

ALUMINUM WET ETCH SOP

Revised May 2020

NOTE: Do not perform this operation if you do not have a buddy in the cleanroom.

1. It is suggested that this operation be started within 30 minutes of the completion of a hard bake from the photolithography process.
2. Before preparing the etchant put on the appropriate personal protection equipment (PPE) of a blue chemically resistant apron, face shield and chemically resistant orange gloves.
3. Use only the commercially prepared acid mixture labeled **Aluminum Etch** which is a mixture of phosphoric, acetic and nitric acids. This mixture can be found in the acids cabinet in the wet etch bay.
4. Make sure the acids bench is powered on and retrieve a Pyrex beaker labeled for aluminum etch. Place the beaker onto the hotplate and place all three thermocouple and nitrogen back pressure leads into the beaker.
5. Pour the aluminum etch solution into the Pyrex beaker on the hotplate until you are able to turn on the hotplate. Refer to the **Wet Benches SOP** on how to turn on and program the temperature of the hotplate.
6. Program the hotplate to bring the aluminum etch solution temperature up to 40°C.
7. When the aluminum etch is at temperature immerse your sample into the solution until the desired aluminum is removed. This etching process is rapid and typically takes less than two minutes depending on the amount of aluminum deposited onto your sample.
8. Remove your wafer and place it into a wafer cassette or sample in a basket and rinse your sample using the quick-dump-rinse (QDR). Operation of the QDR can be found in the **Wet Benches SOP**.
9. Dry your sample in the lower spin-rinse-dryer (SRD) by opening the door and placing the wafer cassette into the SRD. Press the start button and wait approximately 4 minutes for the process to finish. **DO NOT PLACE YOUR SAMPLE IN THE UPPER SRD FOR IT IS RESERVED FOR RCA CLEAN WAFERS ONLY.**
10. Allow the solution to cool down and pour the used aluminum etch into the Aluminum Etch Waste bottle, which is also located in the acid cabinet.
11. Rinse the Pyrex beaker and place it on the acids bench.
12. Wash your gloves and dry them. Inspect and remove your PPE.
13. Inspect your samples visually with one of the optical microscopes available in the cleanroom.