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Modified Streaming Current Values for Measurements of Isoelectric Point in Industrial Bioprocesses

Status: Accepted

Category: 2 Filter Testing

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Case studies have demonstrated that measurement of streaming current can be used to optimize polymer dosage in wastewater treatment and to characterize filtration membranes. The piston-style streaming current detector is an inexpensive and widely-used sensor. However, while investigating the Chemtrac ECA2100 for use on concentrated bioprocess samples, we found that the conductivity of the suspension affected the reported streaming current value (SCV). We have therefore defined a "Modified" SCV that takes conductivity into account; this new parameter yields a better correlation with zeta potential for *E. Coli*, yeast, and inclusion bodies. We demonstrate excellent results for measuring isoelectric point with the Modified SCV.

Bio

David Scott joined DuPont in 1986 after completing his PhD in atomic & molecular physics at William and Mary. Since then he has developed online sensors and measurement techniques at the company's main research facility in Wilmington, Delaware. He has worked extensively in particle characterization and led the characterization group for 10 years. His publication list includes 3 books, 30 reviewed papers and book chapters, several patents, and a dozen invited lectures.