

# MOLECULAR VAPOR DEPOSITION (MVD) SOP

Revised April 2020

## MVD Start Up

1. Login into your FOM account.
2. Open the door and press the Green button to power up the tool.
3. In the chase area, turn **ON** the cooling water, and open N<sub>2</sub> and O<sub>2</sub> gas valves, and start the pump by pressing **START** on the pump controller.
4. Login to the Administrator account, password **2696**.

## MVD MANUAL MODE

Follow the SOP for auto mode for turning on the vacuum pump and cooling water, setting all the temperatures, and running the oxygen plasma clean (optional) on the sample.

1. From the **Main Menu** go to **Temperature Control** and set (turn **ON**) the temperatures for **Chamber, Line 1, Line 3** and **Line 3 Supply**.
2. Go to **Manual System Control**. Open the ISO vacuum valve on the touch screen to pump the chamber down, then close the vacuum valve.  
  
Then, these are the manual mode steps for hydrophobic precursor using the touch screen:
3. Open the first valve on the line from **Vial 3**. After about 30 seconds, close the valve.
4. Open the second valve (near the process chamber) on the line from **Vial 3**. After about **30 seconds**, close it.
5. Repeat **Step 3** and **4**, then go to **Step 6**.
6. Open the first valve on the line from **Vial 1** (water catalyst) and close it when the pressure reaches **17-18 torr**.
7. Open the second valve (nearer the process chamber) on the line from **Vial 1**. After about **30 seconds**, close it.
8. Wait 5 minutes (or more) for the gases to react with the sample in the chamber.
9. Go to **Chamber Routine** and Run **Purge** cycle (**10 cycles**).
10. Press **Vent** and open the chamber to take out your sample.
11. Pump down the chamber by running the **Pump Down** routine and close the vacuum valve.

**NOTE:** You might want to try this first with small section of a cleanroom wipe as a sample to make sure it works for you, since the wipe is a good substrate for this process. Just put a drop of water on both the untreated wipe (very adsorbent) and the treated wipe (very hydrophobic) to observe the dramatic difference.

The hydrophilic precursor now in Vial 2 is a 50% concentration and difficult to use with this machine. The precursor should be replaced with a 99+ % solution if anyone wants to run this process.

### **MVD Shut Down**

1. From the **Main Menu** go to **Temperature Control** and turn **OFF** the temperature for **Chamber, Line 1, Line 3, and Line 3 Supply** (optional).
2. Log out the system by touching the **Logout** button on the **Main Menu** page.
3. Turn **OFF** the pump by pressing the **STOP** button on the pump controller.
4. Press the RED button inside of the tool.
5. Close **OFF** N<sub>2</sub>, O<sub>2</sub> gas valves and water supply (shared with RTA).
6. Logoff from the tool in your FOM account.