

Average Particle Size Analyzer

Applications

Performance of many particulate products used in a number of industries such as filtration, mineral, chemical, cosmetic and chemical industries is determined primarily by the average particle diameter. For many applications quick estimation of the average particle diameter is required. The techniques that are used for particle diameter measurements are often involved and time consuming. The PMI's completely automated average particle size analyzer has the unique ability to measure average particle diameter of bulk samples in a few minutes. It is used in industry for production control, quality control, and performance evaluation.



Principles of Operation

The instrument accurately measures flow rate of gas through the sample as a function of differential pressure, calculates the envelope surface area, and uses these results to compute average fiber diameter.

The envelope surface area is the external particle surface area that sees flow of gas through the sample. The envelope surface area is obtained from the flow rate and pressure drop using the Carman-Kozeny relation (Gerard Kraus, J.W. Ross and L.A. Girifalco, Surface Area Analysis by Means of Gas Flow Methods. I. Steady State Flow in Porous Media, Phys. Chem., Vol. 57. 1953, pp. 330-333). The average fiber diameter is obtained from the envelope surface area using the following equation.

$$D = 6 / S \rho$$

where D is the average fiber diameter, S is the envelope surface area per unit mass of the powder, and ρ is the true density of the powder.

Applications

Providing the user with an average particle diameter measurement in less than five minutes, the main application is quality control. Samples tested include pharmaceutical powders, electrode components, ceramic powders, chemical powders, metallic powders, and other porous substances.

The instrument is utilized for this function in several industries, such as:

- Chemical and Mineral
- Battery
- Pharmaceuticals
- Ceramic
- Fuel Cell
- Powder Metallurgy

Learn about how this is the fastest technique for calculating envelope surface area and average particle size of ceramic powders.

Features

- Uses nitrogen or other noncorrosive gases; no expensive gas mixtures required
- Windows-based software handles all control, measurement, data collection, and report generation; manual control also possible
- Compatible with Windows 95 or higher
- Real-time graphical test display depicts testing status and results throughout operation
- Nondestructive testing
- Length of test approximately 5 minutes
- Wide range of acceptable sample types and sizes
- Minimal maintenance required

Other Products

Average Fiber Diameter Analyzer
Bubble Point Tester
Capillary Flow Porometer
Capillary Condensation Flow Porometer
Complete Filter Cartridge Analyzer
Clamp-On Porometer
Compression Porometer
Custom Porometer
Cyclic Compression Porometer
Envelope Surface Area Analyzer
Filtration Media Analyzer
High Flow Porometer
Integrity Analyzer

In-Plane Porometer
Microflow Porometer
Nanopore Flow Porometer
QC Porometer
Diffusion Permeameter
Gas Permeameter
Liquid Permeameter
Vapor Permeameter
Water Vapor Transmission Analyzer
Liquid Extrusion Porosimeter
Mercury/Nonmercury Intrusion Porosimeter
Vacuapore
Water Intrusion Porosimeter (Aquapore)

BET Liquisorb
BET Sorptometer
Gas Pycnometer
Mercury Pycnometer

Also Available:
Testing Services
Consulting Services
Short Courses

Buy Rent Lease

Porous Materials, Inc.
20 Dutch Mill Rd, Ithaca, NY 14850 USA
Tel: (607)-257-5544 Toll Free in USA & Canada: 1-800-TALK-PMI
Fax: (607) 257-5639 Email: info@pmiapp.com

