

RAPID ASSAYS AND CONTINUOUS IN-SITU BIOSENSORS FOR BIOPROCESS MONITORING

Kenneth F. Reardon, OptiEnz Sensors LLC, USA

Ken.Reardon@OptiEnz.com

Brian C. Heinze, OptiEnz Sensors LLC, USA

Jaclyn Adkins, OptiEnz Sensors LLC, USA

Trenton Danna, OptiEnz Sensors LLC, USA

Lucas Johnson, OptiEnz Sensors LLC, USA

Zachary Menard, OptiEnz Sensors LLC, USA

Devon Osbourne, OptiEnz Sensors LLC, USA

Robert Walder, OptiEnz Sensors LLC, USA

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Fast, accurate, and precise measurements are critical in the biofuels, biochemical, biopharma, and biotechnology industries. Bioprocessing operations require rapid measurement techniques during cultivations to ensure product quality, ensure batch-to-batch consistency, increase product yield, improve process efficiency, and prevent expensive shutdowns. Although continuous sensors exist for dissolved oxygen, pressure, temperature, and pH, organic chemical concentrations must be measured using expensive equipment that can take hours or days to yield results. OptiEnz Sensors provides a biosensor platform for rapid assay or continuous monitoring of organic chemicals. The platform consists of an instrument with an attached sensor probe and replaceable sensor caps with multiple sensor spots. The sensor tips are unique to each chemical to be measured. The platform includes PC-based software for product configuration, display of results in both digital and graphical formats, and data export to process control systems. This technology is available in two platforms: A rapid assay system capable of quickly measuring the analyte concentration in samples and an in-situ probe for continuous, aseptic measurements in a bioreactor. The sensors are accurate, specific, and quantitative. OptiEnz has identified over 50 organic chemicals that can be measured using this technology and has constructed and tested biosensors for 22 of them. Of particular importance to biotech process monitoring are sensors for glucose, ethanol, lactate, glutamate, glutamine, xylose, lactose, glycerol, butanol, and methanol. The rapid assay system is on the market now for glucose and ethanol concentration measurement and a continuous sensor for in-situ glucose concentration monitoring is in customer trials.