Contact Angle

Material Flow Solutions, Inc.

Measuring the Contact Angle. Bulk powders consist of particles which possess hydrophilic or hydrophobic properties. These surface properties control the adhesive forces between particles in moist environments. We have found that a hydrophobic surface with large particles causes a decrease in bulk strength as moisture increases in the bulk material. A hydrophobic surface with large particles causes an increase in strength with water content. However, smaller hydrophobic particles exhibit greater strength with moisture addition. As a result of this research, we have developed mathematical models that relate the inter-particle forces found in a bulk material to the bulk cohesive strength.

The ***contact angle*** is an important parameter that helps predict the bulk cohesive effects in powder mixtures. At Material Flow Solutions, Inc. we measure contact angle using state-of-the-art optical apparatus.

PRACTICAL APPLICATIONS of ***contact angle*** measurements include, but are not limited to:

- Prediction of bulk flow behavior
- Scale up of flow behavior problem to real processes
- Surface self cleaning

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