

## Applications of the FTÅ200 Dynamic Contact Angle Analyzer

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The FTÅ200 is optimized for scientific research and engineering process development. Consider the FTÅ125 and 150 for Quality Assurance applications where simplified operation and lower cost are desired. Some of the capabilities listed below require optional hardware or software.

### Contact Angle (on sessile drops and bubbles)

#### Cleanliness

- silicon wafers
- hard disk platters
- detection of hydrocarbons on surfaces

#### Surface Treatment

- plasma treatments to increase wettability on polymers
- oxidation of silicon wafers
- surfaces prepared for soldering and solder flux efficacy
- metal treatments preparatory to painting
- verification of polymer coatings

#### Wettability

- hydrophobic and hydrophilic determination
- biological materials compatibility
- paint and adhesive application

#### Fundamental Characterization

- contact angle measurements for surface energy calculation

### Surface Tension (on both pendant and sessile drops and bubbles)

#### Fundamental Characterization of Fluids

- polymers and other materials which melt above room temperature
- solders and effect of fluxes
- ink formulation
- paint formulation
- pharmaceuticals
- anywhere limited quantities ( $\approx 10\mu\text{l}$ ) of fluid available

#### Purity

- detection of trace organic impurities

#### Surfactant Dynamics

- diffusion rates and critical micelle determination

#### Biological Studies

- behavior and detection of proteins

#### Surface Tension vs. Concentration vs. Time

- to validate theoretical models of surfactant behavior

#### Surface Stress Measurements

- dynamic change in surface tension with change in drop surface area
- alternative to bubble pressure measurements with pharmaceuticals

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### Capillary Rise and Shape (for contact angle determination)

Contact Angle Determination on Fibers, etc.

small fibers, diameters in the 10 $\mu$ m range possible with high-mag optics

Contact Angle Determination on Unusual Shapes

adhesive studies where complete droplet not available

absorption studies on complex surfaces

wherever test fluid contacts a wall or vertical surface

### Absorption and Spreading

Paper and Fabric Design

sizing studies

ink and water penetration

Ink and Coatings Formulation

dynamics of spreading

wear studies on fluid ejectors

Powder Characterization

wettability and coatings studies

colloid formulations

Cleanliness Characterization

effectiveness of aggressive solvents such as acetone on surfaces

### Surface Energy

Conversion of Contact Angle Data to Surface Energies

detailed study of chemical bonding

sensitive detection of contaminants and trace coatings

material characterization independent of a specific test fluid

Estimation of Contact Angles from Surface Energy/Surface Tension Data

polymer studies

3-D Mapping (topographic plots of spatial surface energy variations)

visualization of patterns of surface energy on samples

### Movies of Microscopic Phenomena

Absorption on Complex Surfaces and Fabrics

qualitative studies of dynamic fluid/surface interactions

absorbant materials: diapers, sanitary napkins, oil absorbers, etc.

Industrial Process Studies

coating and cleaning processes

### Viscosity

Measurement on Small Volumes ( $\approx$ 100 $\mu$ l)

pharmaceuticals, biological studies