

ZETACAD: ZETAMETRY USING STREAMING POTENTIAL OR CURRENT



ZETA POTENTIAL MEASUREMENT USING THE POROUS PLUG TECHNIQUE

An electrolyte is forced to pass through a capillary or porous plug by a pressure gradient. The excess charges around the particles or wall are carried along by the liquid.

Their accumulation downstream causes the build-up of an electric field which drives an electric current back (by ionic conduction) through the liquid, against the direction of the liquid flow.

A steady state is quickly established and the measured potential across the capillary is called the streaming potential.

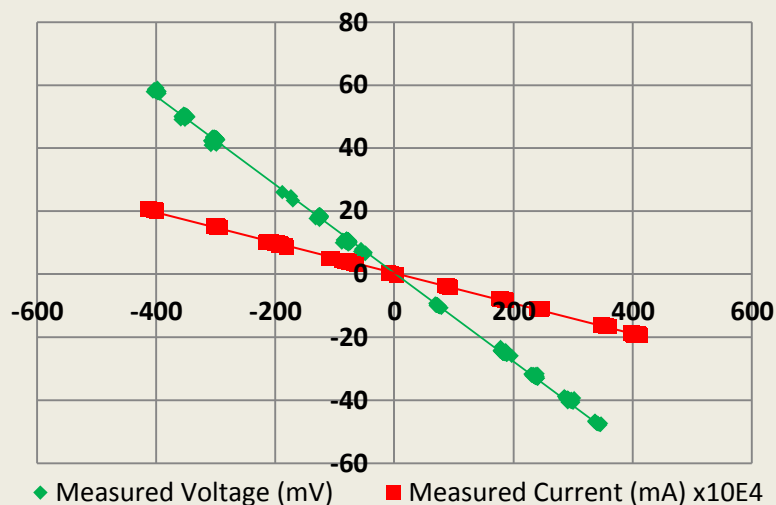
Parameters Measured

- > Streaming Potential
- > Streaming current (optional)
- > Plug resistance
- > Electrical Conductivity
- > Temperature

Features and Benefits

- > Applicable to particles above 50 μm diameter and flat surfaces.
- > Reliable and simple to setup. Measurement and rinsing of the system are fully automated.
- > Menu driven software Windows based.
- > Data acquisition creates ASCII files which are directly compatible with common spreadsheets.

Streaming current/potential of Fluorine



ZETACAD: ZETOMETRY USING STREAMING POTENTIAL OR CURRENT

CAD Instruments offers wide range of services to help you take advantage of this new measurement device. The **ZetaCAD** can be used for major industrial and academic applications including:

- > Ceramics
- > Fibre and Textile
- > Membranes
- > Water treatment
- > Pulp & Paper
- > Polymers
- > Geology

ZETACAD® SPECIFICATIONS

Technology

- > Zeta Potential analysis by streaming potential determination using the porous plug technique

Specifications Range

> Differential Pressure	± 500	mbar
> Streaming Potential	± 2400	mV
> Streaming Current	± 240	µA

Measuring Cell

> Standard cell diameter (others upon request)	15	mm
> Variable cell length	10 -150	mm
> Tangential cell (surface specimen chamber)	40 mm x 50 mm x 10 mm (W x D x H)	
> Flow through cell diameter (variable thickness)	47	mm

Characteristics

> Conductivity meter	0 – 20	mS.cm ⁻¹
> Power Supply	100 – 240 V // 50 – 60 Hz // 50 VA	
> Dimensions	600 mm x 600 mm x 600 mm (W x D x H)	
> Weight	40	kg
> Communication	USB bi-directional interface	

Requirements

- > Minimum computer specification: Pentium 4 with Windows® 2000, XP or Seven – 512 MB

*Note: These specifications may change in the interest of product development
The ZetaCAD was designed in cooperation with University of Nancy, France*