Rapid, Reliable, and Accurate Particle Sizing & Advanced Zeta Potential Analysis

The NanoBrook Omni particle size and zeta potential analyzer incorporates all you need for fast, routine, submicron measurements of size and zeta potential. Based on the principles of Dynamic Light Scattering (DLS) for particle sizing, and on Doppler velocimetry (electrophoretic light scattering, ELS) for zeta potential, most measurements only take a minute or two. The instrument also includes Phase Analysis Light Scattering (PALS) measurements for samples with low mobilities (saline, PBS, organic solvents).

Core Functionalities	
Particle Sizing	Yes
Zeta Potential	Yes
Scattering Angles	15°, 90°, & 173°

The NanoBrook Omni includes backscatter detection for the highest sensitivity and accuracy, and is optimized for molecules and particles less than a few tens of nanometers. In this size range it is also possible to measure molecular weight using static light scattering, via our Debye Plot software when measuring at 90 degrees.

Zeta potential for difficult applications:

- For proteins, peptides, mAb, RNA, and other biological samples
- For zeta potential in organic solvents
- For oily or viscous media
- For high-salt suspensions
- For samples near the I.E.P.
- PALS: 1,000 times more sensitive than other techniques

* sample dependent

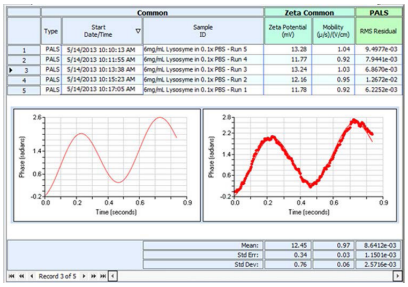
Three Scattering Angles

Measurements of traditional colloids are typically made at 90° scattering angle due to the unbiased results measured. For nanoparticles and proteins, IgG and peptides, these < 50 nm samples can be measured using the backscattering angle (173°) for best signal to noise and reproducibility of measurements. Finally the 15° detection angle can be selected for added sensitivity for trace aggregate signatures. Zeta potential measurements are always performed using the 15° detection angle to minimize diffusion broadening.

The dust rejection algorithm is used to isolate data contaminated by dust and number fluctuations due to settling of very large aggregates.

Principles of Operation - Zeta Potential

The NanoBrook Omni utilizes Phase Analysis Light Scattering (PALS) to determine the electrophoretic mobility of charged, colloidal suspensions. The PALS technique does not require the application of large fields which may result in unwanted sample heating or degradation. During a PALS measurement, the particles only need to move a fraction of their own diameter to yield good results. In salt concentrations up to 3 M and with electric fields as low as 1-2 V/cm, enough movement is induced to get excellent results.



