SediGraph III 5120 Applications

micromeritics®
The Science and Technology of Small Particles™

A Wide Variety of SediGraph III 5120 Benefits

- **Complete particle accountability** assures that all of the introduced sample is accounted for, including any fraction above 300 µm and below 0.1 µm
- **Capability to merge data** with that from other particle sizing methods, thus extending the range of reported data to 125,000 µm (125 mm), excellent for geological applications
- **Scanning the sedimentation cell** from bottom to top allows accurate inventory of fast-settling particles while minimizing the time required to resolve the separation of fine particles
- **Fully automatic operation** increases sample throughput and reduces operator involvement in addition to reducing the opportunity for human error
- **Temperature-controlled analyses** assure that liquid properties remain constant throughout the analysis so you can be confident of accurate results
- **Multiple analysis speeds** allow you to choose the desired combination of speed and resolution that meets your needs
- **Real-Time display** allows you to monitor the cumulative mass plot of the current analysis and to make immediate procedural changes if needed
- **Statistical process control (SPC) reports** track the performance of your processes allowing immediate response to fluctuations
- **Plot overlays** provide a visual comparison of analysis results from one or more analyses; a reference or baseline analysis, for example, or a superposition of two different types of plots of the same analysis data
- **Data comparison plots** provide graphical displays of the mathematical difference between two data sets (difference from reference plot) or the extent of a data point value above or below a tolerance boundary (out of specification plot)
- **Multiple analyzer control** allows two SediGraph III's to be operated simultaneously from a single computer, conserving valuable lab space and making data storage convenient

Applications

Ceramics: The size range of particles and the distribution of mass in each size class strongly affect the ability to sinter a ceramic powder and its forming properties as well as the pore size distribution in the finished product. Particle size distribution information helps determine curing and bonding procedures, control pore structure, ensure adequate green body strength, and produce a final product of desired strength, texture, appearance, and density.

Metal Powders: By controlling particle size, very specific pore characteristics can be designed into a product. Porosity characteristics often are the key to product performance. Similar to ceramics, the particle size distribution is critical to green body and final product strength and density.

Geological/Soil Science: Grain size affects the moisture-holding capacity of soil, drainage rate, and the soil's ability to hold nutrients. Grain size is directly related to transport of sediment.

Cosmetics: The appearance, application, and packaging of cosmetics are influenced by the particle size distribution of base powders, such as talc, and the pigments used for coloring.

Pigments: Particle size alone can affect the tinting strength of a color. As tinting strength goes up, the quantity of pigment needed to produce required color intensity goes down. The particle size affects the hiding power of the paints. Also the particle size distribution influences gloss, texture, color saturation and brightness.

Catalysts: Particle size affects the catalytic activity of a metal for structure-sensitive catalytic reactions.

Construction Materials: Particle size of cement affects setting time and strength characteristics of the finished concrete and cement.

Minerals and Inorganic Chemicals: Reactivity of materials is dependent upon exposed surface area and thus particle size distribution.

Abrasives: A properly balanced size distribution of abrasive grains and powders is a fundamental consideration whether the material is to be used in slurries, dry blasting, or bonded abrasive tools. Uniform particle size assures precise flow rates through blast machines and is a critical determination in media management when recycling the abrasive material.