

# Measurement of organic porosity for shale sample

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## Abstract

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## Protocol

### Step 1.

Measure the transformation ratios of hydrocarbon generated from organic matter with the increasing of temperature using low mature shale sample.

### Step 2.

Measure the bulk density of the shale sample  $\rho_b$  (cm<sup>3</sup>/g).

### Step 3.

Measure the bulk density of the kerogen  $\rho_{\text{kerogen}}$  (cm<sup>3</sup>/g).

### Step 4.

Calculate the transformation ratios  $F(R_o)$  (%) of hydrocarbon generated from organic matter of the shale sample by combining the burial and thermal history.

### Step 5.

Restore original hydrogen index  $I_{H0}$  and original total organic carbon  $w(\text{TOC}_0)$  (%) of the shale sample.

### Step 6.

Analyze the organic pore correction coefficient  $C$  of the shale sample.

### Step 7.

Calculate the organic porosity  $\Phi_{\text{organic}}$  (%) of the shale sample using the following formula:  $\Phi_{\text{organic}} = w(\text{TOC}_0) \cdot I_{H0} \cdot F(R_o) \cdot (\rho_b / \rho_{\text{kerogen}}) \cdot C / 1000$