

## Starting Up and Shutting Down a Schlenk Line

### Starting Up

1. Make sure there is enough liquid nitrogen in the dewar to fill the trap and to do whatever else you will be doing during the day's lab session. If you empty the Dewar, refill it while you wait for your vacuum pump to warm up.
2. Make sure all of the stopcocks are properly greased. Note: Use only Apiezon M grease on your Schlenk line.
3. If the vacuum trap is dry: Make sure it is greased and all of the stopcocks are closed and start the vacuum pump. Fill the trap with liquid nitrogen and wrap the top with a cloth towel. Begin working.
4. If the vacuum trap has solvent in it: Empty the trap into the waste solvent bottle. Assemble the trap as in 3 making sure the stopcocks are closed. Fill the trap with liquid nitrogen, wait a moment, then start the pump. Wrap the trap with a towel. **Important**: When using this method liquid oxygen can collect in the trap. It is highly explosive especially when in contact with organic compounds. Never let the trap sit in liquid nitrogen for more than a minute or so without having the vacuum pump turned on.
5. Make sure there is sufficient nitrogen in the cylinder to do your work. Turn on the nitrogen flow valve. Crack open the bubbler stopcock and let the line purge gently for 5-10 minutes. Close the stopcock and open the valve until it is fully open. (The nitrogen regulator should never be set higher than 5 psig.)

### Shutting Down

1. Make sure all vessels attached to the line are under nitrogen.
2. Shut off the pump and immediately vent the line through one of the stopcocks.
3. Drop the trap immediately or liquid oxygen will begin to collect in the trap.
4. Close the nitrogen feed valve. If you are leaving something open to nitrogen then partially close the feed valve. Open the bubbler stopcock and adjust the flow rate to a gentle bubble, then close the bubbler stopcock.

**Important!!** Liquid oxygen is a light blue colored liquid. It is highly explosive, particularly in the presence of organic compounds such as the grease that we use. I am told that the ferocity of the explosion is quite impressive. If you should ever make liquid oxygen, immediately remove any liquid nitrogen coolant, vent the vessel, and leave the room quickly, closing the door behind you. Put warning notes on the doors and tell someone on the floor such as myself, Dennis, Karl, etc. what is going on. Remain in line-of-sight of the lab and make sure no one goes in. Wait 15-30 min and then check the trap carefully.