



FlowCAM®

A Digital Imaging System for Particle or Cell Measurements in Solution

FlowCAM is an integrated system for rapidly analyzing particles in a fluid. Combining the high speed automated capabilities of a particle analyzer with the wealth of information derived from microscopic images, FlowCAM goes beyond simple particle size measurement. By acquiring and storing a digital image of each particle detected, different particle types in a heterogeneous sample can be automatically identified, differentiated and quantified.

A Real-Time Visualization System for Monitoring and Analysis

Originally developed for oceanography to study organisms and solids in seawater, the FlowCAM is now used for industrial applications as well. Chemical, cosmetics, food, beverage, pharmaceutical and petroleum industries are benefitting from the rapid evaluation of particles, cells,

flavorings and other product components. FlowCAM is a new tool which previously required multiple instruments to obtain the desired test measurements.

Features Include

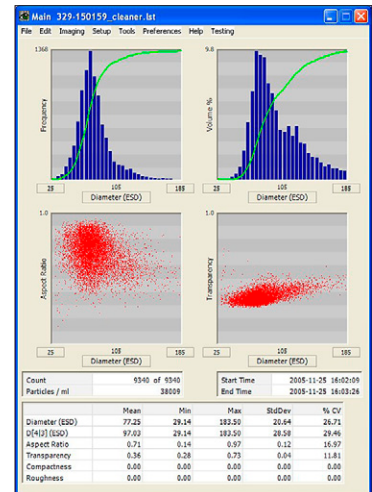
- ◇ High-Speed Digital Imaging (Color or Monochrome)
- ◇ Up to 23 different measurement parameters for each particle
- ◇ Intuitive VisualSpreadsheet® analysis software
- ◇ Wide size range (1µm to 3mm)
- ◇ Automatic pattern recognition and classification
- ◇ Optional fluorescence and scatter triggering/measurement
- ◇ Bench top and portable models available



FlowCAM® Bench Top Model

Integrated VisualSpreadsheet® Analysis Software

FlowCAM acquires high resolution microscopic images at a very rapid rate; typically up to 10,000 images/minute. The intuitive VisualSpreadsheet® analysis software allows the user to sort, filter and classify particle images interactively. What once took hours, days or even weeks with a microscope can now be accomplished in minutes. With orders of magnitude more images being analyzed over traditional methods, the results have a much greater statistical significance. Particle data and summary statistics can be exported to database or spreadsheet applications.



Particle Analysis Made Easy

Particle Characterization

FlowCAM® uses powerful pattern recognition algorithms to identify and quantitate individual particle types in a heterogeneous sample.

Particle Concentration, Size and Shape

As a sample is processed, concentration values are automatically calculated along with the size and shape for each particle.

High-Speed Imaging

All particles or organisms detected by the FlowCAM® are captured and stored in an efficient manner for easy retrieval for analysis and archival purposes.

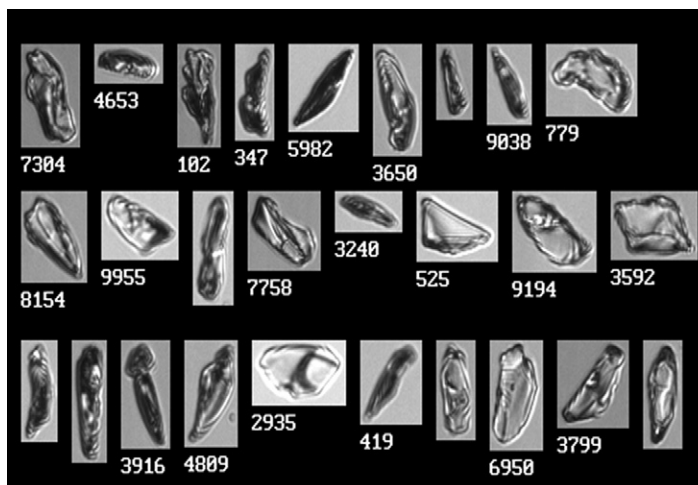
Speed of Sampling

FlowCAM® can analyze thousands of particles or cells from the captured images in seconds.

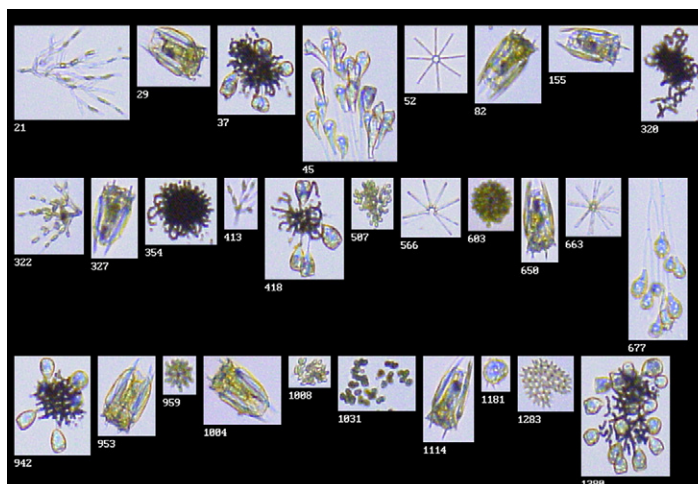
The Combined Benefits of Multiple Instruments

The FlowCAM® is a digital imaging microscope and a flow cytometer. Previously, these functions were only possible utilizing two separate instruments.

Example FlowCAM® Applications



The monochrome particle images above were taken with the FlowCAM BX from a sample of silica gel intended for use as column packing material for chromatography. The sample was being analyzed by Quality Control for particle uniformity. In this application, the particles were expected to be relatively spherical in shape in order to pack the column uniformly. A common particle analysis system showed the particles to have a uniform distribution of Equivalent Spherical Diameter (ESD), but the FlowCAM showed the particles to be non-spherical in shape, indicating that the lot was to be rejected.



The color particle images above were taken with the FlowCAM CX from a pond water sample. The fluorescence triggering method was used to trigger the camera only when living algae passed through the flow cell and 2 channels of fluorescence measurement were collected for each particle. Fluorescence or scatter triggering is very useful when analyzing sparse samples where continuous imaging might not yield the desired results.