

## Capillary Suction Timer Model 441



### Description

The Model 440 Capillary Suction Timer (CST) measures the filtration rate. This instrument consists of a digital timer, sample cell, test head assembly with funnel, 9 VDC battery, 115 VAC battery eliminator, and filter paper.

Water in aqueous samples passes through the filter paper by capillary suction. The capillary suction time is the time that it takes for the sample to travel between two electrodes. The filtration rate is dependent upon particle size, solids content, and settling rates of flocculated particles. This instrument is useful in these applications:

- Drilling Fluids
- Waste Disposal
- Geotechnical
- Soil and Bentonite Liners
- Slurry Trench Fluids

### Drilling Fluids Application

The Capillary Suction Timer measures the hydrating and dispersion properties of shales by simulating the shear and chemical forces present during drilling. For this test, the shale-solids content and mixing time are held constant, while the chemical characteristics, such as pH and salinity are varied.

The test results show the inhibitive effects of various salts and their concentrations on the dispersion of shale. Results can be graphed as time versus fluid type.

Capillary suction time is an indication of cake permeability. Highly dispersed particles give low cake permeability and high capillary suction time. Flocculated particles give high cake permeability and low capillary suction time. This time depends on solids type, slurry content, degree of mixing, pH, salinity, characteristics and concentration of the deflocculant and polymer.

## Waste Water Treatment Application

Flocculants are often used to clarify waste water. The Capillary Suction Timer is useful for comparing flocculants by studying sedimentation rate versus flocculant quantity or type. Progressively greater capillary suction times correlate to rapid sedimentation.

The physical nature of the sediment also affects capillary suction time. For instance, comparative analyses of two flocculants may indicate identical sedimentation rates using normal methods. However, if one of those flocculants has a higher capillary suction time, this information can provide insight about the volume, compactness, and water retention of the sediment.

### Shale Test Equipment

Drilling problems, such as stuck pipe, tight hole, washout, and sloughing are related to shale stability. Shales that cause these problems can be analyzed with these instruments:

- Capillary Suction Timer
- Linear Swell Meter



Model 2100 Linear Swell Meter

Contact Fann for additional information about the Linear Swell Meter.

## Ordering Information

### Part No. 103115155 - Capillary Suction Timer

Items included:

- Part No. 206059 - Test Blotter Paper, 100/box
- Part No. 209710 - Funnel, Stainless Steel
- Part No. 205235 - Syringe, 5 ml, disposable
- Part No. 205643 - Battery, 9 VDC
- Part No. 209998 - Battery Eliminator, 115 VAC

*Fann Instrument Company offers a complete line of fluid testing equipment for all types of drilling fluids and slurries in accordance with API Recommended Practices.*