

## **FERMENTATION QUESTIONNAIRE**

### **Completing the Questionnaire**

If you intend to complete the Questionnaire, then save this document (.pdf, 86kB) to your hard disk. Then proceed according to one of the alternatives below:

#### Alt. 1

Fill out the form in your PC off-line. Print out the completed form (it is not possible to save the completed form in Acrobat Reader) and send the document by fax or post to the address below.

#### Alt. 2

Print out the pdf file and fill it out by hand. Send the document by fax or post to the address below.

Our address is

Novaferm AB  
Stenöregatan 40  
SE-230 44 Bunkeflostrand  
Sweden

Fax +46 (0)40-368391

## FERMENTATION QUESTIONNAIRE

Please, fill in the following questionnaire as completely as possible in order to help us finding the best solution for the fermentation system:

COMPANY:		
ADDRESS:		
PHONE NO:		
FAX NO:		
REFERENCE/PERSON:		
TITLE:		
DATE:		
1.	What kind of production (vaccines, antibiotics, food, chemicals a.s.o.)?	
2.	Pilot or lab? Batch or continuous?	
	General description of the required system.	
3.	Kind of organism to be cultivated (bacteria, animal cell etc.)?	
4.	Name of organism?	
5.	Should the system be used also for other organisms?	
6.	Are the organisms pathogenic? Special precautions?	
7.	Approx. aeration rate needed (vvm)?	
8.	Need for other gas addition?	
	- What gases?	
	- Approx. rate?	
9.	Is the process completely anaerobic? N <sub>2</sub> addition?	
	<b>FERMENTER</b>	
10.	What size of fermenter vessel/s/?	
11.	Type of agitator? Flat turbine? Marine type? Other?	

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12.	Can the substrate be heat sterilised? Temperature allowed?	
13.	Is steam sealed connectors needed?	
14.	Is an incinerator for outlet gases required?	
15.	Is a mechanical foambreaker needed?	
16.	Is a reflux condenser on gas outlet needed?	
17.	Special comments regarding fermenter vessel.	
18.	If other vessels needed, please list here and specify separately.	
19.	Type of cabinet: Floor standing. Table top. Lab. drive unit.	
20.	Is pressure air available? Dry, particle free, 2 bar for process and 4 bar for pneumatic valves. Capacity?	
21.	Is clean steam available? Clean enough to be introduced into media (through sterile filter), 2 bar. Capacity?	
22.	Is water available for cooling?	
	- Temperature?	
	- Capacity?	
23.	Is prefilter for air and steam needed?	
24.	Special comments regarding supply unit	
	<b>DOSING SYSTEMS FOR pH-CONTROL</b>	
25.	Peristaltic pumps? Capacity? Container size? Pressure vessels for dosing? Size? Both acid and base?	

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	<b>DOSING OF ANTIFOAM AGENT</b>	
26.	Peristaltic pumps? Capacity? Container size? Pressure vessels for dosing? Size?	
	<b>OTHER ADDITIONS</b>	
27.	What additions? Capacity? Type of dosing (pump, pressure vessel etc.)? Container size?	
	<b>INSTRUMENT AND CONTROL SYSTEM</b>	
28.	What electric supply is available? Voltage? 3-phase with neutral and earth?	
29.	Environment? Dust? Humidity? Splash? Temperature?	
30.	Operator unit (PC). Table top? Panel mounted?	
31.	Control unit. Table top? Panel mounted?	
32.	Number of digital outputs?	
33.	Number of digital inputs?	
34.	Temperature measurement?	
35.	Temperature control? Normal cultivation temperature? Accuracy needed?	
36.	Sterilisation control?	
37.	Agitator speed measurement?	
38.	Agitator control. Power? Speed range?	
39.	Gas flow measurement? Fluidistor sensor (>20 l/min)? Thermic (mass	

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	flow) sensor 0-1000 /min?	
	What gases?	
	Normal flow rate?	
	Max. flow rate?	
40.	Gas flow control?	
	Valve with electric servomotor?	
	Max. flow?	
	Min flow?	
	Valve on mass flow sensor?	
41.	pH measurement?	
	Normal pH-range?	
	Difficult media?	
42.	pH control?	
	Type of pH corrector?	
	Acid? What kind?	
	Alkali? What kind?	
	CO <sub>2</sub> ? NH <sub>3</sub> ? Other?	
43.	pO <sub>2</sub> measurement?	
	Galvanic?	
	Normal pO <sub>2</sub> range?	
44.	pO <sub>2</sub> control?	
	By agitator speed?	
	By air flow?	
	By O <sub>2</sub> flow?	
	Other?	
45.	Foam indication?	
46.	Foamcontrol? Chemical? What kind of agent? Mechanical?	
47.	Pressure measurement? Pressure range?	
48.	Pressure control? Pressure range?	
	Min. pressure in fermenter needed at rated flow?	
49.	Level/load measurement?	
50.	Level control? How? For what purpose?	

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51.	Redox measurement?	
52.	pCO <sub>2</sub> measurement?	
53.	pCO <sub>2</sub> control? How?	
54.	O <sub>2</sub> analyse in outlet gas?	
55.	CO <sub>2</sub> analyse in outlet gas?	
56.	Alcohol analyse in outlet gas?	
57.	Turbidity measurement?	
58.	Other parameters to be measured?	
59.	Interface for connection to supervisory computer?	
60.	Printer	
	Normal A4 width?	
	Laying A4 width?	
	Length of cable? (standard 3 m)	
61.	Special comments regarding instrumentation?	
	<b>OTHER EQUIPMENT NEEDED</b>	
62.	Steam generators?	
	Capacity?	
	Pyrogene free?	
63.	Compressor for oil free air?	
	Capacity?	
64.	Water stills?	
	For what purpose?	
	Tank size?	
	Still capacity? Average? Intermittent?	
65.	Filters?	
	For what?	
	Capacity?	
	Type (cartridge, sheet etc.)?	
	Filtering grade (sterile, pre, etc.)	

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66.	Other accessories? (desintegrators, separators, freeze dryers etc.)	
67.	Is the building ready? Dimensions? Layout?	