Oxford Cluster Tool Operating Instructions

Rules

- Please be aware of the thermal properties of your material!
- DO NOT USE OIL, WAX, OR TAPE INSIDE THE ALD CHAMBERS!!
- Always include witness sample to verify run thickness!
- Only use 6" Si carrier wafers in the ALD (Dep) chambers. DO NOT use the metal carrier wafers! THIS WILL DAMAGE THE TOOL!!
- Maximum deposition thickness of any material is 300Å (30 nm)! DO NOT make consecutive runs to achieve a thickness greater than 300Å, we will find out and you will be suspended from the tool! If you require thickness greater than that you must get approval from Bill Mitchell.
- Never use the recipe SAVE button on the recipe screen for a standard ALD recipe!!
- Only change the number of repeat steps in a standard ALD recipe!
- Do not modify or create any recipe steps in the step library!!

Operation

1. Verify in the **Pumping** screen (see Step 3) that there is not a wafer in the chamber you need to use. If a wafer is present, a green wafer icon will be displayed.

   NOTE: You should attempt to contact a user before unloading their wafer. If they are not responsive, then unload their wafer per Steps 16-20 and place the wafer on a labeled wipe.

2. Verify that the table temperature is correct for the recipe you want to run. Click on the **Oxford logo** in the top left corner of the screen, under **Processing** select the chamber you will be using, and verify the **Table Heater** temperature. If you need to change the table temperature, then you need to run the corresponding chamber recipe for the temperature you need (for example: CH3-Change Tsub=200C) by going to Steps 11 – 14. Temperature change recipes are run with the chamber empty (NO WAFER!).

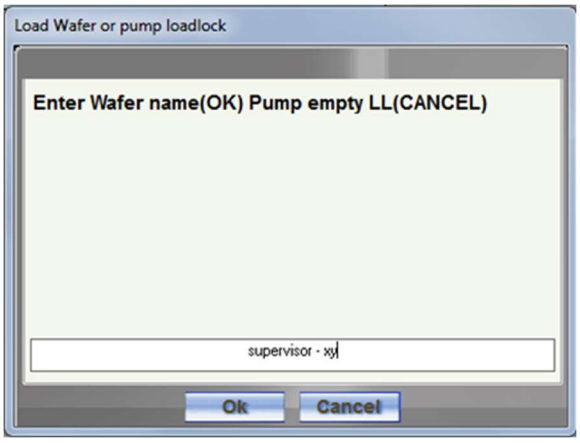
   

   NOTE: The standard temperature for the ALD chambers is 300°C and the Ion Mill is 100°C. You may need to coordinate with the user ahead of you if you require a temperate other than standard. For the ALD chambers; it will take ~45-60 minutes for the chuck to cool down 100°C and ~15-20 minutes for the chuck to heat up 100°C.

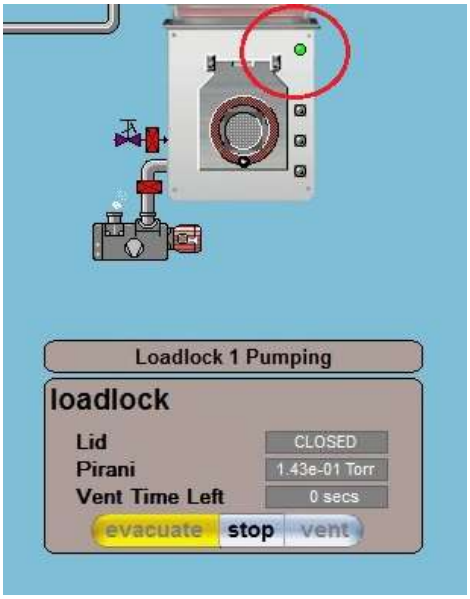
3. Click on the **Oxford logo** and then under **System** select **Pumping**.
4. The **Loadlock 1 Pumping** controls are at the bottom center of the screen, click **stop** and then click **vent**.

5. Unlatch the two load-lock latches but leave them still hooked, so that the lid will not spring open.
6. For ALD (Dep) processes, place a 6" Si wafer into the load-lock and then place your sample (and witness piece) onto the 6" Si wafer. DO NOT use the metal carrier wafers, these are only for the ion mill!
7. Close the lid and fully latch the two latches.
8. Go back to the **Loadlock 1 Pumping** controls, click **stop** and then click **evacuate**.
9. A pop-up window will prompt you to enter a wafer name for the run. Enter your group/company or name/initials (Example: Staff-BL) and then click **Ok**.



10. Once the small dot on the upper right corner of the load-lock graphic turns green, click on the **green wafer icon** in the load-lock, and then select the destination chamber for the desired process. Wait until the wafer is loaded into the desired chamber.



11. Click on the **Oxford logo** and then under **Processing** select **Recipes**.
12. Click on **Load**. A pop-up will prompt you to overwrite the current recipe, select **Yes**.
13. Select the desired recipe specific to the chamber you are going to use.
    To edit # of ALD cycles (film thickness):
    a. Click the on the **Repeat** step
    b. Click on **Repeat Step** in the **Step Commands** window that appears
    c. Enter the number of cycles you require in the pop-up window and click **Ok**
14. Click on **Run Now** and the recipe will start.

15. You can monitor the run by clicking on the **Oxford logo** and under **Processing** select the chamber you are using.
16. When the recipe is complete, verify the load-lock is empty by PHYSICALLY LOOKING into the load-lock viewport. NEVER trust the wafer location status in the software!

    NOTE: If you need to run a different standard material layer, go back to Step 11.
17. Click on the **Oxford logo** and then under **System** select **Pumping**.
18. Click on the **green wafer icon** in the process chamber you were using, select the load-lock as the destination. Wait until the water is returned to the load-lock.
19. Using the **Loadlock 1 Pumping** controls, click **stop** and then click **vent**.
20. Unlatch the two load-lock latches but leave them still hooked, so that the lid will not spring open.
21. Remove your substrate and 6" Si carrier wafer from the load-lock.
22. Close the lid and fully latch the two latches.
23. Using the **Loadlock 1 Pumping** controls, click **stop** and then click **evacuate**.
24. A pop-up window will prompt you to enter a wafer name for the run. Select **Cancel**, DO NOT select OK or hit the return key on the keyboard!
25. Note all usage in the logbook for the chamber you are using.
26. If you changed the chamber temperature from the standard setting (ALD 300°C, Ion Mill 100°C), return the chamber to the standard temperature per Step 2.

Notes

- System user name and password: OPT/OPT
- Any user created/saved recipes will be deleted that do not have prior approval from Bill Mitchell.