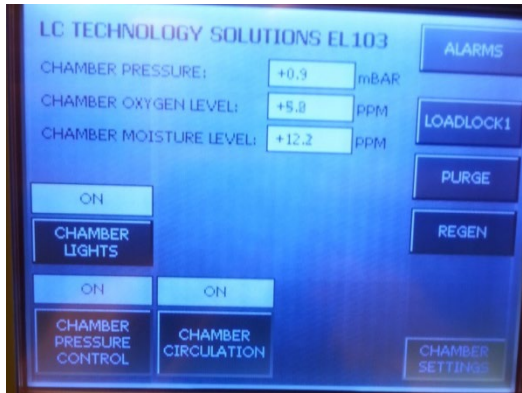# Trovato Organic Deposition System SOP

4/24/2020

Glove Box Operation:

1. Check the glove box control reading before transferring. Chamber oxygen level and chamber moisture level should be low. (< 30 ppm. zero will be ideal)
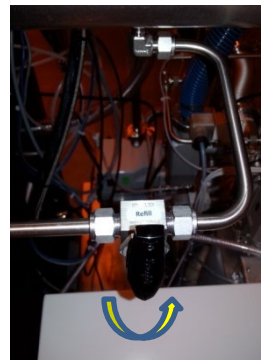

2. Transferring items into the glove box:

*Open the outside loadlock door and putting items into transfer tray and push it to the end of the loadlock. Then, close the door and tighten it up.
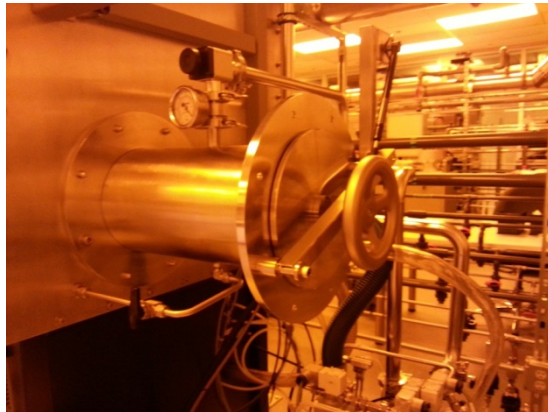
*Turn on the pump. Loose the (counterclockwise) vacuum gate knob to pump down the loadlock and wait for the gauge reaches <-27 in.Hg and tighten (clockwise) the knob. Then turn the N2 valve to the right to fill up the loadlock and wait for the gauge to go back to 0.

*Repeat the pump down and refill with N2 to the loadlock for **THREE times!** Foot paddles for "VAC" and "Gas" the glovebox if needed.

* Open the inside loadlock door and transfer the tray inside.

3. Transferring items out:

Make sure the loadlock is filled with N2. If not sure, do the three times of pumping and refilling. Then open the inside door to transfer the tray into loadlock. Close and tighten the inside door first! Then open the outside door to take out the tray.

System Operation:

-----Log in FOM from general usage computer to activate Trovato computer monitor.

 Load Substrates:

 1. Put gloves on glovebox glove whenever handling things inside chamber!! Once the chamber is vented, pull the button to open the chamber door. Lift the level to move the door to the right for inside chamber access.


2. Use vacuum wand to load and unload substrate. Adjust the pressure of the glovebox with foot paddles if needed.

3. Close the door and latch the level. Push the button to seal the chamber door. Evaporation sources load: Ask cleanroom staff to load the sources for you if you have NOT been trained on how to load sources.

Deposition Operation:

