

Fermentation/Suspension Cell Questionnaire

Please answer the following questions as completely as possible.

I. Customer Information	
Contact Person	
Designation	
Department	
Company Name	
Contact Number	
Email Address	

II. Experimental Details		
<i>a. General Details</i>		
1.	Application	<input type="checkbox"/> Microbial Culture <input type="checkbox"/> Suspension Cell Culture <input type="checkbox"/> Adherent Cell Culture
2.	Cells Culture	<input type="checkbox"/> Bacteria <input type="checkbox"/> Yeast <input type="checkbox"/> Fungi <input type="checkbox"/> Cell Line: <input type="checkbox"/> Other:
3.	a. For adherent cells, specify type and amount of carrier used	<input type="checkbox"/> Microbeads, Specify: <input type="checkbox"/> Fibers, Specify: <input type="checkbox"/> Others, Specify:
	b. Amount of carrier	
4.	Product	<input type="checkbox"/> Secreted Protein <input type="checkbox"/> Non-Secreted Protein <input type="checkbox"/> Fermentation <input type="checkbox"/> Cell Banking <input type="checkbox"/> Secreted Virus <input type="checkbox"/> Non-Secreted Virus

		<input type="checkbox"/> Others:
5.	a. Current Culture System	<input type="checkbox"/> Spinner Flask <input type="checkbox"/> Stirred Tank Bioreactor <input type="checkbox"/> Other:
	b. Current Culture Scale in liters (L):	

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6.	Current Process Mode	<input type="checkbox"/> Batch <input type="checkbox"/> Fed-Batch <input type="checkbox"/> Continuous <input type="checkbox"/> Other:
7.	Culture condition for cell growth	<input type="checkbox"/> Media: <input type="checkbox"/> Serum: <input type="checkbox"/> Temp.:
8.	Currently using serum-free culture medium?	<input type="checkbox"/> Yes <input type="checkbox"/> No
9.	Concentration of additives	<input type="checkbox"/> Sodium bicarbonate: <input type="checkbox"/> Hepes buffer: <input type="checkbox"/> Others:
10.	Cooling system required?	<input type="checkbox"/> Yes <input type="checkbox"/> No
11.	Temperature sensitive?	<input type="checkbox"/> Yes <input type="checkbox"/> No
12.	pH Sensitive?	<input type="checkbox"/> Yes <input type="checkbox"/> No
13.	a. Shear Stress Tolerance	<input type="checkbox"/> High Sensitivity <input type="checkbox"/> Medium Sensitivity <input type="checkbox"/> High tolerance to shear stress
	b. Preferred Impeller Type	

b. Process Control

1.	Reactor Size	Minimum working volume: Maximum working volume:
2.	Agitation Speed	Range: ____ rpm to ____ rpm
3.	Measurements Required	<input type="checkbox"/> Temperature ____ °C to ____ °C
		<input type="checkbox"/> pH ____ to ____

		<input type="checkbox"/> DO _____ % to _____ % <input type="checkbox"/> Redox _____ mV to _____ mV <input type="checkbox"/> Turbidity <input type="checkbox"/> Foaming <input type="checkbox"/> Level <input type="checkbox"/> pCO ₂ <input type="checkbox"/> O ₂ /CO ₂ in Exhaust Gas <input type="checkbox"/> Others
4.	Temperature Control	<input type="checkbox"/> Double wall vessel <input type="checkbox"/> Heating Jacket <input type="checkbox"/> Heating Pad <input type="checkbox"/> Heating/Cooling Pad <input type="checkbox"/> Other:
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5.	pH Control	<input type="checkbox"/> Addition of Base <input type="checkbox"/> Addition of Acid <input type="checkbox"/> Addition of CO ₂ <input type="checkbox"/> Others:
6.	Dissolved Oxygen Control	<input type="checkbox"/> Impeller Speed <input type="checkbox"/> Addition of O ₂ <input type="checkbox"/> Gas Flow Rate <input type="checkbox"/> Others:
7.	Foaming	<input type="checkbox"/> High <input type="checkbox"/> Low <input type="checkbox"/> Not yet determined
8.	Applied Gases for Aeration	<input type="checkbox"/> Air <input type="checkbox"/> Air + O ₂ <input type="checkbox"/> Air + O ₂ + N ₂ <input type="checkbox"/> Air + O ₂ + N ₂ + CO ₂ <input type="checkbox"/> Others Mixing System: <input type="checkbox"/> Yes <input type="checkbox"/> No
9.	Airflow	Range: _____ vvm to _____ vvm Control: <input type="checkbox"/> Regulator (manual) <input type="checkbox"/> Mass Flow Controller <input type="checkbox"/> Others:
10.	Aeration Delivery	<input type="checkbox"/> Overlay

		<input type="checkbox"/> Sparger, Type: <ul style="list-style-type: none"> <input type="radio"/> Ring Sparger <input type="radio"/> Microsparger Others: <input type="checkbox"/> Both
11.	Pressure Control Requirements	
12.	Other Special Requirements	

c. Re actor Requirements

1.	Vessel Material	<input type="checkbox"/> Borosilicate Glass <input type="checkbox"/> SS 316L <input type="checkbox"/> Others:
2.	Seeding	<input type="checkbox"/> Needleless Seeding Port <input type="checkbox"/> Needle Injection Inoculation Port <input type="checkbox"/> Others:

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3.	Pressure Control System	<input type="checkbox"/> Manual Control <input type="checkbox"/> Automatic Control
4.	Sterilization	Temperature: ____ °C to ____ °C Period:
5.	Fluid Addition	Volume: Number of Ports: <ul style="list-style-type: none"> <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> Others:
6.	Number of Sampling Port	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> Others:

7.	Air Filter Housing	Filter Size: <input type="checkbox"/> 0.2µm <input type="checkbox"/> Others: Integrity Test Port: <input type="checkbox"/> Yes <input type="checkbox"/> No
8.	Exhaust Filter Housing	Filter Size: <input type="checkbox"/> 0.2µm <input type="checkbox"/> Others: Integrity Test Port: <input type="checkbox"/> Yes <input type="checkbox"/> No