

# Operating Procedure for PECVD System at UNC

## Start-up/Chamber Conditioning

- 1) The process temperature is set by the boxes at the upper left side of the screen. The standard growth temperature is 300C and the jacket (sidewall) temperature is 60C. Do not change these without first checking with the lab manager.
- 2) **If using the MF process, please contact the lab manager for specific training on its use. Do not change anything in this recipe. Changing the power supply timing may damage the supplies.**
- 3) Run a five minute chamber conditioning process to pre-season the chamber with the film to be deposited. This step gives more consistent and predictable film properties.
- 4) Click "Start Batch," and choose the desired recipe from the pull-down menu.
- 5) Edit the time and other user changeable parameters as desired on the screen.
- 6) Click "Start," the process will (sometimes) begin automatically. If the process does not begin automatically, click "Start Batch" again and then "cancel" when the process window pops up on the background screen.  
Once completed, the process runs a 2 minute purge cycle.
- 7) Acknowledge process completion in the pop-up window at the end of the cycle.

## Film Deposition

- 1) Run a deposition only after chamber conditioning.
- 2) Click "Vent" to vent the chamber.
- 3) Click "Open" once it appears on the screen and the chamber lid will open and move out of the way.
- 4) Load samples onto the chuck. **CAUTION: The chuck is very hot. Do not let your gloves, paper, or other flammable materials near the chuck.** Note: the chamber can only stay open a limited amount of time. An automatic closure procedure will begin after a few minutes.
- 5) Click "Close" and then confirm by clicking "Close" in the pop-up window. Make sure there is nothing blocking the closure of the lid. Keep fingers away from the baseplate as the lid closes.
- 6) The chamber will pump down automatically. Allow the chamber to pump down to at least 1.0 E-3 Torr.
- 7) Click "Start Batch," and choose the desired recipe from the pull-down menu.
- 8) Edit the time and other user changeable parameters as desired on the screen.
- 9) **If using the MF process, please contact the lab manager for specific training on its use. Do not change anything in this recipe. Changing power supply timing may damage the supplies.**
- 10) Click "Start," the process will (sometimes) begin automatically. If the process does not begin automatically, click "Start Batch" again and then cancel when the process window pops up on the background screen.  
Once completed, the process runs a 2 minute purge cycle.
- 11) Acknowledge process completion in the pop-up window at the end of the cycle.
- 12) Click "Vent" to vent the chamber. Click "Open" once it appears, and the chamber lid will lift and

move out of the way.

13) Remove your samples from the chuck. **CAUTION: The chuck is very hot. Do not let your gloves, paper, or other flammable materials near the chuck.**

14) If running more samples, load them and repeat the process. Note that some flaking of films off the chamber can occur and you may want to run the etchback process before running another sample.

15) If you are not running more samples, close the lid, pump down the chamber and run the "Etchback" process (40 minutes) to clean the chamber. Once the plasma strikes, it is not necessary to wait for the Etchback to finish.

### **Setting Up a Process Recipe**

1) Click "Processes"

Expand the UNC Users tree. If you already have a folder in the tree, go to your folder, otherwise create a folder with your first and last name.

2) Right click and select "Add New Recipe" to add a recipe or to edit an existing recipe expand the "Recipe" tree, expand "Version History," and right click on the latest version of the recipe closest to the one you want to create.

3) Select "Edit Recipe" and rename the recipe for your own use.

4) Click the "Details" tab, right click on the parameter to edit and select "Edit Parameter." Edit as needed and click "OK." Click "Save" to save all changes as a new version/history.

5) Please do not make or save any changes to the "Standard Recipes" entered by the Lab Manager unless you save as another name in your folder.

6) Under the "Settings" on the left menu, right click on the "List in batch start" and make sure there is a blue check mark on the icon to enable recipe use. If not checked, select the "Toggle" to enable it. The recipe should appear in the "Start Batch" listing. Click "Close" when finished.

### **Finishing Equipment Use**

1) Set the temperature back to 300C (platen) and 60C (chamber wall) if these were changed.

2) Always run the Etchback Process when finished. It is not necessary to wait for it to end once the plasma strikes.

3) Contact the lab manager if any errors occur on the tool.

4) Do not click on any buttons or settings not explained in this procedure