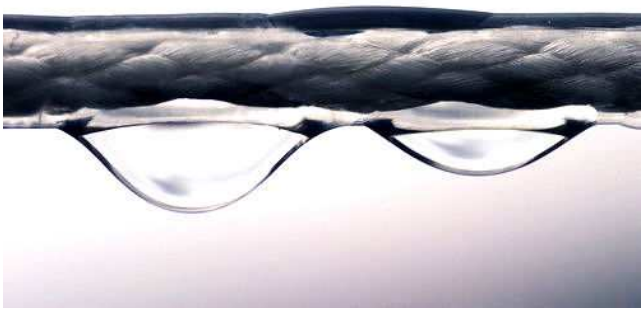
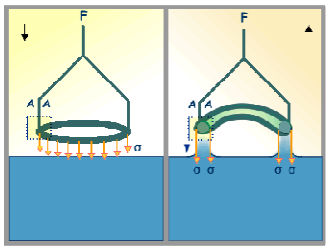
Surface Tension

Material Flow Solutions, Inc.



Surface Tension. Surface characteristics of particles dictate the magnitude of inter-particle forces between adjacent particles. These adhesive bonds between particles result in bulk cohesion. Liquid bonds between particles can cause significant forces to hold particles together, resulting in a material that will arch over outlets and form stable ratholes in process equipment. Generally, the surface tension of a liquid decreases as temperature increases. This is due to loss of cohesive forces as molecules vibrate at faster frequencies at elevated temperatures. We have developed models relating inter-particle forces to cohesive behavior and can use these to estimate the cohesion in your process during the product design phase of the project. This provides you with a shorter path to market and allows more robust design of processes with limited bulk property information.



At Material Flow Solutions, we measure surface tension of liquid using a Dunoy ring. The Dunoy ring is placed in the fluid and slowly raised. The force required to pull the ring from the liquid surface is used to compute the surface tension of the liquid.

PRACTICAL APPLICATIONS of ***surface tension*** data include, but are not limited to:

- Segregation prevention
- Process design during formulation development
- Hang-up prevention
- Process control
- Risk analysis
- Flow rate prediction
- Blending analysis
- Drying efficiencies

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