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Find the *Brookhaven ZetaPlus* at our website: *Click HERE*

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Particle Sizers
Zeta Potential
→ ZetaPlus
ZetaPALS
BI-EKA
Molecular Weight
Light Scattering

ZetaPlus

Zeta Potential Analyzer

Typical Applications Specifications Options and Accessories



Features at a glance

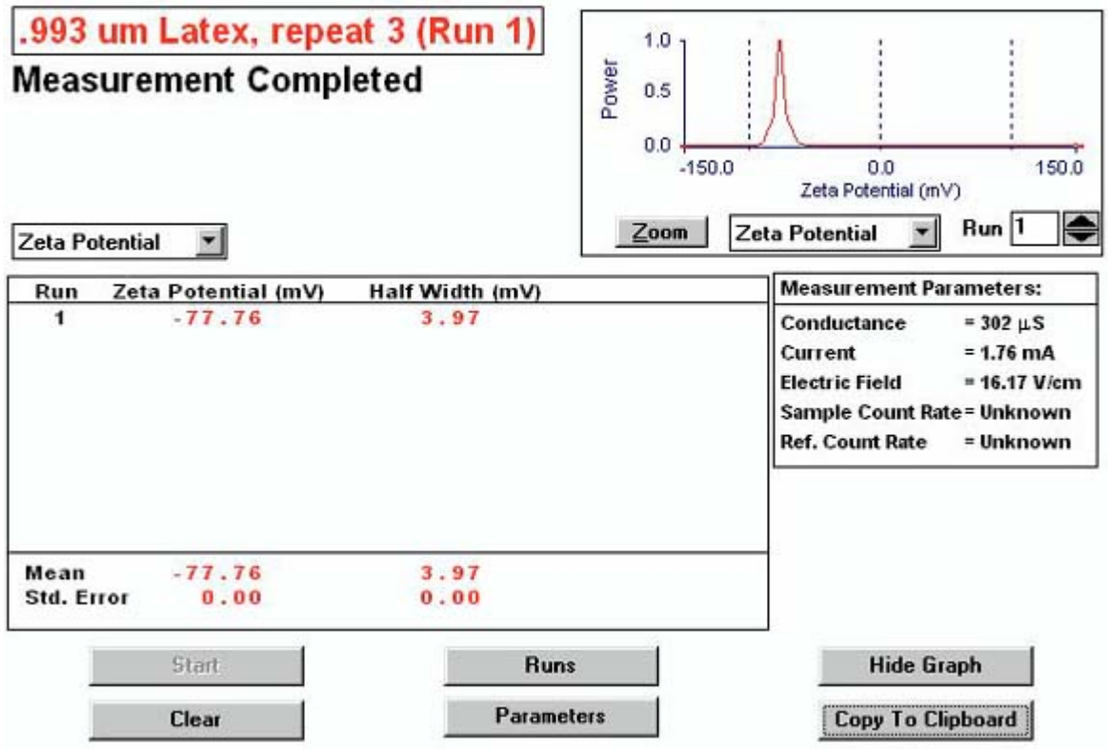
- Accurate, rapid, easy to use
- One piece, easy-fill disposable sample cells
- No cell alignment or calibration
- Temperature control, 5 - 75° C
- Customizable reports, SP charts, two-parameter plots, graphical overlays
- Can resolve multi-modals
- Upgradable with PALS for 1000x sensitivity
- Built in automatic procedures and parameters
- Integrated computer
- Upgradeable to include *full* particle sizing functionality

Reliable, Accurate, Easy to Use

The Brookhaven ZetaPlus is the simplest and most accurate particle electrophoresis system available. This revolutionary instrument has been designed to eliminate the shortcomings inherent in other zeta potential instruments. The ZetaPlus software is simple and intuitive to operate but yet offers flexibility and a full range of means for those who wish to tune their experiments to specific circumstances.

The screen image shown below indicates the clear and concise presentation. Information obtained from the sample is updated in real time and the user can select from several display formats. A Literature of physical constants for many usual suspending fluids is provided but the user may provide his/her values if desired. Printed reports are fully customizable and are provided in color with the supplied printer.

