

## Wafers to use:

The wafers for process calibration are ordered from a wafer supplier that sells high grade, quality wafers. These are 4-inch Si wafers, with low particle count (Particles:  $\leq 10$  @  $\geq 0.3$  microns). Wafers should be handled carefully, because every loading and unloading will add some particulates.

Regular Prime grade wafers also work well, but note that initial pre-process particle measurement may be higher - this is ok as long as you measure *before* the process step, and subtract that value from the *after* process value. If your *before* measurement shows high (eg.  $>200$  particles), do not use that wafer for particle checks, discard it and find a better wafer.

Surfscan 6200 (located in bay5) is used for scanning wafers. There are two standard recipes that could be used for scanning wafers: UCSBTEST1 (for scanning 8" wafers) and UCSBTEST2 (for scanning 4" wafers). The recipe UCSBTEST2 is used as a template to create other two standard recipes: "UCSB Gain4" (measuring small particles 0.16-1.6um) and "UCSB Gain2" (measuring larger particles 1.6-28um).

We have cassettes only for 4" and 8" wafers. If you plan to scan wafers that have different size, you need to provide your own cassette and calibrate it. If you need to scan wafer pieces, you need to develop your own procedure how to scan it.

## Scanning procedure for 4" Si wafers:

The **right-cassette/indexer** is calibrated for 4-inch and 5-inch wafers. The **left-cassette/indexer** is available for 8-inch wafers ( not calibrated).

### Scan before process step:

1. Log in (access code is boss)
2. Load wafers (face up) to the cassette that says " 4inch Surfscan"
3. Place the cassette with wafers to the right indexer
4. In the menu option select "CASS" (this will read all wafers that are loaded into the cassette)
5. Go to "Recipes"
6. Select one of the recipes:
  - o UCSB G4 0.16-1.6 (measuring small particles 0.16-1.6um)
  - o UCSB G2 1.6-28.0 (measuring larger particles 1.6-28um)
    - Recipe "UCSBTEST2" is used as a template to create recipes UCSB Gain2 and UCSB Gain4
7. View the recipe and modify it if needed (if recipe is modified, select bin split/default to save changes)

8. Select the wafer in the catalog box you want to scan, and press START (it would scan only one wafer)
9. Select AUTO option If you want to scan all wafers in the catalog box, followed by START
10. Wait until scan is finished
11. Record:
  - **LPD Cnt** (sum of all particles #1- #8), particles #1(0.160-0.213) um, particles #8(1.20-1.60) um
  - **Haze** (region (%), average(ppm), peak(ppm))
12. Take a picture of the scan (by phone)
13. Select "Home" so indexer moves up to loading/unloading position
14. Unload wafers
15. Log out

### **Data Recording**

- Run the above process TWICE: once for recipe "Gain 2" (sizes 1.6µm to 28µm) and another for recipe "Gain 4" (sizes 0.160µm to 1.6µm)
- Record the following:
  - "total particle count",
  - "Haze %" and
  - Take photos of the results screen showing all binning and wafer particle distribution. See example photos below