STS CVD SOP

Introduction:

The ST Systems CVD machine is a Plasma Enhanced Chemical Vapour Deposition tool capable of depositing Silicon Dioxide (SiO_2), Silicon Nitride (SiN), Silicon Carbide (SiC), amorphous Silicon (_-Si) and Phosphorous-doped amorphous Silicon films on 4" and 6" wafers and also wafer pieces.

Safety:

Due to the toxic nature of the process gases, the supply cylinders are turned on and off by qualified technical staff only. All tank changes are performed by qualified technical staff only.

Do not try to defeat any interlock on the system. Keep your hands away from all moving parts and be sure that all covers are in place when you are processing. If you encounter any equipment problems while operating the system, contact the technical staff in charge of the system. Do not try repairs on your own.

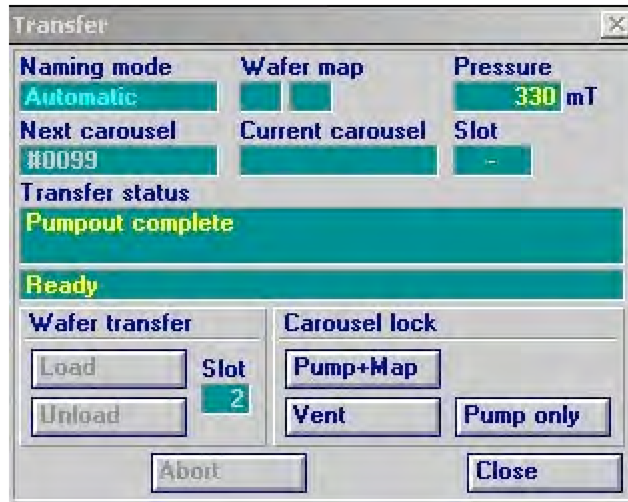
Procedure:

NOTE: It is mandatory to reserve the system prior to use and to ENGAGE MACHINE prior to starting your process in CORAL.

Loading a Wafer:

The wafer is loaded using the Wafer Transfer window located on the lower right of the screen:

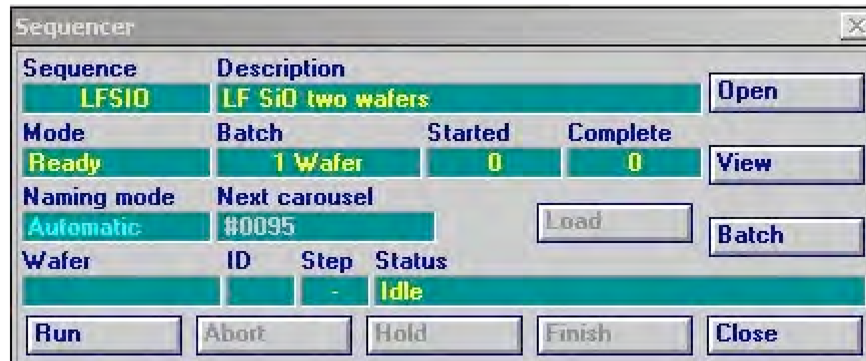
Vent the loadlock by clicking on the **Vent** button:



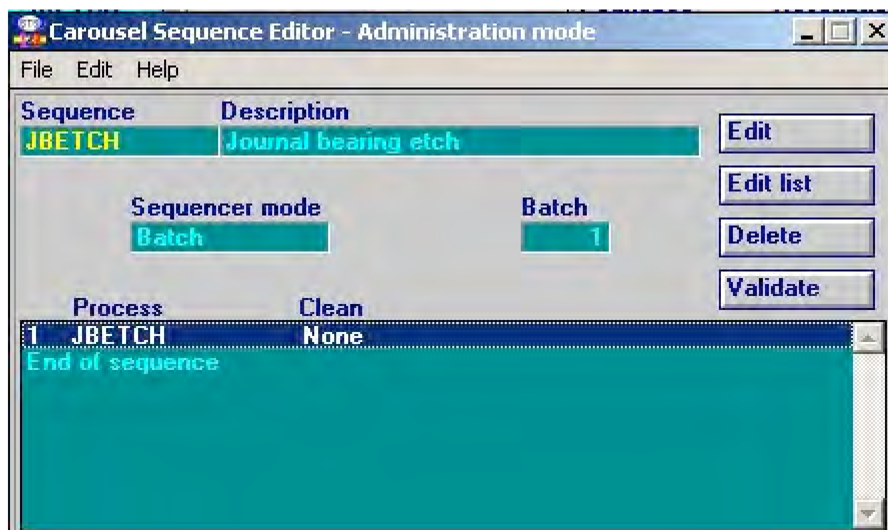
Manually load the wafer onto the load arm using a pair of tweezers and click the **Pump + Map** button.