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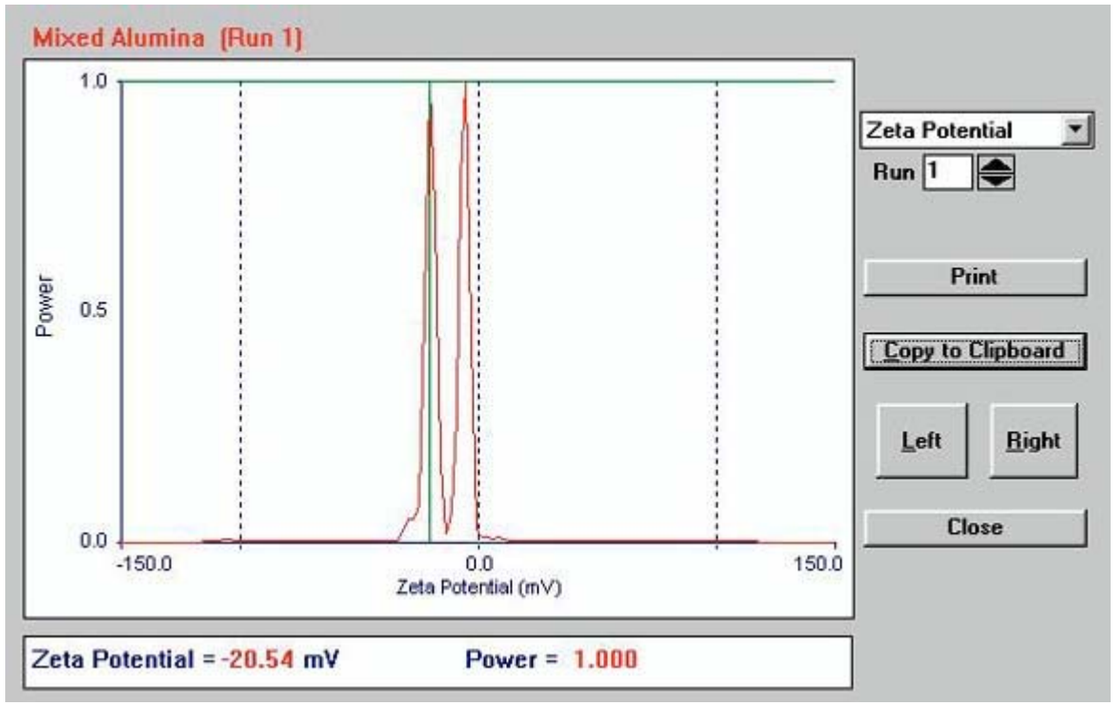


Comprehensive information

The ZetaPlus measures complete electrophoretic mobility distributions in seconds **including mutimodals** (an example of a **bimodal zeta potential sample** can be seen on the results screen from analyzing a created mixture of charged particles.)

In the example below the results of analyzing a mixture of alpha and gamma Aluminas in 1 mMolar KCl at pH10 is displayed. The left peak is identified wth the green cursor and shown to have a zeta potential of -20.54 mV. If the other peak is chosen the value given is -5.00 mV. The ability of the BIC ZetaPlus to provide this information distinguishes it from other methods which provide only an ensemble average.

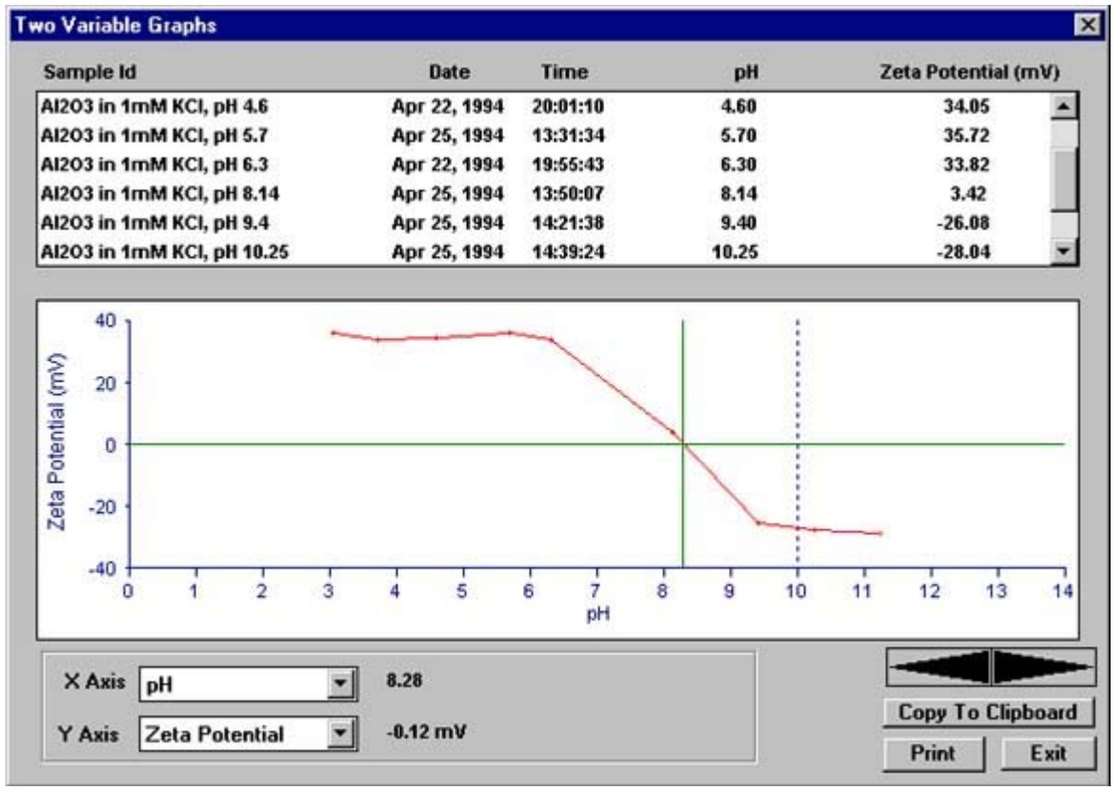
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Derive extended information

