

ZetaProbe™



ZetaProbe - the easiest to use most accurate zeta potential analyzer for research, QA/QC & plant optimization!

The ZetaProbe is the easiest to use, most accurate zeta potential analyzer available. Samples can be measured without dilution or sample preparation at concentrations up to 60% volume. Even the direct measurements of pastes, gels, cements, and other difficult materials are possible with the ZetaProbe.

Traditional characterization techniques require sample dilution and sample preparation which are both time-consuming and error-prone. Our patented multi-frequency electro-acoustic technology eliminates these problems. The ZetaProbe measures zeta potential directly, under true sample conditions, at concentrations as high as 60% volume.

The ZetaProbe features a compact design with built-in titration, versatile dip probe sensor, and software wizards. Automatic titration offers unattended rapid isoelectric point determination, as well as optimum dispersant or flocculant level control in a click of a button. The ZetaProbe offers many advances not found in other analyzers including automatic correction for particle size and double layer distortion. Yet, its easy to use software & rugged design makes the ZetaProbe ideal for use in research and plant optimization!

Parameters Measured

- Zeta Potential
- Dynamic Mobility
- Conductivity
- pH
- Temperature
- Isoelectric Point (IEP)

Features and Benefits

- Measures directly in concentrated colloids and emulsions without dilution
- Measures at particle concentrations up to 60% by volume
- Measures the Dynamic Mobility Spectrum from 300 kHz to 3.0 MHz
- Automatically compensates for particle size effects
- User does not need to enter particle size to determine the Zeta Potential
- Features axial bottom stirring for highly efficient mixing
- Dip probe and Flow-through Sensor Options
- Offers versatile & rugged dip probe design with no moving parts
- Delivers the most accurate IEP determination available
- Automatic potentiometric and volumetric titration feature
- Eliminates time consuming and error-prone sample preparation steps
- Features advanced software wizards for easy set-up & operation
- Measures difficult samples such as pastes, gels, & cements
- Offers rapid cycle times; analysis in seconds
- Stores data in easy-to-use MS Excel spreadsheet files

Colloidal Dynamics

Colloidal Dynamics offers a wide range of services to help you take advantage of this powerful new measurement device. ZetaProbe can be used for plant optimization, QA/QC, and research for major industrial and academic applications including:

- | | | |
|---|---|---|
| <ul style="list-style-type: none">• ceramics• paint and inks• coal slurries• cmp slurries• pigments• natural latexes• light phosphors | <ul style="list-style-type: none">• electronic inks• emulsions• cement• minerals processing• clay minerals• Isoelectric Point• paper coatings | <ul style="list-style-type: none">• pharmaceuticals• filtration/de-watering• wet milling/grinding• control of surface coating• control of homogenization• catalysts and zeolites• abrasives and polishing compounds |
|---|---|---|

ZetaProbe™ Specifications

Technology

ESA Multi-frequency Electroacoustic Method

Measures the sample Dynamic Electrophoretic Mobility Spectrum over a frequency range of 300 kHz to 3.0 MHz

No need to know particle size. Automatically corrects for particle size effects in calculation of the particle zeta potential

Sample Characteristics

Particle Concentration	0.1 to 60 volume percent (max concentration subject to viscosity limits)
Sample Volume	30 - 270 ml depending on sample handling options.
Maximum Sample Viscosity	Up to 10,000 cP slurry viscosity, varies by application
Conductivity Range	0 to 5 S/m
pH Measurement Range	1 – 13
Temperature Range	5 to 50 °C
Zeta Potential Measurement Range	+/- 300 millivolts
Analysis Time	Less than 60 seconds, with selectable time delays between analysis

Performance

Dynamic Mobility Spectrum Measurements	Mobility Magnitude and Phase at 7 different frequencies from 0.3 to 3.0 MHz
Particle Size Range for Zeta Measurements	0.5 nm to 50 microns (maximum size varies by application)
Titration Capabilities.	Potentiometric & Volumetric with 10 microliter resolution, dual syringe pump

Other Characteristics

Wetted Surface Materials	316L Stainless Steel, Polypropylene, Niobium, PTFE, Kalrez
Sample Options	Stirred cell and flow through sensor options available
Power Requirements	100 - 250 VAC, 50/60 Hz, 5 Amps @ 120 VAC, 3 Amps @ 240 VAC
Dimensions (HxWxD)	18" x 21" x 16" (457 x 533 x 406 mm)
Shipping Weight	76 lbs (34.5 Kg)

Minimum Computer Specification (if supplied by customer)

Dual Core Processor or better PC, minimum 1 Gb RAM, 1 Gb hard disk space available, one serial or USB port available, high resolution color monitor, Microsoft Excel 2019 or later.

Compatible with Microsoft Windows 10 and 11, both 32 and 64 bit operating systems.

These specifications subject to change without notice. All trademarks are the property of their respective companies.