



# Source Rock Analyzer

The Source Rock Analyzer (SRA) is the lab-based geochemical pyrolysis instrument that is stable and rugged enough for wellsite applications. Geochemical logging of active or previously drilled wells can aid in the determination of pay zones, identify the source rock and its maturity, and estimate the dead oil content from the cuttings for reservoir identification and thickness. In conventional or unconventional reservoirs, particularly those with long horizontal legs, the pay zones can be assessed in terms of hydrocarbon type and physical characteristics. Thus the instrument can provide near-real-time information that addresses reservoir properties and provides information on the most appropriate intervals to stimulate and complete, all of which can and will have a dramatic impact on drilling operations and production on a per well basis.

## Applications

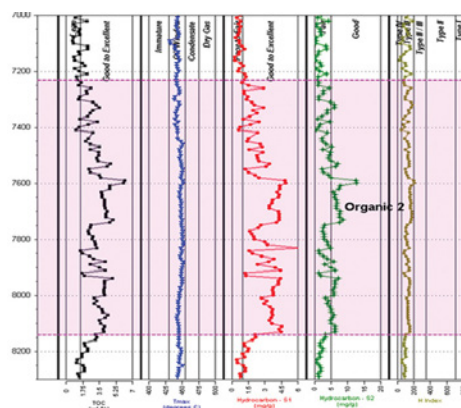
- In all environments, accesses source rock richness and remaining potential, determines source rock maturity and kerogen type, analyzes well cuttings outside of the target zone to identify bypassed play, determines kinetic parameters of immature source rocks, and estimates the amount of oil residing in the reservoir.
- On shale plays and tight sands, optimizes hydraulic fracture placement by pinpointing the location of oil. Saves money by identifying optimal zones for fracturing.
- In the heavy oil column (highest API gravity), identifies sweet spots to determine the best location.
- Identifies deepwater asphaltene zones that can damage equipment and result in significant lost time and related costs.

## Features, Advantages, and Benefits

- Less maintenance is required because of the simple, rugged design, which is stable enough for use at the wellsite under challenging conditions.
- The precise thermocouple placement and highly stable oven temperature assure high confidence in the data.
- The SRA unit is designed by the world's largest commercial geochemical laboratory that understands the uses and importance of pyrolysis data.



The SRA delivers accurate source and reservoir rock data in the lab and at the wellsite.

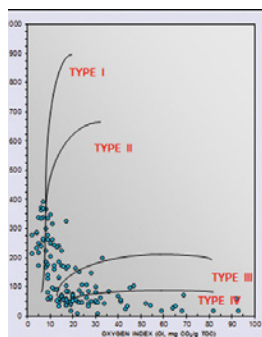


Geochemical logs enable valid decisions for drilling and production.

## Source Rock Analyzer

### Measured Parameters

- $S_1$  – Dead oil content at 572°F (300°C)
- $S_2$  – Remaining source potential (kerogen content)
- $S_3$  – Estimate of the amount of organic  $CO_2$  produced during pyrolysis of kerogen
- Tmax – Temperature of maximum hydrocarbon generation; may be converted to a vitrinite reflectance estimation if  $S_2$  peak is well defined
- TOC – Total organic carbon



Modified van Krevelin:  
Calculated parameters include production index (PI), pseudo van Krevelin HI/OI,  $S_1$ /TOC (oil and contaminating indicator), and carbonate content.

### Specifications

#### Mechanical

Dimensions (in., cm)	17 × 20 × 21 43.2 × 50.8 × 53.3
Weight (lb, kg)	50 22.6
Sample size	100 mg (1-g raw sample)

#### Electrical

Supply voltage	100/130 VAC @ 15 A-60 Hz or 200/240 VAC @ 8 A-50 Hz
Temperature range (°F, °C)	122° to 1,562° 50° to 850°
Cycle time	30 min per sample

#### General

Helium	GC analytical grade, 99.9995% purity
Hydrogen	GC analytical grade, 99.9995% purity
Air	GC analytical grade, zero-grade free or better purity
Cycle time	25 min
Units	$S_1$ and $S_2$ : mg of HC/g of rock Tmax: °C TOC: %
Detector types	FID for hydrocarbon detection CO IR and $CO_2$ IR cells
Pyrolysis temperatures (°F, °C)	212 to 1,112 @ 25 or 167/min 300 to 600 @ 25 or 75/min
Sample grain size	<100 $\mu$ m
External computer	Pentium® processor-based system with Windows® operating system

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