Using a Sequence:

Load the desired sequence using the Sequencer window located on the middle right side of the screen:



Click on the **Open** button to display the list of available sequences. Use the View button to check that the selected sequence utilises the correct recipe and the Batch number is correct for your number of wafers.

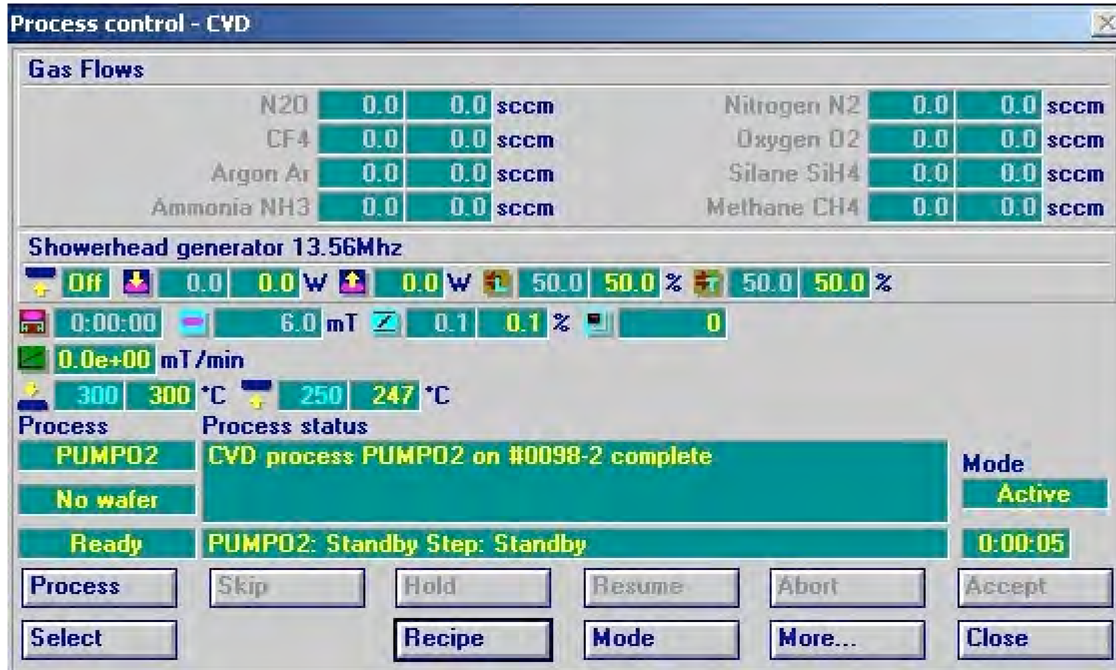


Before beginning the process, open the Recipe Editor and ensure that the correct process time has been entered (see the Editing a Recipe section below). If everything is correct, click on the **Run** button on the Sequencer window. The system will automatically load

the wafer, run the recipe and unload the wafer to the loadlock. When the wafers have completed processing, they will turn green and can be removed from the loadlock by clicking the **Vent** button on the Transfer window.

Using Manual Mode:

After clicking the **Pump + Map** button, the wafer loaded will appear in the Plan View window. The wafer is loaded into the process chamber by clicking on the **Load** button on the Transfer window. When the wafer has been loaded, the desired process can be selected by clicking on the **Select** button on the lower left of the Process Control window.



