracy	±0.1% R <sub>o</sub> (546) in 0-5 %R <sub>o</sub> range
Reproducibility	σ < 0.02% R <sub>o</sub> (546) in 0-5 %R <sub>o</sub> range
Sampling Area Size	7-position Aperture System for sampling apertures from 100x100 μm to 1.25x1.25 μm 5x5 μm with 50X/0.9 Oil POL objective
Operating System	64-bit Microsoft Windows

<sup>1</sup>Requires suitably equipped microscope  
<sup>2</sup>Spectral range dependent on microscope optics and light source(s)