EPFL - CMi

LAB 600 H

WARNING

Only the CMi Staff is qualified

- to do a service
- to do a maintenance
- to fill or to exchange any source in a crucible.

Each user has to check by himself / herself

- that the crucible configuration and indexing is correct
- that the level of the evaporation source in the pocket of the crucible is enough

If the crucible configuration isn't correct, please contact the staff.

User manual

1. Login
   1.1. Logon on the ACCESS CONTROL SYSTEM.
   1.2. Logon on the LAB 600 H: User → Change User → Select your login and type your password.

2. Loading
   2.1. VENT (~5 min)

   2.2. ION SOURCE SHIELD
        - Recipe without Ion Source (HRN, nSt, HHN, …) => CHECK that the ion source is shielded with an aluminum foil.
        - Recipe with Ion source (LRI, …) => CHECK that the ion source isn't shielded (aluminum foil has been removed).

   2.3. CHECK THE CRUCIBLE CONFIGURATION
        - See in the recipe list which crucibles are used.
        - IMPORTANT: CHECK the crucible configuration through the transparent door of the box where evaporation sources are stored.

Example as shown in the picture:
- Crucible 1 = Al
- Crucible 2 = Cr
- Crucible 3 = Au
- Crucible 4 = “Coffre”
- Crucible 5 = Ti
- Crucible 6 = Pt
2.4. INITIALIZE THE CRUCIBLE AND CHECK THE EVAPORATION SOURCES (crucible rotation in manual mode)

- "PROCESS" – "PatternNo" : Select "Manual", then click "OK".
- EGC38 Module – "SHUTTER" : press the button "OPEN".
- EGC38 Module – "CRUCIBLE" : press the arrow key up or down until number 1 and wait until the number stops flashing.
- EGC38 Module – "CRUCIBLE" : press the arrow key up or down until number 6 and wait until the number stops flashing.
- EGC38 Module – "CRUCIBLE" : press the arrow key up or down until number 2 and wait until the number stops flashing. The crucible indexing is now initialized. CHECK that the Chromium pocket is shown (small grey pellets).

- EGC38 Module – "CRUCIBLE" : press the arrow key up or down until the desired pocket(s).
- IMPORTANT : CHECK the evaporation sources.
  - Material : color, appearance (SiO$_2$: white grains, Au: yellow slug, Al$_2$O$_3$: white slug)
  - Level : check that the pocket isn’t empty.
- EGC38 Module – "SHUTTER" : press the button "CLOSED".
- IMPORTANT ; "PROCESS" – "PatternNo" : Unselect "Manual", then click "OK".
- EGC38 Module – Check that the green Led "REMOTE" is ON.

2.5. WAFER LOADING

- Put a dummy wafer in each ring you don't use.

2.6. CLOSE the DOOR.

- Check the cleanness of the door O-ring.
- Clean the O-ring with your glove. Never use a solvent (isopropanol, acetone, …)
- Close the door and lock it with the two bolts.

2.7. HIGH VACUUM.

- Check the cleanness of the door O-ring.
- Clean the O-ring with your glove. Never use a solvent (isopropanol, acetone, …).
- Close the door and lock it with the two bolts.

3. Recipe Configuration and Start

3.1. Modify recipe (thickness parameters)

- Recipe → Select Category and Recipe.
- Double click on "Write Data for Deposition" : Enter the thickness in kÅ.

3.2. Start recipe: Button « ON » + Select category and recipe + OK

- As soon as the pumping starts, the two bolts fall down.
- Leave the bolts as they are.
- Never put the bolts up when the chamber isn’t at atmospheric pressure.

3.3. Fill in the LAB 600 H notebook.

3.4. To stop a recipe: Button « Break ». Then call the staff because you have no rights to restart a recipe.
4. **Unloading**

4.1. **VENT (~5 mn)**
- The chamber can't be vented if the temperature is higher than 100°C.
- **Wait 25 minutes after opening the door** and before unloading your wafers.
  - Temperature near the heaters = 120°C at chamber opening.
  - Temperature near the heaters = 80°C 25 minutes later.
  - Temperature of the substrate holder = 100°C at chamber opening.
  - Temperature of the substrate holder = 46°C 25 minutes later.

4.2. **WAFER UNLOADING**
- Put a dummy wafer in each ring after unloading your wafers.

4.3. **CLOSE the DOOR & HIGH VACUUM.**
- Check the cleanness of the door O-ring.
- Clean the O-ring with your glove. Never use a solvent (isopropanol, acetone, …).
- Close the door and lock it with the two bolts.
- Press the button "High Vacuum".

5. **Logout**

5.1. Logout from the LAB 600 H: User → LOGOFF.

5.2. Logout from the ACCESS CONTROL SYSTEM.