



DRILLING FLUIDS EQUIPMENT

For over 30 years OFI Testing Equipment (OFITE) has provided instruments and reagents for testing drilling fluids, well cements, completion fluids, and wastewater. In addition to these product lines we also offer a range of instruments for core analysis. From our manufacturing facility in Houston, TX we provide customers all over the world with quality products and exceptional service.

Our drilling fluids product line includes innovative designs such as the Model 900 Viscometer, which showcases our ability to develop new technology to meet customer and industry demands. We also offer Retorts, Aging Cells, Roller Ovens, Mud Balances, Filter Presses, and all other instruments required to evaluate drilling fluid properties according to API Recommended Practice 13B-1 and 13B-2.

As an independent manufacturer and supplier, OFITE has one priority, our customers.

Emulsion Stability Tester

The Electrical Stability (ES) of an oil-based drilling fluid is a property related to its emulsion stability and oil wetting ability. The OFITE Emulsion Stability Tester determines ES by applying a precision voltage-ramped sinusoidal signal across a pair of parallel flat plate electrodes that are immersed in the fluid.



Features

- API recommended sinewave circuitry
- Symmetry of the sinusoidal signal inhibits the buildup of solids on the electrode faces and enhances reproducibility.
- Push button automatic voltage ramping at a fixed ramp rate
- Includes meter, probe electrode, calibration standards, and four 9-volt alkaline batteries





Technical Specifications and Requirements

- #131-50 Emulsion Stability Tester

Meter Specifications

- Wave form: Sine, < 5% total harmonic distortion
- AC Frequency: 340 ± 10 Hz
- Output Units: Peak Volts
- Ramp Rate: 150 ± 10 Volts per second, automatic operation
- Minimum Output Range: 3 - 2,000 Volts (Peak)
- Trip Current: 61 ± 5 μ A
- Size: 9.5" \times 6.5" \times 3.5" (24.1 \times 16.5 \times 8.9 cm)
- Weight: 2 lb 15 oz (1.3 kg)
- Shipping Size: 11" \times 11" \times 7" (28 \times 28 \times 18 cm)
- Shipping Weight: 10 lb (4.54 kg)

Electrode Specifications

- Housing: Material resistant to oil mud components up to 220°F (105°C)
- Material: Corrosion-resistant metal
- Diameter: $0.125" \pm 0.001"$ (3.18 ± 0.03 mm)
- Spacing (gap): $0.061" \pm 0.001"$ (1.55 ± 0.03 mm) at 72°F (22°C)

Optional

- 154-01 Thermometer, 5" Stem, Metal Dial, 0° - 220°F (-10° - 100°C)
- 154-22 Thermometer, Pocket, 5" Stem, 1" Dial, 0° - 220°F
- 131-50-SP Spare Parts Kit for Emulsion Stability Tester (#131-50)
- 131-01 Probe for ES Meter
- 147-02 Battery, 9 Volt, Alkaline

Intro

The OFITE Electrical Stability Meter (ES) is a sine wave instrument. It is manufactured in accordance with the American Petroleum Institute (API) "Recommended Practice Standard Procedure for Field Testing Oil-Based Drilling Fluids", 13B-2. It is accurate, compact, and portable and is intended for routine field and laboratory use to measure the relative electrical strength of drilling fluids having a continuous oil phase.

The ES Meter is self contained and consists of a meter and probe, and it operates on four 9 volt alkaline batteries which are readily obtainable. Two calibration standards (high and low) are included with each unit to ensure accuracy.

Description

The dielectric breakdown voltage is the point at which the drilling fluid becomes electrically conductive. The DC power source of the batteries provides an AC voltage to the electrodes at a low frequency. The unit provides a constant rate of voltage increase until the emulsion becomes electrically conductive. A current flow of 61 micro amps (61 mA) across the electrodes will cause the display to stop and the reading will be held as long as the switch is depressed. The reading is called the electrical stability, emulsion stability or ES value of the fluid.

The electrical stability value will decrease with increasing testing temperature. The recommended API test temperature is $120^{\circ}\text{F} \pm 5^{\circ}$ ($49^{\circ}\text{C} \pm 3^{\circ}$).

The chemical composition and the shear history of a drilling fluid control the absolute magnitude of the ES in a complex fashion. Therefore, interpreting the oil-wet state of a mud from a single ES measurement is not appropriate. Only trends in ES should be used in making treatment decisions.

Components

- #131-01 Probe with Cable
- #131-51 High/Low Calibration Standard
- #147-02 9-Volt Alkaline Battery

Optional:

- #110-10 Marsh Funnel Viscometer or 12 mesh screen
- #130-38 Thermocup, 115 Volt
- #130-38-1 Thermocup, 230 Volt
- #154-01 Dual-Scale Thermometer with Metal Dial; 5" Stem; 0 - 220°F; -10 - 100°C
- #154-22 Pocket Thermometer; 1"; 0-220°F

#131-50-SP: Spare Parts for #131-50:

- #131-01 Probe with Cable
- #147-02 9-Volt Alkaline Battery; Qty: 8

Specifications

Meter:

Wave form:	Sine, < 5% total harmonic distortion
AC Frequency:	340 ± 10 Hz
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Ramp Rate:	150 ± 10 Volts per second, automatic operation
Minimum Output Range:	3 - 2,000 Volts (Peak)
Trip Current:	61 ± 5 mA
Size:	9.5" × 6.5" × 3.5" (24.1 × 16.5 × 8.9 cm)
Weight:	2 lbs. 15 oz. (1.3 kg)
Shipping Size:	11" × 11" × 7" (28 × 28 × 18 cm)
Shipping Weight:	10 lbs. (4.54 kg)

Electrode:

Housing:	Material resistant to oil mud components up to 220°F (105°C)
Material:	Corrosion-resistant metal
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The probe, standards, and batteries are stored inside the ES Meter case. Twist the lock to open the door and access these items.