

Zetatrac

Nanotechnology Particle Size and Charge Analyzer

Microtrac has enhanced the Nanotracs instrument line to include Zeta Potential measurement. The determination of Zeta Potential provides critical information to researchers and production personnel regarding the stability of a wide range of emulsions and colloidal suspensions.

Zetatrac utilizes the unique Nanotracs probe technology to provide fast, accurate, convenient and cost effective Zeta Potential measurements without the need for disposable cuvettes.

One instrument—Three Measurements:

- Zeta Potential
- Particle Size
- Molecular Weight

Zeta Potential is related to the charge residing on the surface or near surface of a suspended particle. Zetatrac determines Zeta Potential by measuring the response of charged particles to an electric field. In a constant electric field particles drift at a constant velocity. Through the velocity, the charge and Zeta Potential can be determined. Zetatrac utilizes a high frequency AC electric field to oscillate the charged particles. The Brownian motion power spectrum is analyzed with the Nanotracs controlled reference technique of particle sizing to determine the **Modulated Power Spectrum**. This is a component of the power spectrum resulting from the oscillating particles. Zeta Potential is calculated from the **MPS** signal. Also determined are the particle mobility (velocity per electric field), particle charge and particle size.

Zetatrac is controlled by Microtrac FLEX Operating Software. Through the use of Standard Operating Procedures (SOP's), the user is guided through a series of easy steps to generate full characterization data on Zeta Potential and Particle Size. Data archiving and retrieval is through standard Microsoft Access™ database management with the ability to export data either manually or automatically. Graphic data presentations, report generation, trending and statistical analysis are all standard features of FLEX Software.



Zetatrac Specifications

Mechanical

Dimensions : 16.51H x 16.82W x 40.64D cms (6.5H x 6.625W x 16D ins)
Weight : 5.2 Kgs (11.5 lbs)

Electrical

AC-DC Power Supply : 100-240VAC 47-63 Hz; +5VDC \pm 1%; 10Wmax.
Zetatrac™ : +5VDC In; less than 5W power consumption
Solid-State Diode Lasers : 2 lasers, Wavelength 780nm, max. 5mW optical output power

Sample

Volume 0.7 ml to 3 ml
pH Range : 3 to 11

Particle Size

Particle Size Range : 0.8 nanometers to 6.5 microns

ZetaPotential

Particle Size Range : 10 nanometers to 20 microns
Concentration : 0.01 % min. to 40 % max. (sample-dependent)
ZetaPotential¹
Range : -125 to +125 mV
Accuracy : \pm 4 mV
Electrophoretic Mobility
Range : -10 to +10 μ m/sec/volt/cm
Accuracy : \pm 0.3 μ m/sec/ volt/cm

Chemical Compatibility :

Wetted surfaces include Inconel, oxide films, gold,, Delrin, Teflon, sapphire, Hastelloy C. Recommended suspending medium is aqueous (water); other mediums (solvents, etc.) can be accommodated; contact Microtrac Technical Support for use with other mediums.

Contact Details

For more information on Zetatrac as well as other Microtrac products, contact Microtrac Inc. at (+1) 727 507 9770 or contact your local Microtrac Representative or logon to our website at www.microtrac.com

Your local Microtrac Representative is