The user can tabulate or graph any appropriate pair of parameters allowing, for example, the determination of the iso-electric point (IEP) as in the example below. The ZetaPlus is provided with a pH meter which can be used to measure this value. If the system has the available particle sizing option installed the user can also obtain data for a complete electrophoretic fingerprint (ref: Prescott, Rowell & Bassett, Langmuir V13, pp1978-1986, 1997)

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Statistical Process Control

SPC software is standard of course and the user may employ this and other included comparison techniques (graphical overlays) to obtain information about multiple samples.

Unique Cell Design

The unique cell configuration eliminates the electroosmotic effect: hence no stationary levels, no alignment and no calibration are required, as evidenced by the excellent agreement with NIST1980, a standard reference material. The ZetaPlus uses low cost, disposable sample cells. There is no assembly or maintenance required: cross contamination is eliminated. Glass and quartz cells are available optionally. The same basic cell design is used with the ZetaPALS.

Extreme Sensitivity and Particle Sizing options

For measurements of samples with very low mobility - in organic solvents, in oils, in viscous fluids, at very high salt concentrations, or very near the I.E.P. the BI-PALS option will provide a 1000x increase in sensitivity to the ZetaPlus. This **P**hase **A**nalysis **L**ight **S**cattering technique is available only from Brookhaven Instruments and it provides a truely outstanding increase in performance. The option to add the full functionality of our 90Plus particle size analyzer to either a ZetaPlus or a ZetaPALS instrument offers a multi function system which is unmatched for particle characterization.

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Typical Applications

- Liposomes and biocolloids
- Ceramics and refractories
- Pigments and inks
- Pharmaceuticals
- Emulsions (foodstuffs, cosmetics)
- Wastewater treatment monitoring
- Latexes
- Carbon blacks

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Specifications

Type: Most colloidal samples suspended in water or polar solvents.
Size Range: Material dependent, For electrophoresis 0.005 to 30 microns; For particle sizing 0.002 to 3 microns.
Volume: 1 mL to 1.5 mL, optional 0.2 mL for particle sizing only.
pH Range: 2 to 12.
Conductivity Range: 0 to 700 mS/m.
Mobility Range: 10^{-9} to 10^{-7} m^2 /V.s
Temperature Range: 5° C to 75° C +/- 0.2° C.
Measurement Duration: 1 to 4 s/cycle, typically 10 cycles/run.
Laser: 30 mW, 50 mW available option.
Field Strength: 0 to 3.2 kV/m, automatically or by user selection.
Electrodes: Palladium with acrylic supports; for reactive samples. Palladium electrodes with solvent resistant supports are available.
Cells: Disposable plastic, or glass or quartz.
Input Power: 100/115/220/240 VAC; 50/60 Hz; 300 Watts.
Dimensions: 267(H) x 635(W) x 445(D) mm. (excluding monitor and printer)
Weight: 37kg. (excluding monitor and printer)

A policy of continual improvement may lead to specification changes.

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Options and Accessories

BI-50mW: 50 mW, 532nm, frequency doubled laser for sizes < ~ 5 nm
BI-PALS: PALS option for solvents, oils, high salts
BI-MAS: Particle sizing option,
90PDP: Molecular weights of polymers in solution. Includes 40 µL flow cell and Debye plot software. Requires the BI-MAS option.

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