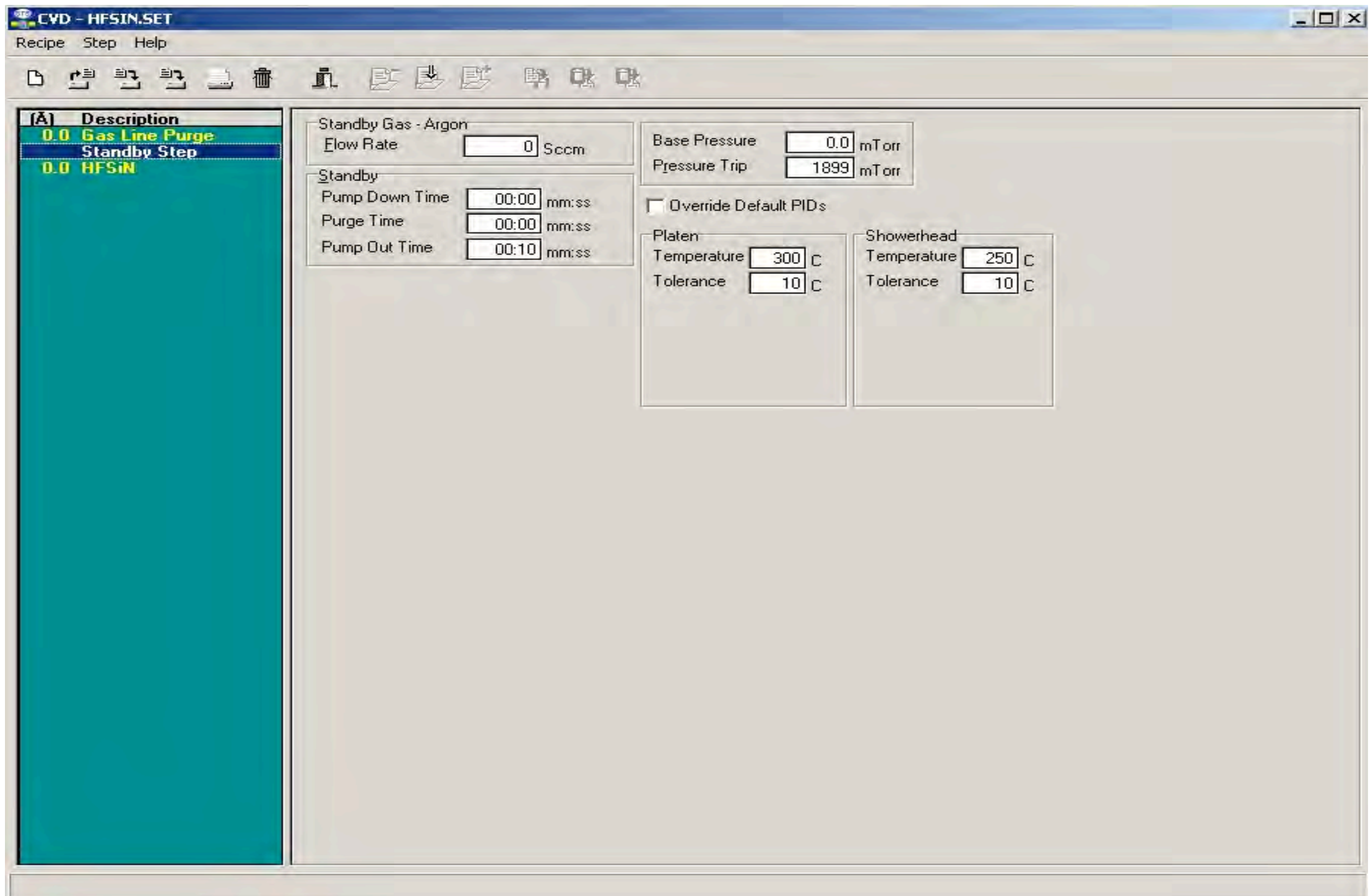
Once the recipe has been loaded, click on the **Process** button to begin running the process. When the recipe has completed, click on the **Unload** button on the Transfer window to remove the wafer from the chamber, click on the **Vent** button to vent the loadlock and remove the wafer.

Running 4" Wafers and pieces.

