

FIRP LABORATORY

FORMULATION, INTERFACES, RHEOLOGY & PROCESSES

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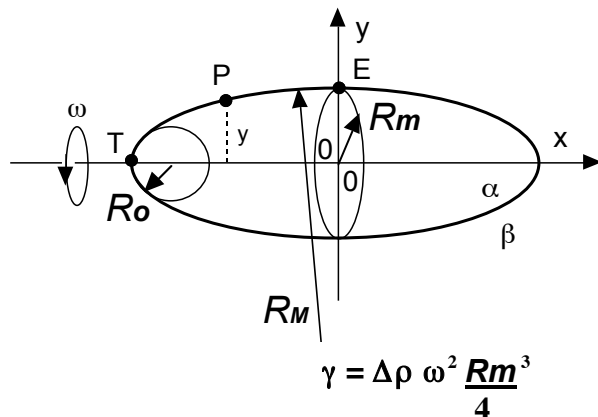
Spinning Drop Tensiometer commercial model TGG-110-M3

The spinning drop tensiometer allows the measurement of low interfacial tensions (below 0.1 mN/m) as well as ultralow tensions (typically down to 0.001 mN/m and even lower).

The spinning drop technique exhibits several advantages over other methods such as pendant drop or sessile drop techniques:

First it is the unique method in which the drop does not contact a solid. Hence no contact angle has to be estimated.

Next, it is quite easy to use the method in the conditions of Vonegut's approximation when the drop is elongated at least 4 times its diameter. The tension is estimated from the measurement of the drop diameter, with no curvature to evaluate.



$$\gamma = \Delta \rho \omega^2 \frac{R_m^3}{4}$$

Geometry of spinning drop



Model TGG-110-M3

Version # E3 .0 (March 2008)

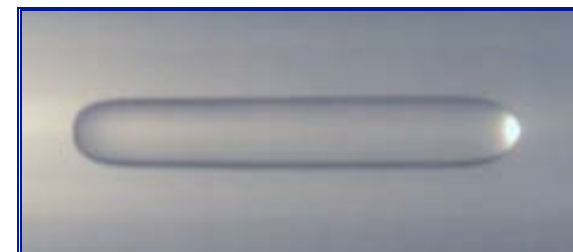


Technical Specifications:

- Rotational velocity 500 to 10,000 rpm.
- Low noise level, even at 10,000 rpm.
- Velocity adjustment with push-buttons.
- Steady and stroboscopic light illumination.
- Vertical/horizontal motion of telemicroscope.
- Visual and CCD drop observation
- Direct USB link to a Wintel PC
- Software for image capture and processing
- Drop diameter Measurement ± 0.01 mm.
- Tension Measurement down to 0.001 mN/m
- Temperature Control up to 70 °C



Tensiometer and PC setting



Drop Image Capture through CCD

This tensiometer was developed in Mérida as a collaboration between two Universidad de Los Andes facilities: The laboratory for Formulation, Interfaces, Rheology and Processes (FIRP) and the Center for Technological Innovation (CITEC).

CITEC is currently manufacturing short series of model TGG110-M3 tensiometers with stroboscopic light, CCD camera and temperature control. FIRP Lab. takes care of the training of operators as well as scientific and technical issues.

Model TGG-110-M3 spinning drop tensiometer is currently available to the venezuelan market.

INFORMATION AND CONTACTS

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* Do not dial (0) if calling from abroad