



Elzone II 5390

TECHNIQUE OVERVIEW

Electrical Sensing Zone Method The electrical sensing zone method (Coulter principle) consists of forcing a suspension of particles in a conductive liquid to flow through a small aperture. An immersed electrode is positioned on each side of the orifice through which a small current flow is maintained. As each particle passes through the aperture it displaces its own volume of electrolyte within the aperture, momentarily changing the resistance to current flow between the electrodes. This change produces a voltage pulse of short duration having a magnitude proportional to particle volume.

Unlike many particle sizing techniques, electrical sensing zone data are unaffected by samples composed of particles having an assortment of optical properties, densities, and shapes. Particle size determination is dependent only on the volume of electrolyte displaced by a particle as it passes through the sensing zone. Size distribution is determined by analyzing, one at a time, each particle from a representative subset of the introduced sample quantity. This particle-by-particle analysis technique provides accurate particle count data and, when combined with Micromeritics' precision volume metering option, provides accurate number concentration data.

Sensitivity as it relates to particle size analysis is the ability to detect small changes in the amount of material at a given size. This ability is very important to processes where a few particles either larger than or smaller than the bulk of the population are critical. The Elzone is sensitive to small quantities of oversized and undersized particles in a given sample.