



CPS Size Distribution Analysis

Measurement Services – Disc Centrifuge, DC24000, CPS Instruments Inc.

Overview

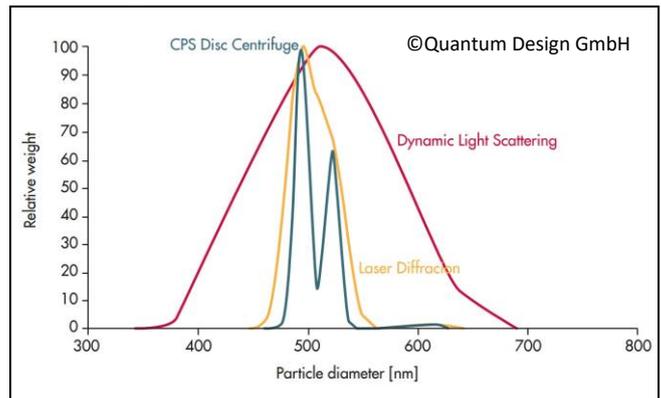
Detect, measure and quantify multiple particle peaks?

The CPS Disc Centrifuge is a particle size analyzer for measuring particles within the range of 0.01 micron to 40 microns. The particle size distribution is measured using centrifugal sedimentation; a well-known reliable method, within an optically clear spinning disc that is filled with fluid and on the outer edge a detector with a light source where the detection is by the absorption of the light of a 405nm wavelength.

The time the particles need to sediment from the center of the disc to the light source and the absorption of the light is converted to the particle size distribution according to Stokes' Law and Mie Theory of Diffraction of Light. Sedimentation is stabilized by a density gradient within the fluid, and accuracy of measured sizes is insured using a known size calibration standard before the test.

The individual formula characters in Stokes' equation represents the variables; Sedimentation rate, and the radius of the sinking object. Particles settle in a fluid under a gravitational field according to Stokes Law. Different sized particles, even the slightest change, settle at significantly different rates. Large particles sediment faster than smaller particles. This is why sedimentation is the preferred method to measure the particle size with high resolution and accuracy. To overcome the disadvantage of smaller particles with low density taking a long time to sediment; the CPS operates at high centrifugal forces for particle size analysis. As the disc is spinning with a very high rotation speed, all particles are moving in a short time to the edge of the disc. Particles of the same size settle at the same speed, build up a thin band of particles and arrive at the detector at the same time. Large particles reach the detector earlier than the small particles. The concentration of particles at each size is then determined by continuously measuring the turbidity of the fluid near the outside edge of the rotating disc, which are converted to weight distribution using Mie Theory light scattering calculations. Finally, the weight distribution is converted to a surface area or number distribution.

Same sample – different results



Particle size measurement with:

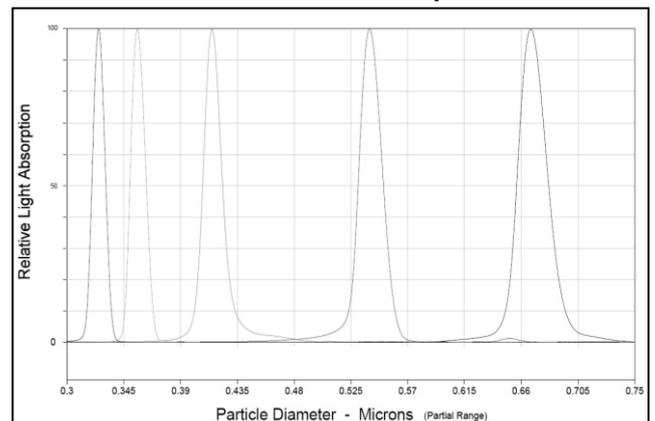
Highest resolution.

Highest accuracy.

High sensitivity.

Wide dynamic range for all samples, dispersed in water.

Measurement of different PMMA samples



Prices

1 sample:	250 €
2 samples:	350 €
4 samples:	500 €
10 samples:	750 €

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