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Nota di contenuto	Characterization of Powders and Aerosols; Table of Contents; 1 Basic Concepts in Characterization Studies, Representative Samples and Calibration Standards; 1.1 Who Needs to Characterize Powders and Spray Systems?; 1.2 The Physical Significance of Size Measurements; 1.3 Standard Powders for Calibrating Powder Measurement Techniques; 1.4 Representative Samples; 1.5 Representative Samples from Suspensions and Aerosol Clouds; 1.6 Dispersing Powder Samples for Size Characterization Studies 2 Direct Measurement of Larger Fineparticles and the Use of Image Analysis Systems to Characterize Fineparticles 2.1 Measurements on Larger Fineparticles; 2.2 Measuring the Shape Distribution of Fineparticles Using the Concept of Chunkiness; 2.3 Characterizing the Presence of Edges On a Fineparticle Profile; 2.4 Geometric Signature Waveforms for Describing the Shape of Fineparticles; 2.5 Using Automated Image Analysis Systems to Size Fineparticle Populations; 2.6 Fractal Characterization of Rugged Boundaries; 2.7 Stratified Count

Logic for Assessing an Array of Fineparticle Profiles

2.8 Special Imaging Procedures for Studying Fineparticles

Characterizing Powders Using Sieves; 3.1 Sieving Surfaces; 3.2 The Rate of Powder Passage Through a Sieve; 3.3 Sieving Machines; 3.4 Possible Future Developments in Sieving; 4 Size Distribution Characterization Using Sedimentation Methods; 4.1 Basic Considerations; 4.2 Size analysis Procedures Based on Incremental Sampling of an Initially Homogeneous Suspension; 4.3 Sedimentation Characterization Based on Cumulative Monitoring of Sediments from an Initially Homogeneous Suspension

4.4 Line Start Methods of Sedimentation Fineparticle Size

Characterization 4.5 Sedimentation Studies of Fineparticles Moving in a

Centrifugal Force Field; 5 Characterizing Powders and Mists Using Elutriation; 5.1 Basic Principles of Elutriation; 6 Stream Methods for Characterizing Fineparticles; 6.1 Basic Concepts; 6.2 Resistazone Stream Counters; 6.3 Stream Counters Based on Accoustic Phenomena; 6.4 Stream Counters Using Optical Inspection Procedures; 6.5 Time-of-Flight Stream Counters; 7 Light Scattering Methods for Characterizing Fineparticles

7.1 The Basic Vocabulary and Concepts of Light Scattering 7.2 Studies

of the Light Scattering Properties of Individual Fineparticles; 7.3 Light Scattering Properties of Clouds and Suspensions of Fineparticles; 7.4

Diffractometers for Characterizing Particle Size Distributions of Fineparticles; 7.5 Measuring the Fractal Structure of Flocculated

Suspensions and Aerosol Systems Using Light-Scattering Studies; 8

Doppler Based Methods for Characterizing Fineparticles; 8.1 Basic

Concepts Used in Doppler Methods for Characterizing Fineparticles

8.2 Stream Counters Based on Doppler Shifted Laser Light

Sommario/riassunto

Characterization of fine particles is a difficult task! A large number of industries deal with materials in powder form. The properties of these powders depend on their particle size, particle shape and size distributions, surface and porosity. What are the methods? What are the problems? What questions need answering? This new book covers the problems of sampling both powders and aerosols, and discusses calibration standards for different instruments. It takes into account fractionating methods for fine particles, e.g., sieving procedures, sedimentation methods, and
