

### **Basic Operation Instructions for the Nitric Oxide Anneal Furnace**

1. Turn on power on the temperature controller
2. Set the temperature controller to 850°C by using the arrow keys.
3. Keep Argon flowing during the heat up and the loading step. (Set Argon flow at 2.8)
4. Load your sample on the wafer boat.
  - a. Pull off the quartz end cap
  - b. Pull out the boat
  - c. Place your sample on the boat
  - d. Push the boat back into the tube
  - e. Put the quartz end cap on snugly
  - f. Ensure the gas inlet tube is straight
5. Turn on the Nitric Oxide, and set the controller to 0.3 for a flow rate. You will notice the clear tube turns brown due to the presence of Nitric Oxide.
6. Set the temperature controller to 1175°C by using the arrow keys.
7. Start counting your process time when the temperature reaches 1120°C. Typical process time is 2 hours.
8. Cool down to 850°C.
9. When the temperature reaches 850°C, turn off the Nitric Oxide and switch over to Argon. You will notice the gas tube will clear out.
10. Set the temperature to room temperature.
11. Flow argon for a minimum of 40 minutes before removal of your sample.
12. Remove your sample, and replace the cap.

Note: It is safe to leave the cleanroom when argon is flowing. However, you cannot leave the cleanroom with the nitric oxide is flowing. When Nitric Oxide is flowing, you must be nearby to observe the gas detectors mounted on the hood surrounding the furnace.

### **Process Notes:**

1. Maximum process temperature is 1200°C.
2. Be sure the process tube is fully purged with Argon prior to unload your sample after processing.
3. Please do not try to perform any maintenance to the machine. Contact the tool engineer for assistance.

If you have any problems, questions, or comments about this machine, please contact the tool engineer, Dan Hosler.

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