UNIVERSITY OF SASKATCHEWAN

PROTEIN CHARACTERIZATION AND CRYSTALLIZATION FACILITY
COLLEGE OF MEDICINE – UNIVERSITY OF SASKATCHEWAN
HEALTH SCIENCES CENTER 3D40

ANAEROBIC CHAMBER

ANYONE USING THIS EQUIPMENT SHOULD BE PROPERLY TRAINED BY PCCF SUPERVISOR BEFORE INDEPENDENT OPERATION !!!

Chamber contains mixture of 4-10 % H_2 gas and N_2 gas (N_2 balanced). **DO NOT USE FLAMES IN OR AROUND CHAMBER !!!**

1. Before start-up make sure you have enough H_2/N_2 gas in the cylinder to continue work
2. Make sure the valves leading to oxygen sensor are open and that oxygen sensor pump is 'ON'
3. After prolonged 'stand by' chamber can show up to 10,000 ppm of O_2. With correct set-up it will take about an hour to bring it down to level below 10 ppm, or 10 hours to have below 1 ppm.
4. If the level of oxygen is high turn on two of the platinum catalyst inside chamber, do not adjust temperature on them.
5. Open **INSIDE** door of the chamber, **DO NOT OPEN OUTSIDE DOOR !!!**
6. Turn on vacuum pump. This pump will circulate gas inside the chamber and get rid of water vapor formed by Pt catalyst.
7. Turn on small fan inside chamber. It will circulate gas inside chamber faster.
8. It can be noticed that pressure of the gas inside will fluctuate (by inflating or deflating gloves). It will have to be regulated be either opening vacuum valve or H_2/N_2 gas, so the gloves are slightly inflated toward outside.
9. When oxygen level is below 50 ppm you can turn off vacuum pump and left catalyst, leaving only right one working.

PUTTING CONSUMABLES INSIDE THE CHAMBER

Plan experiments carefully, make a list what you might need during experiment to limit number of transfers.

1. **Make sure INSIDE door are closed !!! Both latches closed !!!**
2. Open outside door and put your consumables inside transfer chamber.
3. Close outside door. Open vacuum valve until pressure reaches -5 psi. Open gas valve to equalize to 0 psi. Repeat 5-6 times to limit amount of oxygen introduced to inside of chamber. When you open inside door, oxygen ppm will rise but it will come down within 10-15 min.
4. Open inside door and remove your consumables from the rack. Leave the door open until oxygen levels drops in case you need to supply more hydrogen gas.
5. When incubating inside the chamber make sure you observe pressure inside the chamber by looking at the glove inflation. Pressure cannot be very high or low. The chamber may burst or implode.

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TAKING CONSUMABLES OUTSIDE THE CHAMBER

1. Open the inside door, if closed
2. Put consumables on the transfer rack
3. Close the door using both latches
4. Open outside door and remove consumables
5. Close the outside door. There is no reason to rotate gas inside the transfer chamber unless more consumables must be taken out
6. Open vacuum valve till pressure it – 5 PSI, close the valve.

FINISHING THE WORK

1. Make sure you have removed your supplies from the chamber.
2. Turn off equipment inside the chamber.
3. Turn off the Pt catalyst
4. The pressure may fluctuate again so pay attention to glove inflation for couple of hours and regulate if necessary
5. Close the inside door
6. Close the H_2/N_2 cylinder
7. Make sure that pressure inside the transfer chamber shows -5 PSI with BOTH DOOR CLOSED !!!