MOS GRADE RCA BENCH CERTIFICATION CHECKLIST

How can a user hurt themselves? How can a user hurt the tool?

A qualified user should be able to:

- Identify personal safety hazards associated with the tool and what precautions are taken to prevent an accident from occurring.
- Identify hazards to the tool and what precautions are taken to prevent an accident from occurring.
- Operate the tool safely and proficiently.
- Recover from simple errors.
- Demonstrate knowledge of the processes performed with the tool.

RCA Clean Station

- Personal Safety Hazards
    - The RCA clean Station uses several hazardous chemicals, sulfuric acid H_2SO_4, ammonium hydroxide NH_4OH, hydrochloric acid HCl and hydrogen peroxide H_2O_2, and hydrofluoric acid HF. Users should be aware of the unique hazards of the materials with which they are working, especially HF which is potentially lethal. If HF is spilled on a person, hospital treatment will be necessary. Immediately apply calcium gluconate or zepharin chloride (located on top of refrigerator in Wet Etch II) to the affected area and inform SMFL staff member or lab instructor. If another chemical is spilled, remove clothing and rinse affected area in safety shower for 15 minutes and inform SMFL staff member or lab instructor.
    - When working at the RCA Clean station, always use appropriate personal protective equipment (PPE)—apron, face shield and heavy rubber gloves.
    - The PPE should not be worn any place other than the immediate vicinity of the RCA Clean Station. Do not walk away from bench while wearing PPE. If assistance is needed (i.e. to grab a Kim Wipe or timer, etc.), ask for assistance—do not get it while wearing PPE. Do not work at computer or answer the phone while wearing PPE. When finished at the RCA Clean station, rinse the PPE, fully dry it and return to hook.
    - It is imperative that all spills be cleaned up immediately because of the number and variety of materials used at this bench. Please see a staff member for assistance in cleaning up spills.

- Hazards to the Tool
    - Never operate the heated tanks without the proper fluid level.
    - Operate the bench controls with clean gloves only. The chemicals used will cause damage.
    - Tanks are breakable, carefully place wafers in them and never bang a cassette on the side.
    - The RCA clean station is a “clean” area and only RCA cleans should be performed at the bench. All other wet processing should be done at another appropriate bench.

- If a new HF bath is necessary, contact the process or equipment technician. Do not attempt to refill bath. There are several HF-based etchants and the correct one must be used for proper etching.
- For this bench only, all cassettes, handles and beakers are to remain with the bench. They should *not* go on the cart or in the dishwasher and should *never* be used on any other bench.
- Do not dump hot chemicals. The temperature should be below 30C before dumping.

- Operating Tool
  - Users should be able to:
    - Properly mix and warm-up APM and HPM baths and be aware of how to mix and warm up a piranha bath.
    - **Safely** perform a RCA clean (including cascade rinses)
    - Silence alarms when necessary
    - Perform Spin-Rinse-Dry (SRD) cleans
    - Properly put boats away when finished
  - Reservations – If not present at stated start time, tool is reserved for 15 minutes and is then considered open for general use.

- Simple Errors
  - Failure to turn on power to the Bench.
  - Interlock tripped.
  - Broken wafer.
  - Rinse tank enable.

- Processes
  - Users should be familiar with:
    - Compositions, times and temperatures of Piranha, APM and HPM baths.
    - RCA clean sequence.

- Appropriate Uses of the Tool
  - This tool is intended for RCA Cleaning of MOS Grade silicon wafers only. No exceptions.
    - If a wafer has ever had any metal on it, it may not be processed in this bench.
    - If a wafer has ever been KOH etched it may not be processed in this bench.
    - No wafers with photoresist on them. The Piranha clean is not intended for bulk photoresist removal.
    - Wafers that have been through a CMP process are not allowed in this bench.
    - If your wafers have an unknown contaminant on them, they are not allowed in this bench.
  - Process tanks are labeled for their appropriate uses and should *never* be used for anything else.
  - Process temperatures are set and should not be changed without SMFL approval.

- o Only the dedicated wafer cassettes and handles may be used in this bench.