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New Product Announcement

Eyetech Microscopy

Dry Powder Dispersion and automated Image Analysis for Microscopy

Easy Slide Preparation with the PD-10

The preparation of dry powders for microscopic analysis is a challenging task. In absence of a standardized procedure, microscopists tend to develop their own, product-specific methods. The challenges in dry powder slide preparation are to obtain a uniformly dispersed mono-layer of particles and to avoid particle clusters, whilst maintaining the structure of fragile primary particles. With the Ankersmid PD-10, a standard method for uniform dry powder dispersion on microscopic slides has become available. Moreover, the tedious and time-consuming task of manually selecting and counting particles by staring through a microscope can now be automated with Ankersmid's Eyetech image analysis software.



Figure 1: PD-10 Dry Powder Dispenser



Principle of operation

A small quantity of powder is placed in a well at the top of the cylindrical reservoir of the Powder Disperser. After the vacuum is applied with an abrupt trigger, the vacuum seal is momentarily opened. The sample is instantaneously sucked into the vacuum reservoir. The abrupt suction creates turbulent flow with high Reynolds numbers and high shear forces, causing agglomerates to be broken, and the particles to be dispersed uniformly in the reservoir volume. Gravitational sedimentation then occurs, simulating the process of isokinetic sampling. The vacuum in the reservoir minimizes aerodynamic drag on the particles. Therefore, all particles settle down with the same linear velocity independent of the particle size. An example of a dispersed powder after slide preparation with the PD-10 powder disperser is shown in figure 2.

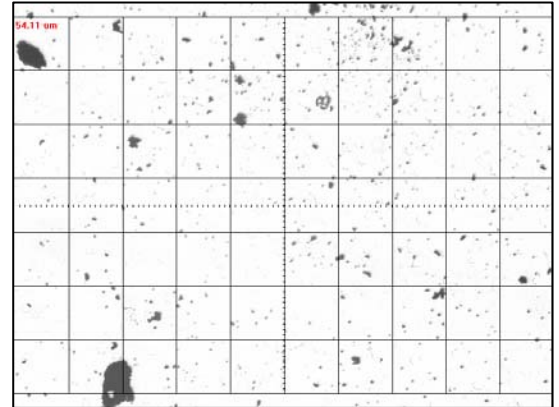


Figure 2: Powder dispersion using PD-10

Eliminate Overlapping Particles and Agglomeration

High shear forces and uniform deposition are created during sample introduction in the PD-10, thus eliminating problems of overlapping particles, agglomeration and clusters that occur with the usual manual preparation for microscope examination. In figure 3, an example of manual prepared slide with agglomerates and a large cluster is shown.

Slide preparation the PD-10 is highly reproducible; different users consistently achieve identical results. Uniformly dispersed particles on a microscope slide result in a statistically representative sample for accurate measurement.

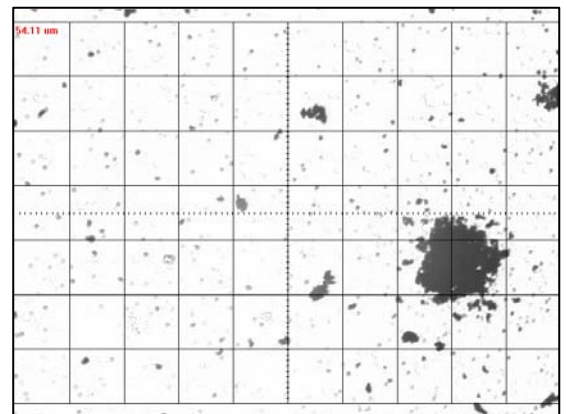


Figure 3: Manual slide preparation

Fast and Easy Cleaning

Easy access to all parts of the system enables cleaning in less than one minute to prevent cross contamination of sample.

Disperse a wide variety of Dry Powders

A wide variety of dry samples can be prepared including fluffy powders, dense powders and hazardous or toxic powders.



Automated Particle Analysis

Microscopic analysis of the prepared slides can be performed using Ankersmid's Eyetech image analysis software. With the Eyetech software, the particle size and shape of thousands of particles is automatically measured in a matter of minutes. Measurement methods are set-up and performed using intuitive wizards, following incorporated Standard Operating Procedures (SOP).

Eyetech Image Analysis

The Ankersmid Eyetech image analysis software includes automatic procedures for contrast enhancement, image filters, morphology operations and grouping which are readily incorporated in the SOP. Procedures for automatic saving of images, movies and re-processing of previously stored images or measurements are available. Calibration procedures for multiple lenses are implemented.

