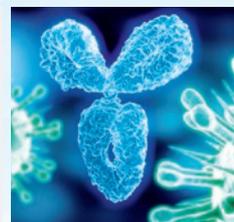
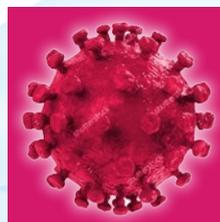


ViewSizer™ 3000

Unmatched Visualisation and Measurement of Nanoparticles



Accurately determine the size distribution of nanoparticles – even in highly polydisperse samples



ViewSizer™ 3000

Unmatched Nanoparticle Characterisation

The Challenge

Breakthrough Technology

Analysing nanoparticles such as colloids and proteins is inherently challenging. These particles are too small to image with visible light and must be imaged by laborious electron or scanning microscopy.

Dynamic light scattering and laser diffraction have been successfully used to determine particle size distributions. Deployed appropriately these techniques are fast and accurate but they are ensemble techniques. High resolution distribution information cannot be obtained.

Excellent Reproducibility

In the last decade Nanoparticle Tracking Analysis (NTA) has been successfully used in a number of situations. In this technique the sample is illuminated by a laser light source and light scattered from individual nanoparticles is captured on a video camera. By tracking and analysing the Brownian motion of those particles over a period of time, their sizes can be readily determined.

Wide Size Range

However, this technique has suffered badly when a wide range of particle sizes co-exist in the same sample. Light from the largest particles dominates the field of view, saturating the detector and blinding the system to the presence of smaller particles.

Highly Flexible

The reproducibility of analyses has also been poor. As with any microscope-based system, capturing data on a large enough number of particles for the analysis to be truly representative has been difficult.

A robust particle characterisation instrument for routine high resolution size distribution analysis has been unavailable....until now!

Suitable for Kinetic Processes

Introducing the ViewSizer 3000



ViewSizer 3000 Particle Size Analyser

How Does the ViewSizer 3000 Work?

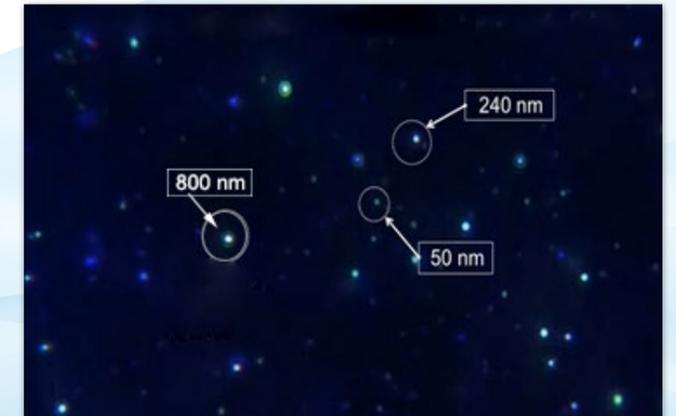
The ViewSizer 3000 is built on breakthrough technology. Innovative hardware and software are deployed to overcome the long-standing problems associated with NTA and provide true distribution information for all particle sizes from 10 nm to 15 µm.

The instrument illuminates a sample with three different, power-adjustable light sources simultaneously (a patented technology). As with conventional NTA, individual particle centres are located and their Brownian motion is captured over a period of time and subsequently analysed. In this way individual particle sizes can be determined and a particle size distribution of the sample can be built up.

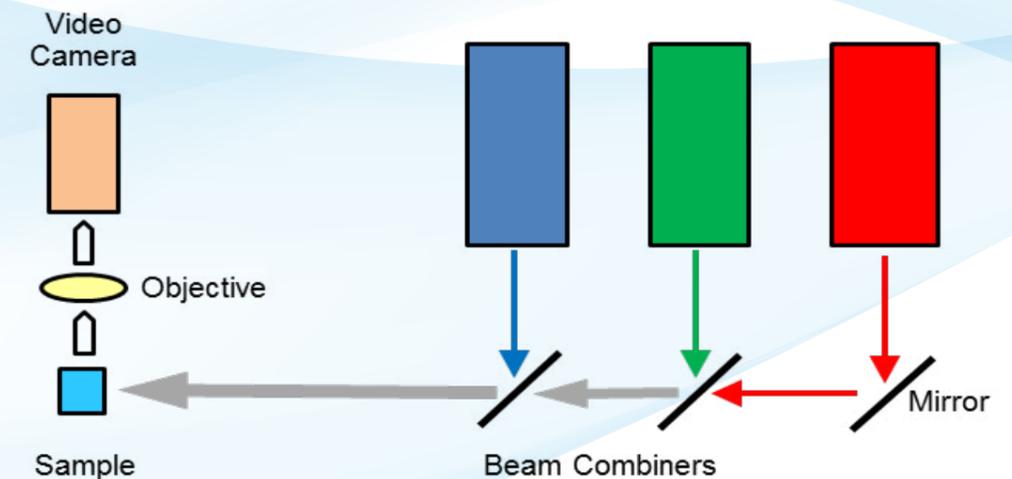
However, unlike earlier NTA instruments with a fixed power monochromatic light source, the ViewSizer 3000 allows the user unprecedented control over the light illuminating the sample so that the image seen can be optimised for the clearest result. This also enables a more accurate determination of the position of particles being analysed resulting in better data.

Furthermore, since the illuminated sample volume is well known, particle number concentration is readily determined. Thus, from a single measurement, two critical pieces of information are determined: particle size distribution and particle concentration - even for highly polydisperse samples.

The screen capture from an analysis on the ViewSizer 3000 shown above demonstrates its ability to visualise highly polydispersed samples. This capability enables unprecedented insights into your nanoparticles, whether they are from pharmaceutical, biological, industrial or environmental sources.



