

Millikan Oil Drop Apparatus MOD-3030



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Analytical Technologies Limited

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►► Characteristics

- Improved Oil Drop Injection for Easier Capture
- Built-In Video Camera and Included Monitor for Better Results
- Compact Unit - No Setup Needed

This compact Millikan Oil Drop Apparatus has been upgraded for increased performance and convenience, and includes a permanently installed video camera on the observing microscope, digital readouts for the capacitor voltage and timer, and an 8" monitor for observation and control. The unit comes in a sturdy metal case, and includes silicone oil, an atomizer, a dropper for filling the oil, and a full operator's manual.

The measuring chamber arrangement consists of the capacitor chamber with a double illuminator and observation hole built into the side wall, and two outer acrylic chambers (see schematic). A cloud of oil drops from the atomizer is sprayed directly into the upper chamber where the turbulence is allowed to die out. A metal shutter is now opened to permit a small stream of drops to fall into the lower settling chamber and draft shield. A smaller selection of the drops falls through a small hole into the measuring chamber. This arrangement reliably produces a stream of charged droplets moving smoothly down the axis of the capacitor.

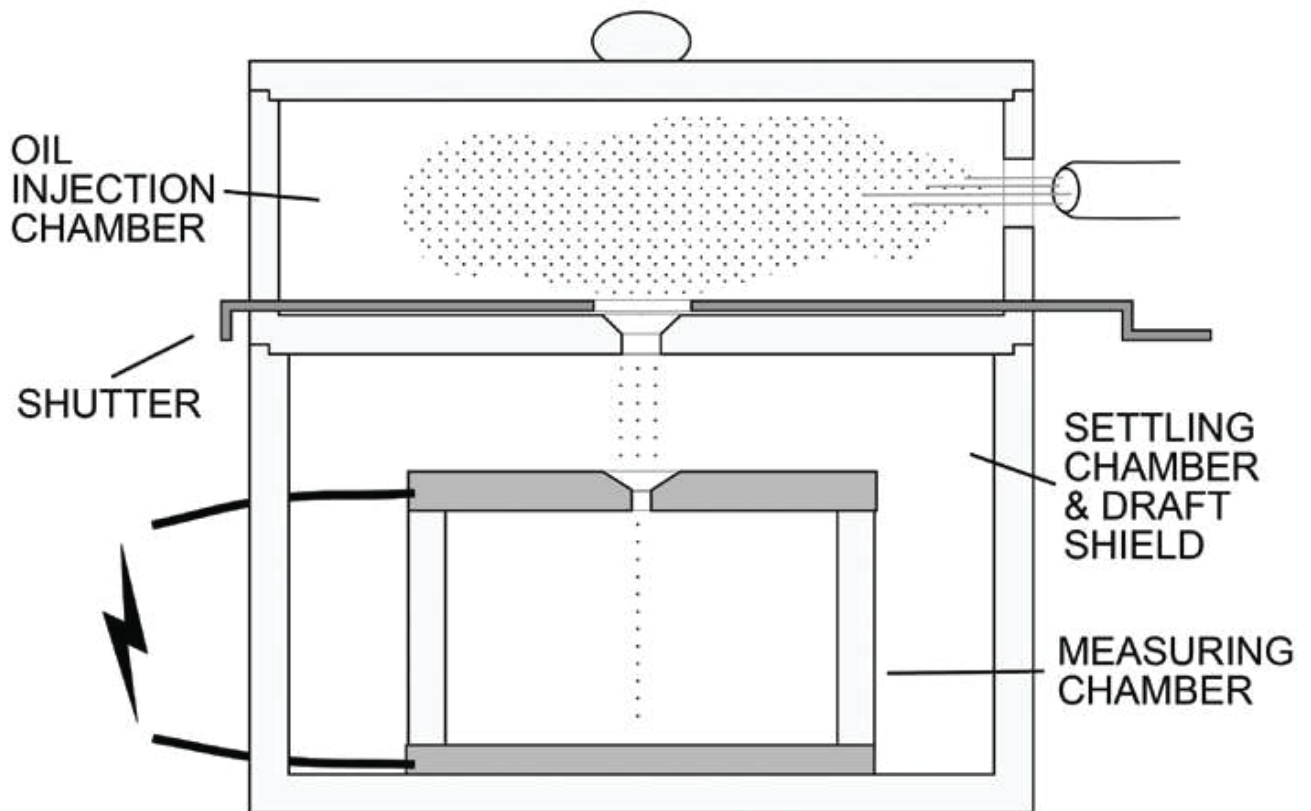
The charged drops' accurate location and the light color of the silicone oil make the drops easy to locate and capture - alleviates a common problem with many Millikan apparatus designs. Oil drops generally carry fewer electronic charges than the latex spheres sometimes used. This makes the analysis histogram easier to interpret.

The microscope and camera arrangement are designed for precise measurement and ease of use. The combined drop observation system is calibrated so that one division on the grid displayed on the computer monitor corresponds to 1mm at the focus of the microscope. The illuminator consists of two bright red LEDs whose reflected light is readily detected by the camera. The resolution of the system is sufficient that the slight Brownian motion of the falling drops is readily observable.

The measuring system consists of a high voltage power supply controlled by a potentiometer and pushbutton reversing switch as well as a timer. Measurements can be made using either the balancing technique or the rise time/fall time technique.



View of screen showing plotted oil drops.



Schematic of Millikan Oil Drop Apparatus.

►► Specifications

Measuring chamber:	Diameter: 32mm
	Plate separation: 5.00mm
Balancing voltage:	0 - 370V
Case (includes lid):	27cm x 20cm x 18cm
Weight:	4.4 kg

►► Regulatory compliances



►► Corporate Social Responsibility

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