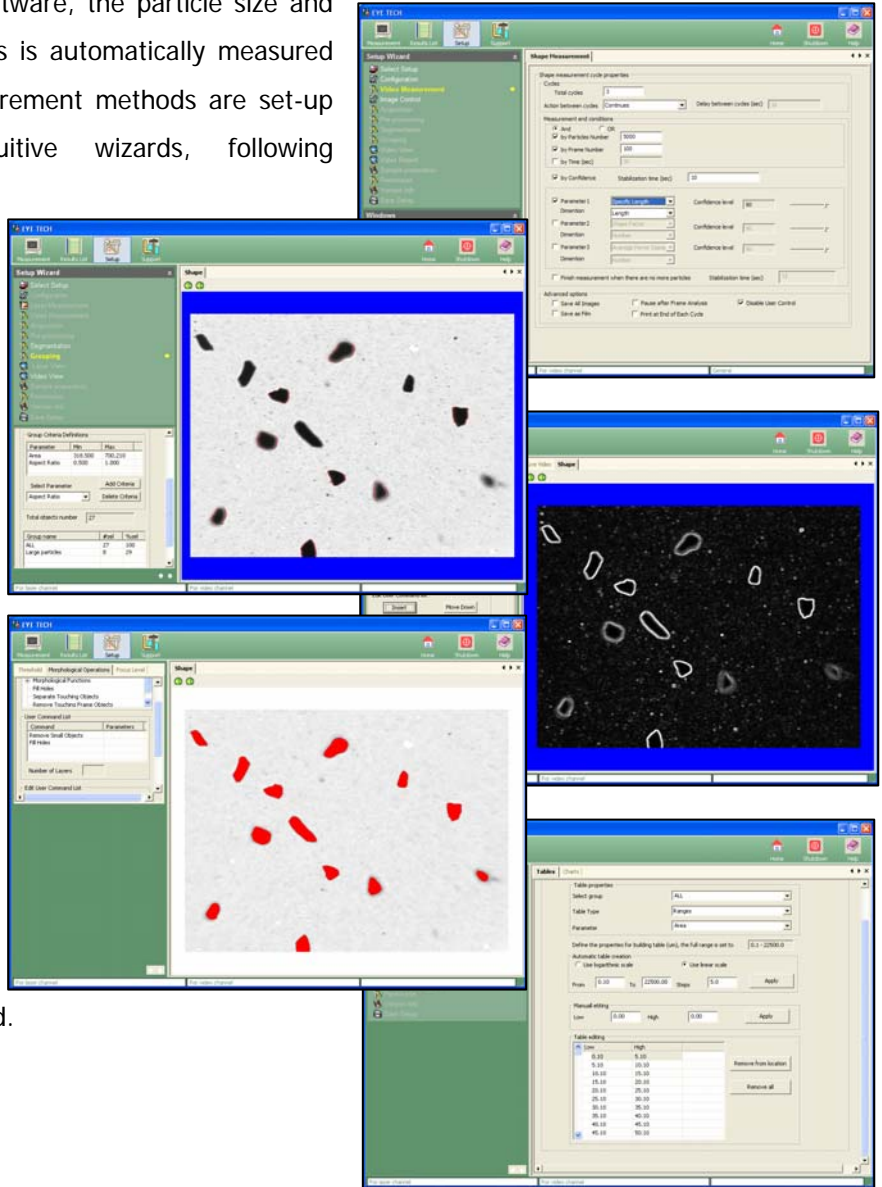


Figure 4: Eyetech Software



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21 CFR Part 11 Compliant Database

Access to system configuration, calibration, measurement set-up is managed through a multiple user level database ensuring 21 CFR Part 11 compliancy. The results are stored in the database and custom statistical reports for all size and shape parameters can be generated. Over 40 size and shape related parameters are included among which: Equivalent Diameter, Min/Max Diameter, Ferret Diameters, Aspect Ratio, Shape Factor, Specific Length/Width. Results are displayed in both graphical and tabular format; statistical means for particle size distributions are calculated.

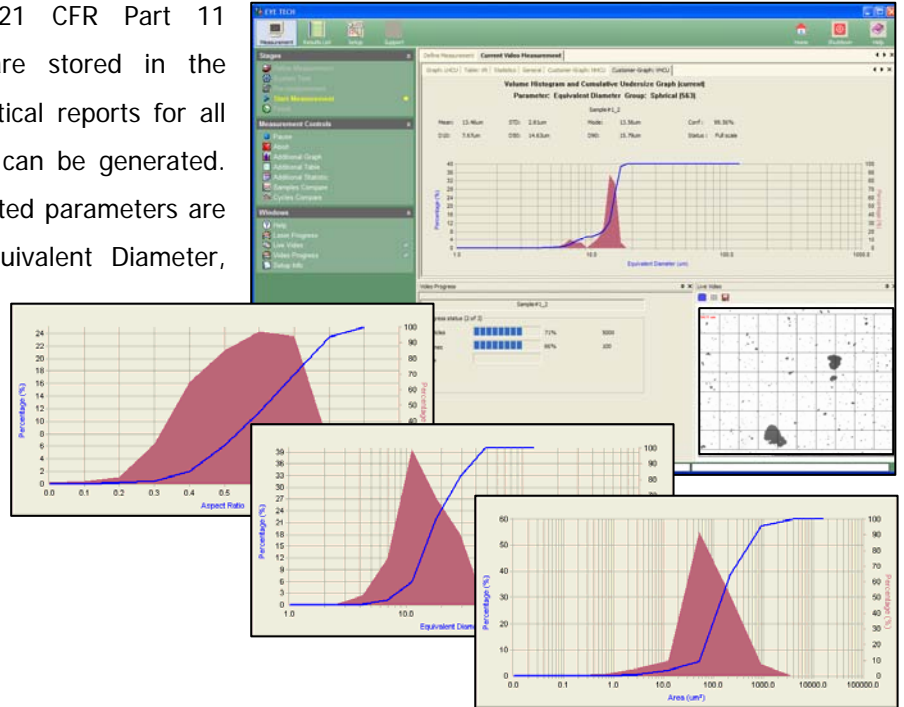


Figure 5: Eyetech Data Output

Ankersmid Eyetech Microscopy

The Eyetech Microscopy is an additional tool for microscopy, it contains everything required to perform fast, accurate and reproducible microscopic inspection of dry powders. The Eyetech Microscopy packages includes:

- PD-10 Dry Powder Dispenser
- ACU, Ankersmid Control Unit
- CCD Camera
- Eyetech Image Analysis Software (21 CFR Part 11 Compliant)
- Microsoft Windows XP
- Microsoft Office 2003

Information

For additional information, contact our local distributor or contact Ankersmid directly:

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