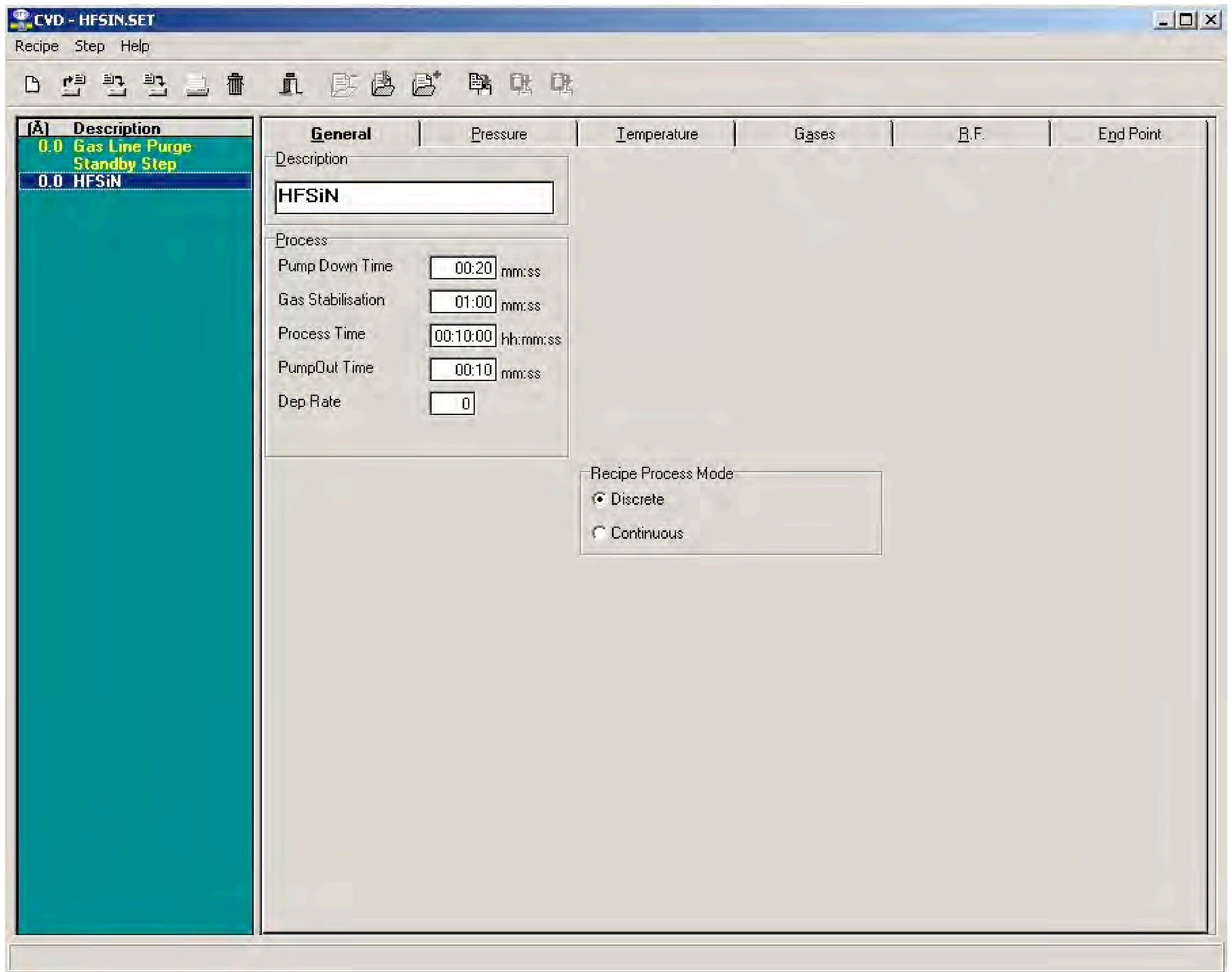
Vent the loadlock and insert the 8" wafer chuck onto the load arm. The wafers may slide a little on the chuck as the loadlock is pumped down, if needed vent the loadlock and reposition the wafers. Be careful when finished processing has completed as the wafer chucks may be very hot – if necessary leave them in the loadlock to cool. The next user will remove them.

Recipe Editing:

To open the Recipe Editor, click on the **Recipe** button on the bottom centre of the Process Control screen. The recipe steps are listed in yellow text on the left of the screen. The first step – Gas Line Purge – ensures that no toxic gas remains in the gas lines. The Standby step ensures that the chamber is ready to begin processing.



When you click on the Process step, several tabs are available on the top of the window: **General**, **Pressure**, **Temperature**, **Gases**, **R.F.**, and **End Point**. The **General** step allows to you change the **Process Time**. The other tabs may be viewed to check recipe parameters but no other set points should be adjusted without consulting the Engineer in charge.



If there are any issues with the tool post a problem in CORAL and contact Donal at 2-2983.