HARDBAKE OF PHOTORESIST SOP

October 2013

Purpose: To remove the solvent content in photoresist thereby increasing adhesion, hardening the photoresist and making it etch resistant.

Overview: This process will utilize the Hotplate or Vacuum Oven in the photolithography bay to ensure that the photoresist is cured and can move on to other processing.

Preparation and Precautions (Hotplate):

1. One of the hotplates located past the spinner benches in the photolithography bay should be set at 115°C for wafer dehydration.

2. If the Hotplate temperature needs to be changed find the controller located next to the heating surface. The “UP” and “DOWN” arrows can be pressed to change the goal temperature (the green value). Wait until the measured temperature (red value) matches the goal temperature before proceeding.

Procedure:

1. Place the Silicon wafer face up on the hot plate in soft contact.
2. Use one of the egg timers located in the photolithography bay and let the wafer sit for at least 1 minute on the hotplate
3. Using tweezers, remove the wafer from the hotplate surface.
4. Wait until the wafer is cool before continuing to the next process.
For other resist types, please refer to the particular data sheet (see the links below, these links provide guidelines for soft bake, exposure, post exposure bake and develop conditions):

- SU-8 2000
- SU-8 2-25
- SU-8 50-100
- S1800 Series Photoresist
- PMMA Resist
- LOR 3A/ PMGI Resist Data Sheet
- AZ 4000 Series Photoresist
- HNR Resist Series
- Waycoat Negative Resist Developer (WNRD)
- SPR 220 Series Photoresist

Preparation and Precautions (Vacuum Oven):

**IMPORTANT:** If another temperature setting is desired, refer to the [Blue-M Vacuum Oven SOP](#).

Hardbaking should never precede etching or plating by more than 4 hours as adhesion is reduced as a function of time.

**Procedure:**

1. Place the wafers working face up on one of the shelves in the oven.
2. Close the oven door.
3. Bake the wafers according to the following temperatures and times:
   - **Microposit S1800**: 100°C - 110°C, 30mins
   - **OGC HNR-120**: 140°C - 150°C, 20mins
4. At the end of the specified time remove the wafers and close the oven door.
5. Forward the wafers to the next operation.