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| Tool Identifier | N₂ Annealing furnace/Micro1 |
| Document version 1.1 | February 2013 |
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SYSTEM INFORMATION

A furnace tube for annealing in N₂ ambient.

EQUIPMENT SPECIFICATIONS

1. Naturally cooled open tube furnace.
2. Available gases: N₂.
3. Ability to process up to 2" wafers.
4. Max Temp: 1100° C.

Process tube inside diameter: 3 inch

PROCESS CONTAMINATION CLEARANCE PROCEDURE

- For using the N₂ annealing furnace a process clearance is mandatory. The detailed description of your sample, the materials used and sample history details should be mentioned while making a request for availing the equipment.
- Professor Incharge for Contamination clearance – Prof. Anil Kottantharayil.

System owner

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Authorised users:

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Training and equipment usage:

For training and equipment usage please follow the [procedure](#) mentioned in CEN website.

LOG BOOK:

Please make a entry in the log book.

STANDARD OPERATING PROCEDURE

EQUIPMENT SPECIFICATIONS- CMOS specific FGA furnace

1. Naturally cooled open tube furnace.
2. Available gases: N₂.
3. Ability to process up to 2" wafers.
4. Max Temp: 1100° C.

➤ **Start Up**

1. Turning on necessary gases.
 - First open the cylinder (N₂) at the micro 1 service corridor, set the line pressure to 4 bar (sometimes varies depending upon the number of instruments using the same cylinder simultaneously).
 - The gas flowing into the furnace can be controlled by flow meters present near the tube.
2. Switch on the chillers (mostly on 24×7) & exhaust of the furnace.
3. Flip the furnace power switch (to power the heating coils).
4. Flip the furnace control power switch (to power the control unit of the furnace).
5. Now the temperature requirements of centre, right, left zones of the furnace can be set (ramp up rate, mode of ramping up can also be set).

➤ **Process**

1. Manually open the door of load in chamber, load your wafers - typically load at temperatures below 400 °C.
2. Open the required gas, N₂.
3. Use the appropriate long pull rod to slowly push the boat until centre of tube.
4. Carry on the process for your required time and ramp down the furnace to the unloading temperature and unload the wafers.

➤ **Shut Down**

1. Unload your wafers and the boats after your process (boats may be kept inside the tube itself).
2. Close the furnace door.
3. Switch off the furnace power (as it is naturally cooled).
4. Set the furnace for ramp down to room temperature.
5. Once the temperature becomes less than 300 °C in all the zones, the N₂ gas can be closed.
6. Then switch off the exhaust (Chiller is 24×7 on).

SAFETY INSTRUCTIONS & PRECAUTIONS

1. When working with the furnaces, make sure you are wearing the appropriate gloves.
2. Never touch the hot furnace components and the wafers with gloves as it will contaminate the furnace.