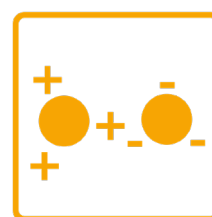


Stabino® II

Zeta Potential Instrument



Zeta Potential

The Stabino® II is a second generation zeta potential instrument for analysing and optimising the stability of colloids and dispersions, based on measurement of streaming potential.

Stabino® II

Zeta potential instrument



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Key Features & Benefits

- ✓ **Fast pH & polyelectrolyte titrations** – calculate IEP or charge density in minutes.
- ✓ **High resolution zeta potential plots** – based on accurate streaming potential measurements.
- ✓ **Mix & measure principle** – oscillating piston for continuous sample mixing avoids sedimentation – often a problem when approaching the iso-electric point.
- ✓ **Highly flexible, non-optical technique** – accurate measurements including non-spherical particles, at a wide range of concentrations, up to 40% w/v.
- ✓ **Intuitive, self-explaining software** – making setting up a measurement extremely quick and easy.
- ✓ **Market-leading post-sales support** – from both Analytik and Colloid Metrix.

Key Applications

- Functional end-group formulation
- Core shell design
- Formulation optimisation
- Stable pH regions
- Iso-Electric Point determination
- Prediction of shelf-life
- Quality control

Key Industries

- Ceramics
- Inks/pigments/paints/coatings
- Catalysts
- Coatings
- Waste water
- Nano-metals
- Carbon materials
- Minerals
- Materials (e.g. Nanocellulose)
- Beverages/brewing
- Pharmacy

Also available: **NANO-flex® II DLS Measurement System**

Please ask for details

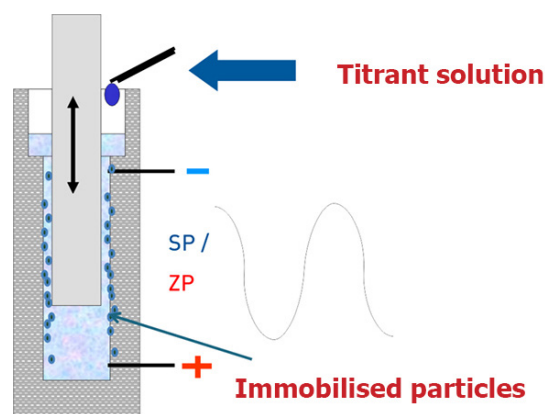
The **NANO-flex® II** is a stand-alone particle size analyser that can also work in conjunction with the **Stabino®** system for simultaneous size distribution, zeta potential and titration/stability measurements.

Zeta Potential Analysis with the Stabino®

Employing a unique oscillating piston design, the system incorporates rapid pH and polyelectrolyte titrations for investigation of stable pH regions, Iso-Electric Point (IEP), charge density and surface functionalisation.

Method

The heart of the Stabino® is the cylindrical PTFE measuring beaker and piston. The sample is added to the beaker and the piston oscillates at a constant frequency during measurement. Particles become immobilised on the surface of the beaker and piston, allowing the fluid stream created by the moving piston to shift the mobile ion cloud around each particle up and down, creating an oscillating frequency. The potential created is detected and measured by the two electrodes as streaming potential. From this, zeta potential is calculated.



Particles become immobilised on the PTFE beaker and oscillating piston. The fluid stream moves the mobile ion cloud surrounding each particle, allowing the electrodes to measure streaming potential.

Titration

Zeta potential alone is often not sufficient information to assess the stability of a colloid. +/- 30mV is often quoted as a threshold for stability, but this does not give the full picture and is only relevant to the sample as it stands in that exact chemical environment. It is entirely possible for two samples to have -30mV zeta potential but have very different stabilities. The Stabino provides a full insight into the colloid being assessed, primarily via pH and polyelectrolyte titrations.

- pH titrations – allow the assessment of stable pH regions and determination of the IEP with extremely high resolution. IEP determination via classical light-scattering methods is problematic due particles agglomerating and then sedimenting out when approaching the IEP. The Stabino constantly mixes the sample via the oscillating piston and is therefore not hindered by this problem and can measure the exact pH at which zero charge is achieved.
- Polyelectrolyte titrations – by titrating a counter-charged polyelectrolyte solution, information on charge density can be estimated. This gives a much greater understanding of how stable a dispersion is. Predictions of shelf-life or stability over time can be built up using this method.
- Salt titrations – allow investigation of the relationship between conductivity and zeta potential salt titrations are relevant to applications such as protein aggregation or waste water treatment, where changing the conductivity deliberately causes particles in solution to form aggregates so they can be filtered out of solution.
- Other titrations – ultimately, any titrant can use used on the Stabino and its effect on zeta potential monitored. Some custom applications may include assessing the effect of varying volumes of an additive or stabiliser, different amounts of pigment in an ink solution and so on.

Stabino® Standard Technical Data

Measurement Principle	• Zeta streaming potential
Size Range	• 0.3 nm - 300 µm
Measurement Period	• Potential from 10 secs • Titration 5 - 10 mins
Potential	• ±3000 mV
Mobility	• Max 14 (µm/s)/(V/cm)
pH Range	• 1 - 14
Temperature Range	• 0°C - 90°C
Sample Type	• Polar/aqueous
Titration: End points	• pH, zeta potential, conductivity, volume and time

For more information on the Stabino®, or to discuss your requirements, please contact us on 01954 232 776

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Manufactured by

The logo for 'COLLOID MATRIX' features a series of red circles of varying sizes arranged in an upward-curving arc above the text. The word 'COLLOID' is in a bold, red, uppercase sans-serif font, and 'MATRIX' is in a bold, grey, uppercase sans-serif font. Below the text, it says 'distributed by analytik' in a smaller, lowercase sans-serif font.

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