Frusto-conical bottom Vessel Mini-Bioreactor

Mini-Bioreactor

For the best oxygen transfer

- The material used to form te frusto-conical bottom vessel mini-bioreactor was specially choosen for its ideal physical and chemical surface nature (see SEM micrograph), which provides optimal dissolved oxygen generation as the culture medium sweeps upon the surface (Bioprocess International, June 2008).
- The frusto-conical bottom of the culture vessel on an orbital shaker causes the culture medium surface to form a tilted surface that sweeps the vessel's other, air-exposed surface (Bioprocess International, June 2008; WO2007/142664). This action generates dissolved oxygen faster than that of any of sparging or bubbling method and has the added advantage of eliminating bubble burst-caused cell damage (WO2007/142664). The frusto-conical bottom mini-bioreactor series (45ml, 150ml, 1000ml and 2000ml) is ideal for the process development and scale up seed train support of mammalian cells, insect cells, plant cells, yeast cells and bacterial cells.
- Successful cell cultures using the above mini-scale vessels are supported by scale-up bioreactors (5 liter, 50 liter, 150 liter and 300 liter) both for suspension and paper-disc carrier perfusion cultures (see www.amprotein.com or www.amprotein-china.com).

Vessel surface (micrograph)

Frusto-conical Vessel

40ml

150ml

1L

2L

Size	Cell Type	Culture Method	Highest Cell Density	Media	Optimization
40ml	CHO-S	Fed-batch	1.8~2.5 x 10^7 cells/ml	B001	None
	CHO-K1	Fed-batch	1.2~1.5 x 10^7 cells/ml	B001	None
	SF9 (insect)	Batch	1.8 x 10^7 cells/ml	SFM90 II	None
	Tobacco Cell	Batch	PCV = 75~80%	MS	Optimized
	Carrot Callus	Batch	↑ Growth 20 - 25 times	MS	Optimized
	E. coli	Batch	OD_{600} = 2.2~2.5	LB	None
150ml	CHO-S	Fed-batch	1.5~2.0 x 10^7 cells/ml	B001	None
	CHO-K1	Fed-batch	1.2~1.4 x 10^7 cells/ml	B001	None
1L	CHO-S	Fed-batch	1.3~1.7 x 10^7 cells/ml	B001	None
	CHO-K1	Fed-batch	0.8~1.3 x 10^7 cells/ml	B001	None
2L	CHO-S	Fed-batch	1.3~1.5 x 10^7 cells/ml	B001	None
	CHO-K1	Fed-batch	0.8~1.2 x 10^7 cells/ml	B001	None

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