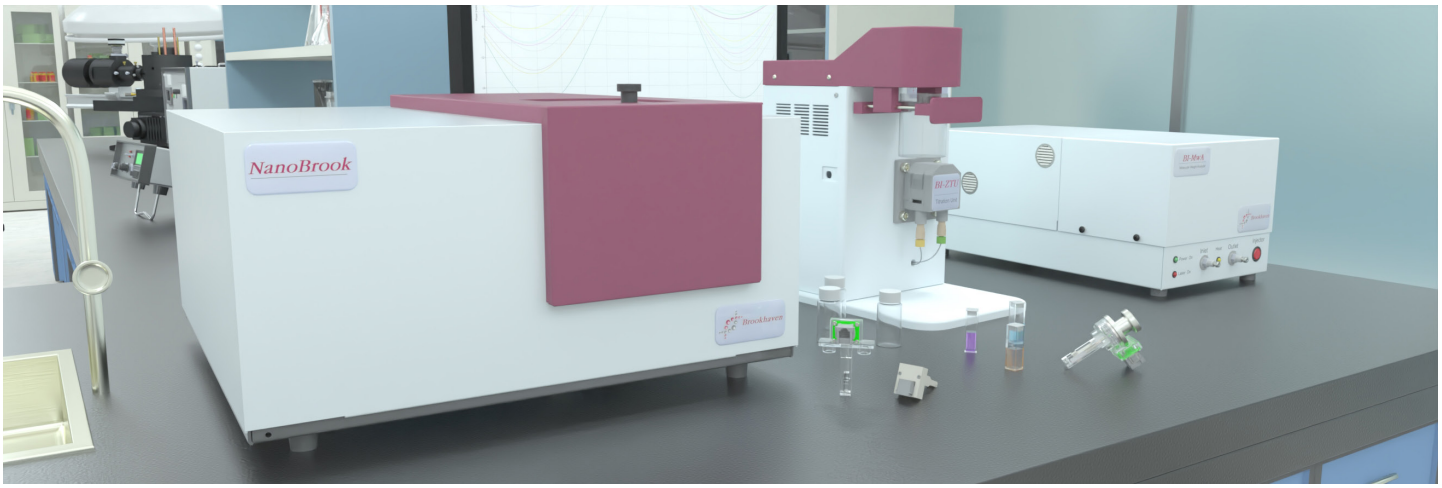
Key Features & Specifications	
Size Range	<0.3 nm to 10 µm diameter*
Mobility Range	10^{-11} to 10^{-7} m^2 /V•s
Zeta Potential Range	-500 mV to 500 mV*
Maximum Sample Conductivity	300 mS/cm*
Concentration Range	0.1 ppm to 50 mg/mL*
Technique	**Sizing:** Dynamic Light Scattering, DLS **Zeta Potential:** Brookhaven's "True PALS" Phase Analysis Light Scattering, Electrophoretic Light Scattering (ELS) **Molecular Weight:** SLS Debye Plot & MHS Parameters (DLS)
Algorithms and Models	NNLS, Contin, Cumulants, Lognormal
Correlator	Brookhaven's TurboCorr, multi-τ, research grade with 510 hardware channels, 100% efficiency, real-time operation over the entire delay-time range.
Detection Angles	15°, 90°, & 173°
Test Standards	Conforms to ISO13321 and ISO22412

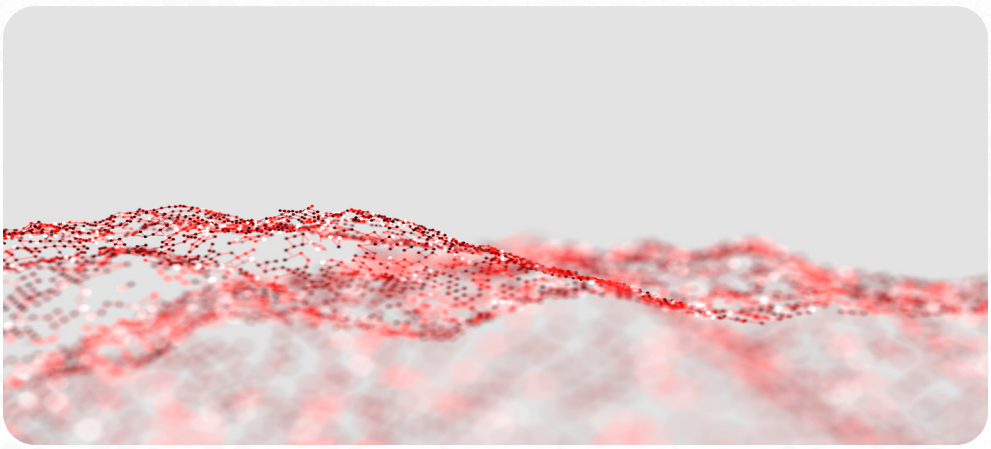
* sample dependent

About Brookhaven Instruments

Our talented team of scientists and engineers is dedicated to delivering the most accurate, reliable, and easy-to-use particle characterization instruments on the market. Our modular instrument design allows us to fully customize every aspect of our products, ensuring that our customers receive precisely what they need to meet their research goals. We are continuously improving our products based on feedback from customers, building on our legacy of innovation in particle science.

We strive to act as partners with our customers to ensure they get the most benefit and maximum value from their Brookhaven equipment. We offer extensive post-sale support to educate and empower customers. Whether you have questions about a specific function or are trying to set up a new experiment, our experts will be there to help you every step of the way.





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