

Optical Density determination using Cedex Bio Analyzers

Monitor the rise of biomass in your fermentation with high reliability and a minimum of manual interaction

Measurement of the optical density (OD), the parameter to monitor the rise of biomass, is both resource intensive and time-consuming. With the fully automated OD assay from Roche, manual sample dilutions are no longer needed. The automated test provides results in minutes without compromised accuracy and precision in microbial fermentation. The photometric absorbance at 583 nm correlates to the concentration biomass in the culture.

Achieve convenience and safety through tighter control

The OD assay compares with manual photometric measurements while providing improvements in data quality. Automated dilution and high instrument-to-instrument comparability result in optimal precision.



Method comparison: Optical Density of *E. coli* culture

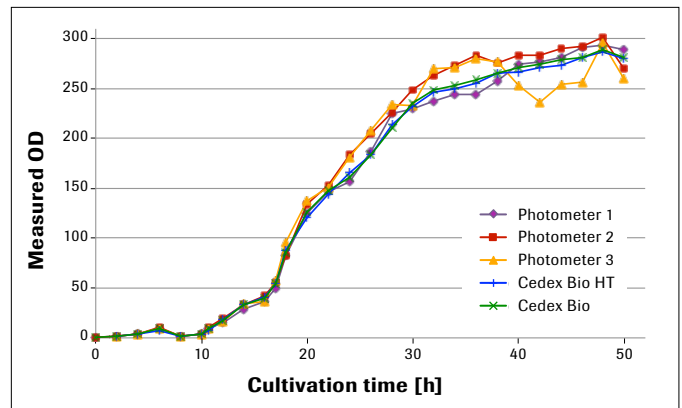


Figure 1: The Cedex OD measurements show tight inter-instrument alignment and correlate well with 3 manual photometers. (Reference: Genentech data)

Save time with improved workflow efficiency

Genentech's evaluation of the Roche OD assay has shown significantly improved efficiency compared to manual photometric OD readings. These gains in efficiency are estimated to impact both time and needed resources.

Manual photometer

Technicians / read



Reading station(s)



Time to sample

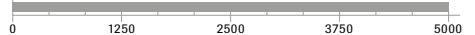
40 min /

8 bioreactors

Labor hours / year

Cedex OD assay

Manual



Cedex OD assay

Technicians / read

Reading station(s)

Time to sample

20 min /

Figure 2: Estimated efficiency gains based on Genentech's evaluation of the Cedex OD assay.

Rely on a robust test procedure to make the right decision

The OD test's linearity has been shown with standards of known densities for different sample types:

Linearity of Optical Density on Cedex Bio HT Analyzer

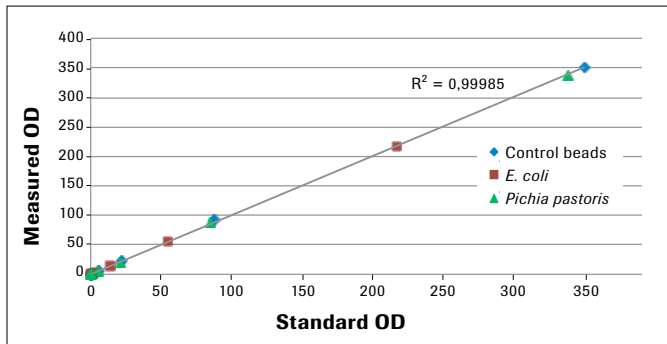


Figure 3: Measurements of control beads, *E. coli*, and *Pichia pastoris*.
(Reference: Roche Diagnostics data)

Achieve a wide and sensitive measuring range

Test range: 0.1 - 360 OD

The wide range enables OD monitoring over the entire fermentation process, while eliminating the need for manual sample dilutions.

The **precision** of the OD test is typically <5%.

Results were obtained from repeated determinations at 3 different density levels:

	Level 1	Level 2	Level 3
Mean value OD	2	20	150
CV in-run (21 replicates)	1.5%	1.7%	1.6%
CV inter-run (10 days)	1.9%	1.7%	1.7%

CV = coefficient of variation

Reference: Roche Diagnostics data

Ordering information

Product	Pack size	Catalog number
OD Bio	4 x 100 tests	07 705 620 001
OD Bio HT	400 tests	07 705 654 001
Control OD Level 1	6 x 1 mL	07 766 637 001
Control OD Level 2	6 x 1 mL	07 766 645 001
Control OD Level 3	6 x 1 mL	07 766 670 001

Related products	Catalog number
Cedex Bio Analyzer	06 395 554 001
Cedex Bio HT Analyzer	06 608 116 001

Regulatory disclaimer

For use in quality control/manufacturing process only.

Trademarks

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