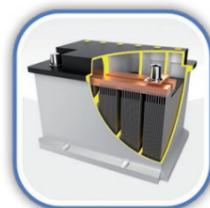
ViewSizer 3000 measures a wide range of nanoparticle sizes simultaneously.



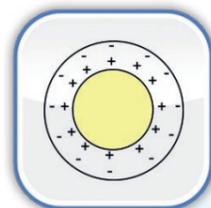
Schematic Plan View Showing How the Sample is Illuminated by Three Distinct Light Sources (a patented technology)

ViewSizer™ 3000

The ViewSizer 3000 analytical instrument is the perfect solution for many particle characterisation applications including:



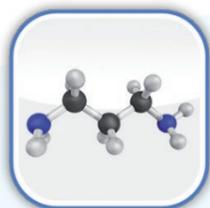
Batteries



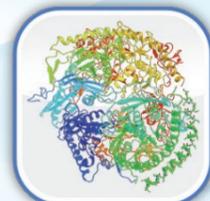
Colloids & Colloidal Stability



Cosmetics



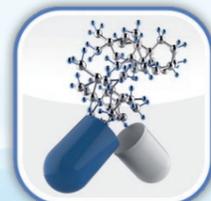
Catalysts



Exosomes & Microvesicles



Environmental Sciences



Pharmaceuticals



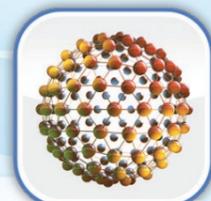
Pigments & Inks



Polymers



Protein Aggregation Studies



Metallic Nanoparticles



Viruses & Virus-like Particles (VLPs)



Cuvette with Insert

The Advantages of a Side View

By introducing the sample vertically in a conventional cuvette (with an innovative insert) the ViewSizer 3000 introduces two more invaluable features:-

The structure allows the introduction of a stirrer enabling the sample to be measured and stirred repeatedly – giving a much more representative analysis and reproducible results.

It also enables larger (micron-sized) particles to be analysed by their gravitational settling – perfect for monitoring dynamic processes such as aggregation and crystallisation.

The ViewSizer 3000 technology is an elegant and absolute method that does not require calibration standards or knowledge of particle material properties such as refractive index.

A Unique Instrument for Particle Kinetic Processes

The ViewSizer 3000's unique capability to visualise, measure, and count wide-ranging sizes of nano- and micron-sized particles in the same sample enables unmatched characterisation of common particle kinetic processes including: dissolution of active pharmaceutical ingredients, self-assembly of polymers, crystallization of food and pharmaceutical products, aggregation of proteins and particle agglomeration.

In these and other cases, the complete process can be monitored in real-time and important rate constants can be determined. Furthermore, process parameters such as agitation, temperature and concentration can be adjusted during the analysis. Insights from kinetic experiments on the ViewSizer 3000 assist with the identification of ideal process conditions and effective formulations.

Data to Exceed your Expectations

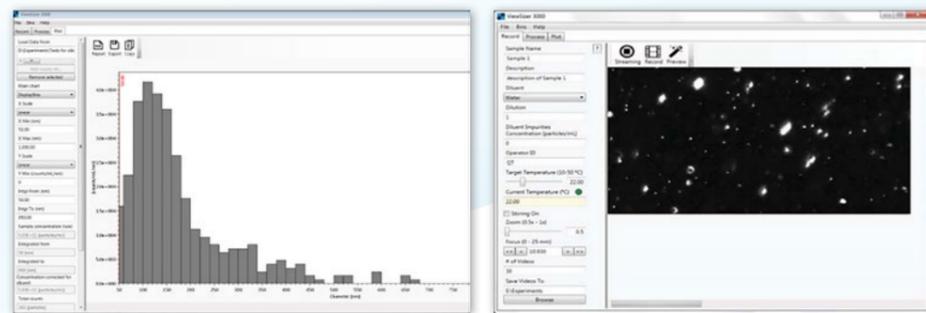
Key Applications

Advanced Software

The ViewSizer software was developed with the user in mind. Data collection can start with just a few clicks of the mouse and the final results are available in a number of formats to accommodate every user.

Particle visualisation is an integral component of each analysis on the ViewSizer 3000.

All data can be exported for further analysis or preparation of publication quality graphs.



Key Features

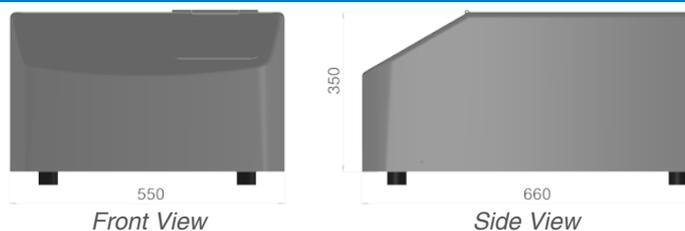
The ViewSizer 3000 offers the following:

- **Visualisation of particles and particle processes.**
- **Accurate and reproducible measurements of particle number concentration and particle size distribution, even for highly polydisperse samples.**
- **Quantification of particle kinetic processes; such as particle crystallization, aggregation, self-assembly, swelling, dissolution, and shrinkage rates.**

Specifications

Physical Characteristics

Width	• 550 mm
Height	• 350 mm
Depth	• 660 mm
Weight	• 27 kg



Sample Handling

Range of Particle Sizes Measured*	• 10 nm to 15 µm
Typical Sample Volume	• 350 µL to 1.25 mL
Typical Sample Concentration*	• 5x10 ⁶ to 2x10 ⁸ particles/mL
Sample Temperature Range (Controlled)	• 10 °C to 50 °C, ± 0.1 °C

Operating Requirements

Temperature	• 15 °C to 30 °C
Humidity	• 0 to 85% Non-condensing

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