

ZETA-check

Zeta Streaming Potential

Particle interface potentials like the oscillating zeta streaming potential measured in the ZETA-check, represent the level of electrostatic repulsion between particles. The potential is generated by ionic end groups on particles and macro-molecules, respectively. With ZETA-check, the state of the actual charge of dispersions and macromolecular solutions is obtained within seconds. Solutions and dispersions from 0.3 nm up to 100 µm particle size qualify for measurement. The typical concentration is between 0.01 and 40 vol%.

Method

The „heart“ of the ZETA-check is a cylindrical PTFE beaker with an oscillating displacement piston (see fig. 1). 1 or 5 - 10 mL sample is given into the beaker. A fraction of the contained particles will be immobilized at the surface of the cell wall. By up and down movement of the piston the charge cloud of the electric double layer is pushed up and down the walls of the measurement device. The result is available at both electrodes as the oscillating zeta streaming potential ZSP. It is proportional to the particle charge quantity and the zeta potential present in the dispersion, respectively. Calibration is done with a macromolecular solution of known charge quantity or with a suspension of known zeta potential.

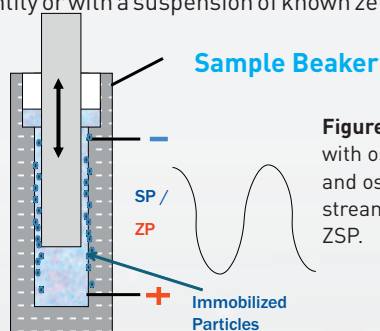


Figure 1: Sample cell with oscillating piston and oscillating zeta streaming potential ZSP.

Printer (optional)



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Up to 1000 data records are saved and can be queried later from a PC. One data record contains these informations: data record No., time, measured value in mV. In case of no retrieval the data will be constantly overwritten. The results can be printed directly from the instrument with an optional printer.

The ZETA-check is space-saving and easy to transport.

With the big brother Stabino® additional functions can be performed. As interface potentials generally react to the ionic surrounding of the particles and macromolecules, it makes sense to record the conductivity, the pH-value or the content of ionic macromolecules in the sample. If a titration to one of these parameters is required, a simple titration with a pipette can be performed rapidly.

For more precise and automatic titration experiments we recommend the [Stabino Charge Mapping - instrument](#). The ZETA-check can easily be upgraded to Stabino®.

**Easy to measure
Easy to move
ZETA-check**

ZETA-check Technical Data



	ZETA-check	Stabino®
Measurement principle	Zeta Streaming Potential	Zeta Streaming Potential
Size range	0.3 nm - 100 µm	0.3 nm - 300 µm
Potential	Zeta potential -200 mV to +200 mV Streaming potential -3000 mV to +3000 mV	
Calibration	Zeta potential with Al ₂ O ₃ (+50 mV). Streaming potential with 0.004N Poly-DADMAC solution (+1200 mV).	
Titration		X
pH range	1 to 12	1 to 12
Temperature range	0°C - 90°C	0°C - 90°C
Conductivity	0 to 350 mS cm ⁻¹	0 to 350 mS cm ⁻¹
Sample concentration	up to 40 vol. %*	up to 40 vol. %*
Sample volume	1 mL or 5 - 10 mL	1 mL or 5 - 10 mL
Sample type	polar - aqueous	polar - aqueous
Reproducibility	± 5%	± 5%
Dimensions(WxHxD)	180x300x260	180x300x260
Weight	8 kg	9 kg
Power supply	100 - 240 V	100 - 240 V
Control	internal control	TCP / IP
Tablet compatible		X

* dependent on sample

CE approved.



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