



IFPRI Review Brief

Particle Shape Determination, Description, and Exploitation

The International Fine Particle Research Institute wishes to commission a comprehensive critical literature review of recent developments in the characterization of particle shape and exploitation of particle shape descriptors in understanding macroscopic behavior of particle systems.

IFPRI commissioned reviews in this subject in 2003 and 2005 (attached), so this review should focus on advances in shape characterization over the past decade. It should discuss measurement of shape and shape distribution in dry powders, suspensions, and colloids and the validation of these measurements. What methods have been developed *beyond* basic manual optical microscopy? What methods are applicable for low contrast particles and particles smaller than 5 microns? What hybrid methods have been developed that combine different measurement principles, e.g., sedimentation plus light scattering? What methods are applicable for colloidal particles?

The review should also discuss recent developments in the description of particle shape. What descriptors *beyond* equivalent diameters and ISO standards (e.g., ISO 9276-6) have proven useful? How have shape descriptors been used in modeling (e.g., DEM) or in describing bulk powder behavior (e.g., powder flow, settling, dispersion rheology)?



Podczeck 2003.PDF



Pirard 2005.pdf