

Electrical Properties System

Archie's Coefficient Determination

Resistivity Index is an electrical property of rock that is the ratio of rock resistivity when it is partially saturated with water to that when it is fully saturated with water. Utilizing Archie's Famous saturation of rock, through saturation exponent, in situ water saturation can be calculated. Therefore, based on the material balance equation (i.e. $S_o + S_g + S_w = 1$), hydrocarbon in place can also be determined.



Experiment Description

Two conductive pads are used for measuring the resistivity of both sides of the sample at fully and partially water saturated conditions. Based on the amount of saturation and resistivity index, Archie's coefficients can be calculated. Measuring is performed at ambient pressure and temperature conditions.

Specification	EPS -BR01	EPS -PR01	EPS -PS01
Resistivity Measurement Method	2 Electrodes	4 Electrodes	4 Electrodes
Resistivity Accuracy	0.5% F.S.	0.1% F.S.	0.05% F.S.
Rock Electrical Properties Measurement Frequency	1 KHz	50 Hz 1000Hz 10 KHz	Various Range of Frequencies
Working Temperature	Ambient	Ambient	up to 90 °C
Working Pressure	Atmospheric	6 bar	6 bar
Core Length	1" and 1.5"	1" and 1.5"	1.5"
Core Diameter: up to 4"	✓	✓	✓
Input Power Supply: 220 VAC, 50Hz	✓	✓	✓
Computer System	✗	✓	✓
Automatic Data Acquisition and Monitoring System	✗	✓	✓
Overburden Pressure: up to 6000 Psi	✗	✗	✓
Core Holder Designed for Overburden Pressure	✗	✗	✓
Fast Measurement System	✗	✗	✓

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