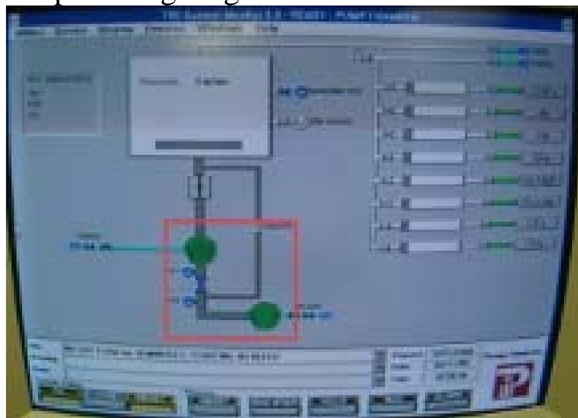
PlasmaTherm 790 RIE

Parralell plate RIE with CF_4, CHF3, SF6, O2, N2, He, and Ar

Username: 3333
Password: 3333
Idle condition check:

- Mechanical pump and turbo pump are both on
  - Both pumps will be green on the plumbing diagram



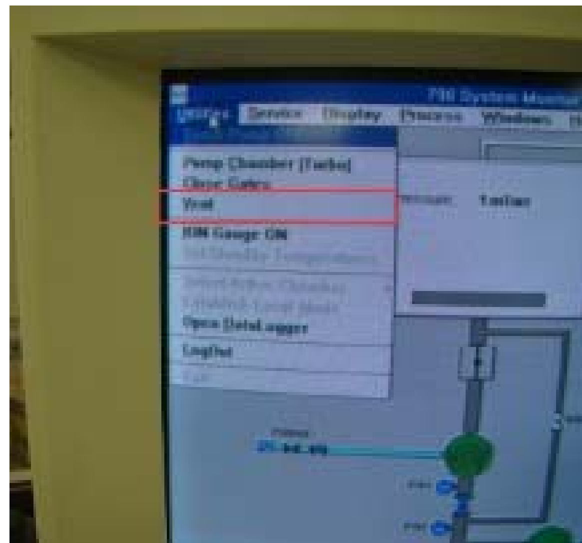
- System Status is ON and in Standby or Ready mode

- No active alarms
- Ion gauge is OFF, icon will be white on the system diagram

- Chamber is under vacuum
  - Lid is closed completely

- Compressed gas cylinders are not empty, they can be viewed through the window behind the machine

Loading a sample:
- From the Utilities menu select Vent



- Place sample in the center of the electrode

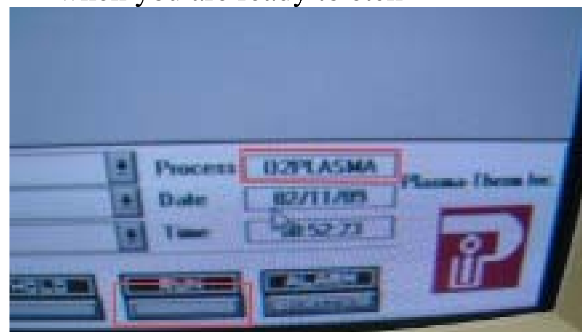
- Close the chamber lid and apply pressure to ensure a good seal, once the rough valve opens and the chamber seals completely you can release pressure

- Select Pump Chamber from the Utilites menu

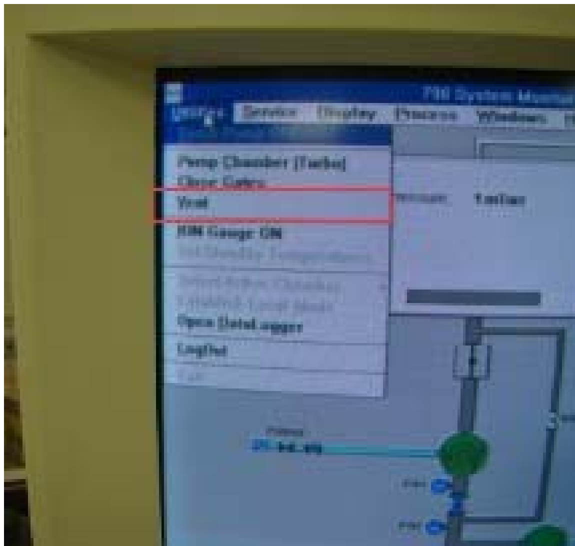
<u>Loading and running a process</u>:

- Select Load from the Process menu

- Verify your process is loaded and click run when you are ready to etch



- When the process is complete select vent from the utilities menu



- Remove your sample

- Close the chamber lid and apply pressure to ensure a good seal, once the rough valve opens and the chamber seals completely you can release pressure

<u>Common Process Parameters</u>:

- Silicon
  - 155W
  - 20sccm SF_6
  - 20sccm O_2
  - 100mT
  - Etch rate: Load dependent, the more exposed silicon there is the lower the etch rate. Typically between 5000 and 7500Å/min
  - Isotropic etch profile
  - Selectivity:
    - Photoresist: 2-3:1
    - SiO_2: 7:1
    - GaAs, Al: 20:1

- Silicon Dioxide
  - 175W
  - 36sccm CHF_3
  - 4sccm O_2
  - 40mT
  - Etch rate: 400Å/min
  - Anisotropic etch
  - Selectivity:
    - Photoresist: 2-3:1
    - Silicon, GaAs: 10:1
    - Ti, W, Al: 10:1

- Silicon Nitride
  - 175W
  - 36sccm CHF_3
  - 4sccm O_2
  - 40mT
  - Etch rate: 450+Å/min
  - Anisotropic etch
  - Selectivity:
    - Photoresist: 2-3:1
    - Silicon, GaAs: 10:1
    - Ti, W, Al: 10:1