

## STABISIZER®



### CHARGE TITRATION SYSTEM & NANO PARTICLE SIZER



#### Colloid stability formulation

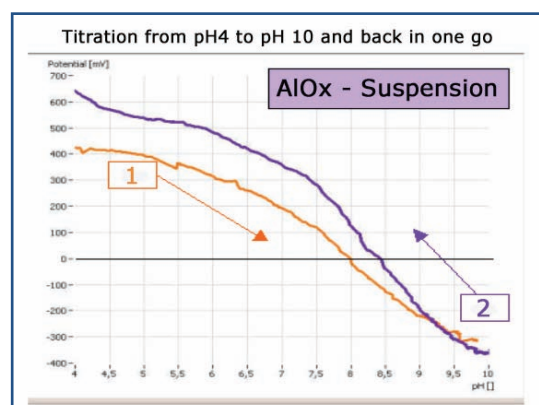
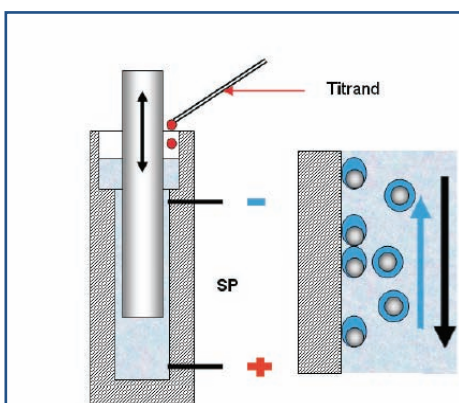
- Ceramics & glass
- Cement
- Coating materials
- Emulsions
- Filling materials
- Food & beverages
- Inks
- Ionic tensides
- Nano-particles
- Polyelectrolytes
- Proteins
- Silica
- Soles...

#### Process optimization

- Milling process
- Water recycling

#### SINGLE POINT CHARGE CHARACTERISATION OR TITRATION?

Zetapotential (ZP), streaming current potential (SCP), colloid vibration potential (CVP) are different names for the electrostatic repulsion Potential at the Particle Interface (PIP) belonging to corresponding measurement methods. Many users are confused about which one of them is better or more correct. None of them is the answer. No PIP alone at a given state of the dispersion (pH, conductivity, temperature) reflects the full charge behaviour of the sample. Only a titration mirrors the full character of a dispersion in respect to any variation of the ionic surrounding of the particles.

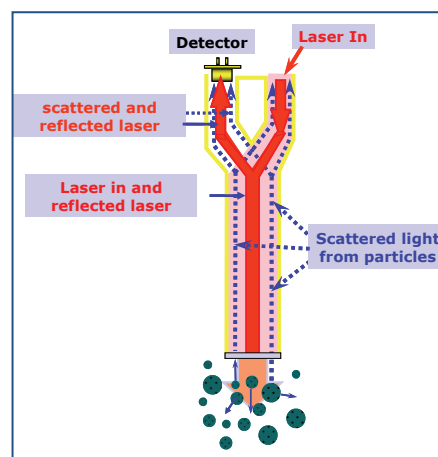


## CHARGE MONITORING FOR COAGULATION & STABILITY OPTIMIZATION

There are two main application areas where charge has to be monitored. In one of them the dispersion is intended to be destabilised for separation purposes when recycling water. The other application is the optimisation of dispersion stability. In both cases a poly-electrolyte or a pH titration is demanded either to find the point of zero charge or to find the stable regions, respectively. The coagulation of particles occurs at the point where the potential is zero. The stability regions are represented in the flat parts of the curve where the potential is highest, in an absolute sense.

## PARTICLE SIZE DISTRIBUTION

Size distribution is another important stability parameter. A Nanotrak ULTRA® from Microtrac Inc. is incorporated in the same housing. For the size measurement a probe is dipped into any flask or beaker up to a size of 200 ml. Alternatively it is possible to dip the sensor into beverage bottles or small volume vials.



## SPECIFICATIONS

### CHARGE TITRATION SYSTEM

Method:	Streaming Current Potential
Titration:	two integrated high precision pumps
Titration steps:	10 ul to 100 ul
Titration modes:	fixed, dynamic
	cationic/anionic, acid/base
samples:	aqueous macromolecular solutions, dispersions with 50 um maximum sized particles
sample volume:	10 ml
sample concentration:	0.1 to 10% wt/vol
pH-range:	2 to 12
pH-meter:	included
Potential range:	-100 to +100 mV
Included polyelectrolytes:	250 ml of PVS (anionic) and 250 ml of poly-DADMAC (cationic) 0.001N solution
Accessory kit:	2 empty bottles of 100 ml, 1 brush, 3 off 10 ml pipettes, spare tubing.

### NANO-PARTICLE SIZER NANOTRAC® ULTRA

Method:	Dynamic Light Scattering heterodyne back scattering
Analysis:	Fast Fourier Transformation on frequency power spectrum
Laser:	780 nm, 5 mW
Probe:	mono-mode fiber end capsuled into a 7.8 mm diameter probe
Size range:	1 nm to 6.5 µm
Samples:	aqueous and organic macromolecular solutions and dispersions
Nominal temperature range:	10°C to 50°C
Temperature sensor:	Thermistor inside the probe, automatic reading by the software
Accessories:	External Peltier unit with cooling capability for the standard 15 ml flasks: 4C to 60C, for other flasks on request. Ultrasonic probes Viscosity meter 0.4 – 1000 mPa.s

System including the charge titration, the nano-particle sizing Nanotrak® ULTRA, an integrated computer with software installed; all in one housing.

Size: 270x355x400 (WxHxD) mm; Weight 17 kg;  
 Outputs: 2x USB, 1x Ethernet, 1x RS232, 1x monitor, 1x keyboard, 1x mouse.  
 Electrical: 100-240 V / 90 VA multinational power supply