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| **STANDARD OPERATING PROCEDURE** | | | |
| **LAB NAME** | Drilling Fluids and Cementing | **LAB NUMBER:** | 104 |
| **EQUIPMENT NAME:** | pH Meter | **PREPARED BY:** | Mobeen Murtaza |

1. **EQUIPMENT SPECIFICATION**

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| **Model** | **Electrical** | **Specifications** |  |
| **# HI5522** | 12 VDC | -2.0 to 20.0 pH; automatic or manual from -20.0 to 120.0 °C |

**Definition:** The Digital Resistivity Meter accurately measures the resistivity of fluids, slurries, and semisolids

1. **OPERATION**

* Before use, ensure that the meter is being calibrated, to obtain more accurate measurements (see operational manual.
* Press the On/Off Key to switch on the meter, which will automatically enter into pH mode.
* Submerge the pH electrode and the temperature probe into the sample to be tested and keep them close together, if automatic temperature compensation is desired.
* Disconnect the temperature probe from the meter if manual temperature compensation is desired whenever the temperature of the sample to be tested is already known.
* Shake the sample briefly and wait for reading to stabilize before taking the reading.
* Read off the displayed stable pH reading compensated for temperature.
* Rinse off the pH electrode with some solution from the next sample if more than one sample is to be successively tested.

1. **RISKS INVOLVED USING THE EQUIPMENT**

* There is no such risk involved in this equipment.

1. **SAFETY PRECAUTIONS**

* Always keep the pH electrode wet and rinse it thoroughly with the sample to be measured before use.
* In order to measure the pH accurately, the temperature factor must always be taken into consideration.
* If the sample temperature is quite different from the temperature at which the pH electrode is kept, allow a few minutes for thermal equilibrium to take place.
* When performing a two-point calibration, use pH 7.01 and pH 4.01 when measuring acidic samples and pH 7.01 and pH 10.01 for alkaline measurements. This provides more accurate readings to be taken.
* Do not be alarmed when salt deposits are present on the electrode since these normally form and can easily be rinsed off with water.
* If any air bubbles form inside the glass bulb, “shake it down” firmly to remove them.
* Always store the electrode in its appropriate storage solution and never store it in distilled or deionised water.
* Avoid high humidity environments and static discharges since these are detrimental for a stable pH reading.