

Product Name :
Capillary Tube Viscosimeter

Product Code :
NLAB-TECHNICALAB30005



Description :

Capillary Tube Viscosimeter

Technical Specification :

The Capillary Tube Viscosimeter apparatus allows Poiseuille flows to be investigated and enables precise measurements to be made of the dynamic viscosities of liquids maintained at constant temperature, using the readings of a single pressure and a recorded time interval.

The liquid whose flow characteristics are to be investigated is placed in a removable thermostatically controlled vessel which may be pressurised. The vessel supplies a capillary tube which is also thermostatically controlled and interchangeable. The level of pressurisation of the vessel and the temperature of the liquid can be continuously varied as required ; the liquid is continuously stirred to ensure that its temperature is uniform.

Teaching objectives

From the measurement of flow rate and of loss of head along the capillary tube, the following may be investigated using the viscometer :

Poiseuille flow of a liquid of known viscosity.

Measurement of the dynamic viscosity of a liquid and its variation with temperature.

Shear stresses in viscous liquids and friction forces in laminar flow in tubes.

Precise determination of the diameter of a capillary tube.

Technical specifications

The following instrumentation is provided with the apparatus :

A mercury manometer.

A thermometer.

A stopwatch for flow rate determination with a measuring cylinder.

A thermostatically controlled vessel.

A magnetic stirrer.

Capillary tube diameters : 0.2 and 0.4 mm.

Temperature range : ambient to 80°C to 0.5°C.

Pressure range : 0 – 100 cm Hg.

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