

Tystar Oxide Furnace Procedure

2014

1. **Make sure you use the appropriate process tube:**
 - 1.1. Tube #1 is the top tube and is used for **SOG** cure only.
 - 1.2. Tubes #2 and #3 are for Wet and Dry Oxidation of clean Si.
 - 1.3. Tube #3 is the bottom tube and is used for general Annealing.
2. Load your sample on to the appropriate **"Boat"**.
3. If Oxidizing Si in Tube #2 or #3 use the BYU on-line "Thermal Oxide Rate Calculator" to determine the amount of time for the oxidation step.
4. **Load your Recipe**
 - 4.1. From the User Interface Panel that corresponds to the tube you intend on processing in press the "Menu" key in the upper left quadrant of the keypad.
 - 4.2. Type "DS" and press the "Enter" key. In the top center portion of the display you should see the word "step". Directly next to "step" it should say "idle". **If it doesn't the system is likely already running a program. Do not proceed until you verify the tube status.**
 - 4.3. Press the **"Menu"** key.
 - 4.4. Type "RL" and press the "Enter" key.
 - 4.5. Use the arrows to navigate the cursor until it is on the recipe you want to run.
 - 4.6. Press the **"Enter"** key twice to select the recipe.
 - 4.7. If you are running a recipe with variable process times, temperatures or gas flows you will be prompted to enter a value for each variable in the recipe.
 - 4.8. Once you have satisfied the variables screen you will be prompted to press the **"Menu"** key.
5. Press the **"Run"** key in the lower left quadrant of the keypad.
6. The cantilever and door will now open. **The idle temperature is between 400C and 600C. Use caution as the door and all associated parts are very hot! Never leave the area while the door is open.**
7. When the door stops moving load the boat with your sample. **Again exercise extreme care. All of the exposed quartz is very hot and fragile.**
 - 7.1. Once you have loaded your sample press the "Event" key on lower left quadrant of the keypad.
 - 7.2. The door will now close and the process will begin.
8. Press the **"Menu"** key and type **"DS"** (Display Status) and press **"Enter"**. You will now be able to monitor the system during the run.
9. When the run is complete the system will wait at **"Step 0110"** with the door in the closed position. You will need to press the **"Event"** key to get the door to open. **Never leave the area while the door is open.**
 - 9.1. Once the door stops moving unload your boat with the appropriate boat holder and place it on the boat table. **Do not touch the boat. It is extremely hot!**
 - 9.2. **Do not use carbon tipped tweezers to remove your sample! The will melt!**
 - 9.3. Press the **"Event"** key on the keypad and the door will close. **Never leave the area while the door is open.**