

HMDS Oven

Daily Startup Checks & Operational Verifications

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Purpose

This document defines daily startup procedures and performance checks for the HMDS Oven in the NSERL Cleanroom. The purpose is to make sure the tool is operating properly so that a user can operate the tool without encountering operational problems.

Daily PM Tasks

Startup

This step involves starting up the tool and checking for problems.

- Sign in to the logbook
- Open the oven door and check to see if anything is inside
 - If there is, check the logbook for notes from the last user or cleanroom staff
 - Remove the material if there is no instructional note in the logbook
- Check the HMDS liquid level and note in the logbook – notify tool owner if less than 10%
- Turn on the vacuum pump – verify operation of vacuum pump
- Close the door and start the process and note start time – 22 min process
 - Continue start-up steps on other tools until time is up and buzzer sounds
- At the end of the process, check the process time and if it is the full 22 minutes then certify the operation by writing a note in the logbook stating “System ready for use.”

Quarterly Qual Tasks

For this tool, the qualification test needs to be special – determining a failure in this step at the end of a full lithography flow is difficult. Therefore the following test should be performed on a quarterly basis.

Qualification Test

This is the detailed qualification procedure for the HMDS process.

- Obtain two new 4” silicon wafers
- Measure the contact angle of DI water on the contact angle goniometer system in Bay 5.
 - Record 5 contact angle values at 5 points on the wafer – Center and 4 points around the outside of the wafer

- Return the wafer to the HMDS oven, place it inside and run the oven process.
- At the conclusion of the application process, measure the contact angle again at 5 places on the wafer
- Compare the average contact angle before and after the HMDS process.
- The contact angle with HMDS on the surface will be much larger than that of a virgin wafer.
 - Nominal contact angle of virgin wafer – _____
 - Nominal contact angle with HMDS applied – _____