



Fermentation Applications

Fast multi Vessel Analysis of Fermentation Processes

FermentTorr

From ESS Ltd

FermentTorr from ESS gives fast, accurate measurement and control of Fermentation processes and can be used to document progress and ensure end-product quality.

In production scale and pilot plant scale fermentation systems, usually there is a great deal of emphasis placed on the product yield. By monitoring the off gases from each vessel during the fermentation cycle, calculations of the respiratory quotient, Carbon production rate and Oxygen uptake are straightforward and included in the powerful software suite.

These systems can be fully integrated with the Fermentation System software, meaning that stop /start interactions between the two can easily be activated.

In applications where there is a requirement to monitor multiple fermenters, ESS has developed the 'MultiStream' ultralow volume autosampler. With this arrangement, sample gas is drawn from all of the sample points all of the time, with the sample from the specific vessel under measurement being diverted to the Mass Spectrometer. This arrangement ensures that fresh, real-time sample arrives at the instrument for measurement, and gives rapid switchover times between sample points with minimal 'dead time'. Up to 60 sample points may be monitored (these are selected in multiples of 10), and with 64 channels available for species monitoring, FermentTorr gives maximum flexibility for all Fermentation applications.

Features include:

- Individual data storage for each sample point - time and date stamped data gives a true historical record of the process performance of an individual vessel
- User-definable analysis times on each vessel - this gives the user full flexibility, especially in instances where fermentation vessels are at different stages of the fermentation process. For example, it may not be a necessity to have long analysis times on vessels that have just started 'in process', whereas those that are nearing the end of the cycle may require longer analysis times



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FermenTorr

Features include (continued):

- Up to 64 gas species - the rapid analysis speed of the FermenTorr system means that Quantitative analysis of up to 64 individual off-gases may be performed
- High and low flow configurations - system may be configured to suit the application requirements
- Multiple vessel measurement - user specified, in multiples of 10, with rapid switching between sample points
- ESS Precision Quadrupole analyser with high pressure enclosed ion source - this offers excellent speed, sensitivity and stability with longer service intervals due to lower operating temperature
- On-line calculation of Oxygen Uptake rate option
- On-line calculation of CO₂ Evolution rate option
- Full Process Monitoring - allows control points to be set and monitored
- Data exchange with other programs with software integration
- All metal vacuum system - ensures maximum integrity



FermenTorr systems are based upon ESS field proven technology to ensure maximum up time with minimal maintenance. Full application support is provided.

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