



## RCA of 5inch pseudo square wafer cleaning in NCPRE

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### Chemical Process:

#### Organic Clean:

- 1) RCA-1 Solution:-NH<sub>4</sub>OH:H<sub>2</sub>O<sub>2</sub>: DI Water in ratio 8:1:2.**
  - a. Take 4000 ml of DI water and 500ml of NH<sub>4</sub>OH (30%).
  - b. Heat this solution to 70-75<sup>o</sup>C (takes ~ 20min to reach the temperature). Use 2 emersion heaters (RCA 1 written) to increase the temperature along with the hot plate. This is to increase the chemical reaction rate.
- 2) Add 1000ml H<sub>2</sub>O<sub>2</sub> (30%). Solution will bubble vigorously after 1-2 minutes,
- 3) Keep the Si wafers for 22- 25 minutes.
- 4) Remove it from the heater and allow cooling (in the RCA 1 set-up itself) for 20 minutes.
- 5) Rinse the wafers 3 times consecutively in 3 DI water beakers.
- 6) Give a 30sec 2% HF Dip (or till the time when no water sticks on the wafer surface).
- 7) Rinse the wafers 3 times consecutively in 3 DI water beakers [Use fresh DI water in each step]
- 8) Wait for the solution in the beaker to cool down for > 3 hour.
- 9) Dispose the RCA-1 solution in the 'NCPRE Used RCA-1' bottle.

#### Ionic Clean:

- 1. RCA-2 Solution:-HCl: H<sub>2</sub>O<sub>2</sub>: DI Water in ratio 8:1:2.**
  - a. Take 4000 ml of DI water and 500 ml of HCl (96%).
  - b. Heat this solution to 70-75<sup>o</sup>C (takes ~ 20min to reach the temperature). Use 2 emersion heaters (RCA 2 written) to increase the temperature along with the hot plate. This is to increase the chemical reaction rate.
2. Add 1000ml H<sub>2</sub>O<sub>2</sub> (30%). Solution will bubble vigorously after 0.5-1 minutes,
3. Keep the Si wafers for 15-20 minutes.
4. Remove it from the heater and allow it to cool for 20 minutes.
5. Rinse the wafers 3 times consecutively in 3 DI (fresh) water beakers.
6. Give a 30sec 2% HF Dip (or till the time when no water sticks on the wafer surface).
7. Rinse the wafers 3 times consecutively in 3 DI water beakers [Use fresh DI water in each step]
8. Wait for the solution in the beaker to cool down for > 3 hour.
9. Dispose the RCA-2 solution in the 'NCPRE Used RCA-2' bottle.

The wafer cleaning process is over. Take the wafers submerged in DI water to the laminar bench and dry them with pure (99.99%) N<sub>2</sub> gun.