

Zeta Potential Controls – Both positively and negatively charged.



high values for a positive or a negative zeta potential with enhanced reproducibility

no background noise due to absence of charged surfactants

easy application of ready-to-use prefilled syringes

long shelf life at room temperature



The Zeta potential controls produced by Applied Microspheres are considered a benchmark commercial product. They provide reliable Zeta potential values for electrophoretic mobility and streaming potential, which are the two most commonly used analytical principles.

Nanoparticles are known to have an extraordinarily large specific surface area, meaning that their surface properties govern their colloidal properties and general behaviour. Due to this dependency, it is essential to determine the surface properties for the technical application of particles where adhesive surface effects play a role, such as in paint and ink manufacturing. The stability of charged particles against agglomeration is driven by electrostatic repulsive forces, which can be described as a function of the Zeta potential. A common example is water treatment, where Zeta potential measurements are used to determine the isoelectric point of titration. In biological applications, the Zeta potential is used to determine the applicability of functional particles and to assess the success of surface modification experiments. In essence, all colloidal interactions are influenced by electrostatic forces.

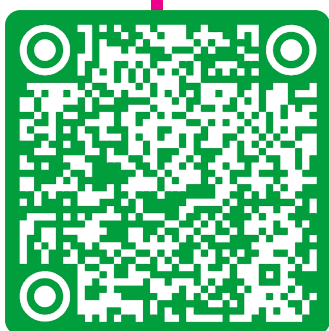
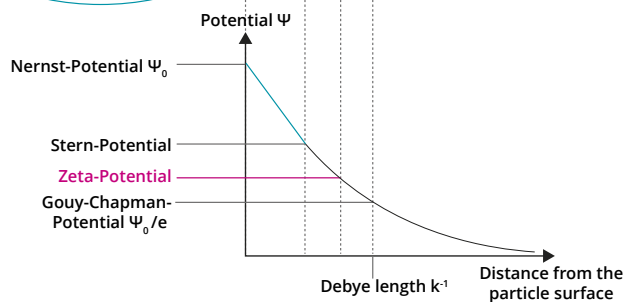
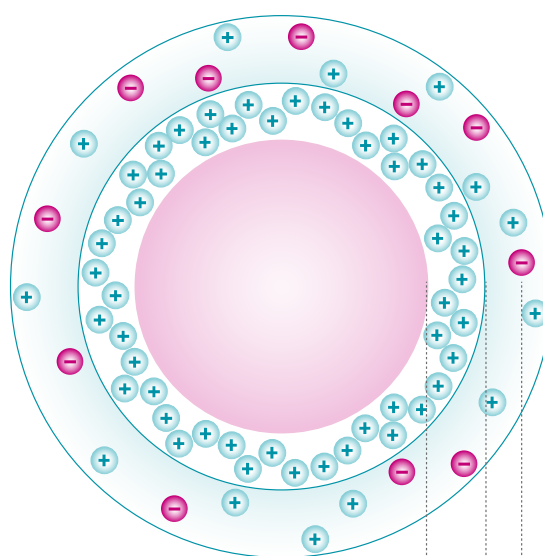
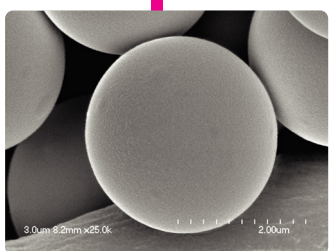
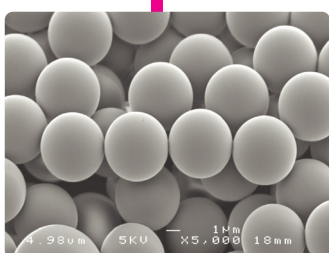
Experimentally, Zeta potential is the most accessible primary measure for determining the properties of a colloidal surface. Despite its central role in colloidal science and the existence of many experimental setups for its determination, results must be interpreted carefully due to the physical definition of the value. The Zeta potential is greatly influenced by the

fundamental properties of the surrounding medium, such as pH and ionic strength. Additionally, different Zeta potential determination methods cause different particle accelerations, resulting in different forces acting on the electric double layer surrounding the particle. Therefore, reliable and stable Zeta potential controls are essential in order to define the Zeta potential independently of the method applied and allow for the reasonable interpretation of experimental results.

The exceptional precision of Applied Microspheres' Zeta Potential Controls stems from their unique chemical composition. These consist of surface-modified polystyrene particles that are either positively or negatively charged. These products are designed solely for the reproducible validation of Zeta potential. Extensive control of the particle surface modification ensures well-defined colloid charges, leading to strong signals in the experimental setup. The formulation is free of charged surfactants and is buffered against CO₂ intake, resulting in a significant reduction in background noise and a stable physicochemical environment. The particle concentration has been adjusted to ensure suitability for most common experimental setups, with a defined electrophoretic mobility value.

Applied microspheres Zeta potential controls are supplied in ready-to-use syringes with Luer-lock fittings. The shelf life is 12–18 months from the production date. They can be stored at room temperature.

Physical Data	Positive Zeta Potential Control	Negative Zeta Potential Control
Zeta potential value	+60 mV	-60 mV
pH value	5,0 ± 0,5	8,0 ± 0,5
Nominal diameter	200 nm	
Particle density	1,05 g/cm ³	
Refractive index	1,59 @ 589 nm	
Solids content	0,02%	
Particle composition	Surface modified polystyrene	



Ordering Information

PIN	Description	Nom. Zeta Potential	Volume / syringe	Package size
70306C	Negative Zeta Potential Control	-60 mV	3 mL	6
71010C	Negative Zeta Potential Control	-60 mV	10 mL	10
70306N	Positive Zeta Potential Control	+60 mV	3 mL	6