ambr® 250 Fully Automated High Throughput Bioreactor System

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Introduction
The drive in biopharmaceutical production to reduce time to market for new products and increase process understanding in a quality by design approach means that there is greater pressure on biotechnology companies to implement new technology that enables higher throughput in development without compromising the quality of research. To address these challenges we have developed an automated, parallel bioreactor system that allows high throughput screening and process development for mimetic and mammalian cell culture.

ambr® 250 Benefits
- Single-use bioreactor fully integrated with software to allow for easy experimental set up.
- Highly parallel, 12 or 24 bioreactor stations enables users to run large DoE experiments at the same time.
- Automated sampling and liquid addition via the liquid transfer enable the user to significantly streamline experimental work plan.
- ambr 250 has a powerful yet easy to use software interface that allows users to create complex experiments easily and quickly.

ambr® 250 Objective of Study
- To demonstrate that ambr 250 is an ideal tool for process development, optimisation and scale up for generating data from a range of organisms including CHO, Pichia Pastoris and E.coli and comparing with benchtop fermentors.

Results
(data provided by courtesy of Chris Kistler, David Pollard, Merck, NJ)
- Highly parallel bioreactor system with 12 or 24 bioreactor stations enables users to run large DoE experiments at the same time.
- Automatic inoculation using shake flask cultures was also tested.

ambr® 250 Consistency Testing of 24 Bioreactor Unit
(data provided by courtesy of Tim Ward, David Pollard, York Way, Royston, UK and our industrial biotechnology collaborator)
- Aim: Demonstrate that the bioreactors in the ambr 250 system provide consistent control of culture during simple batch processes and complex feeding profiles.
- The 24-system was operated with multiple bioreactors running the same process with CellT, PichiaPastoris, CHO, Bacillus and filamentous organisms using typical feed profiles scaled-down from bench-scale processes. Two examples are presented.
- Automatic inoculation using shake flask cultures was also tested.

ambr 250 DoE Testing
(data provided by courtesy of Richard Wales, David Pollard, York Way, Royston, UK)
- Aim: Demonstrate the application of ambr 250 unit for rapid DoE evaluation of process parameters.
- Aims: Demonstrate the application of ambr 250 unit for rapid DoE evaluation of process parameters.
- 3 variables explored using one ambr 250 run.
- 24 bioreactor DoE study performed by 1 user in 1 week.

TAP Biosystems is now part of the Sartorius Stedim Biotech Group

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