1. Open the [icon] software.   Click "HI VAC ON" to start Auto pump down procedures.   Roughing pump will pump down the chamer to crossover pressure (<2 E-1 torr) then Hi Vac gate is open and the cryo pump will pump down the chamber further.   The pressure should be < 7E-6
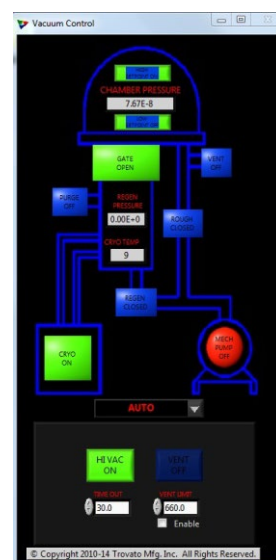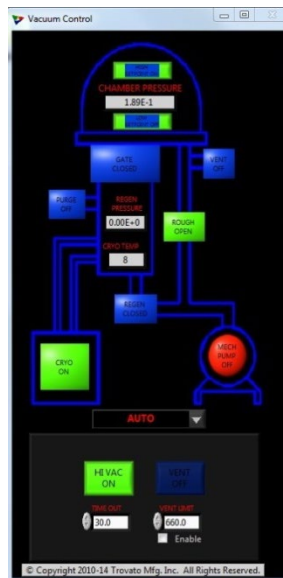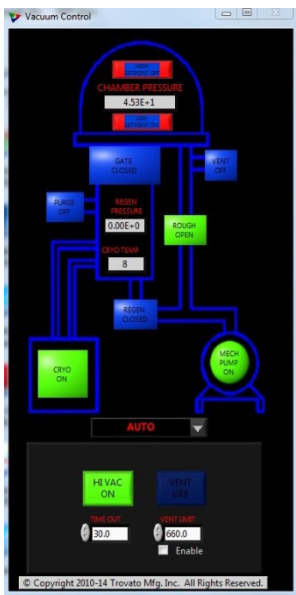
2. Setup correct material info and choose the correct power supply for the evaporation sources. Choose the correct "MASK" eg. All Organic. Choose "Rotate" for deposition or stay still at certain degree location.
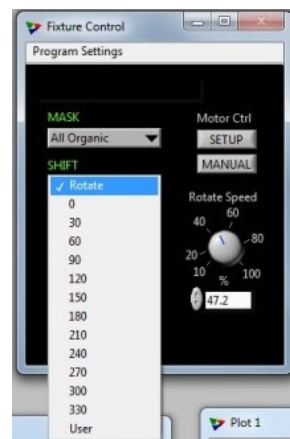
3. Once the desired vacuum reached, click selected source on the "Main Panel". Make sure you choose the correct sequence.
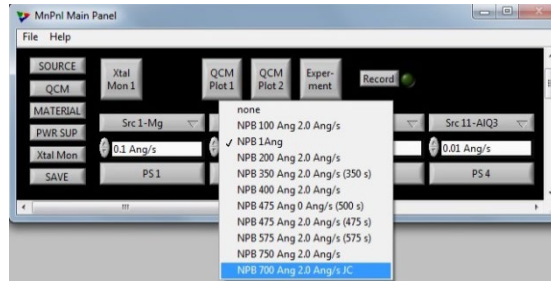

4. Follow the 4 tabs from left to right:

"Setup": Verify the material info is correct. "RampUp": Set desired Powers & time for Soak 1 and 2.

"Depo." Set desired "Target" rate and Ramp time. Manually increase the power to get the lift-off deposition rate by observing the OCM's curve. Then click "Man/Auto" for the controller to take over to ramp up to set rate. Under "Thickness" to set desired thickness target if needed.

"RampDn": Once the deposition is over. Click "START" to ramp down the source power.
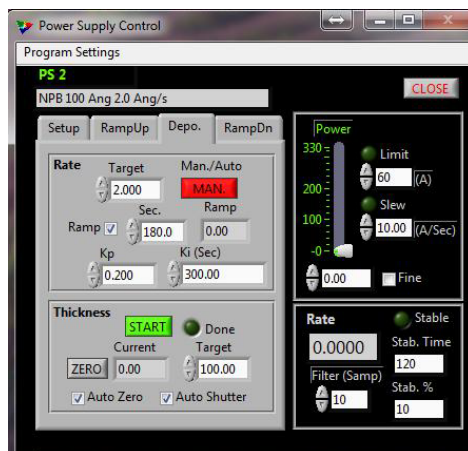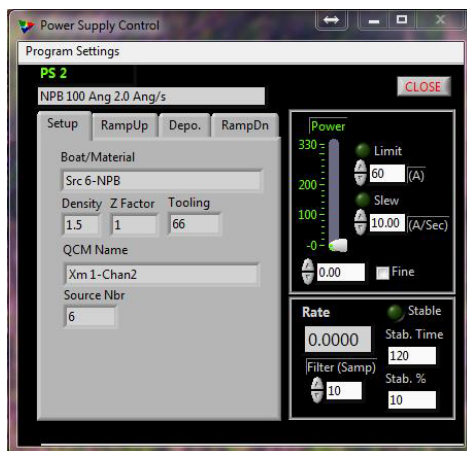
5. Turn on the "Xtal Mon 1" and "QCM plot 1". Change the QCM's scale to observe the lift-off stage of the deposition and Monitor the deposition rate throughout the process.
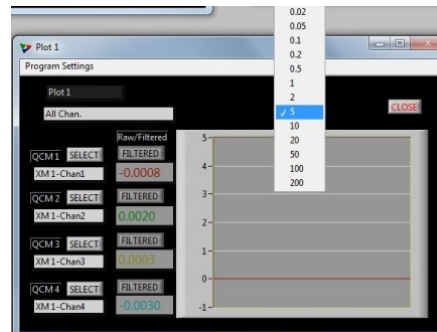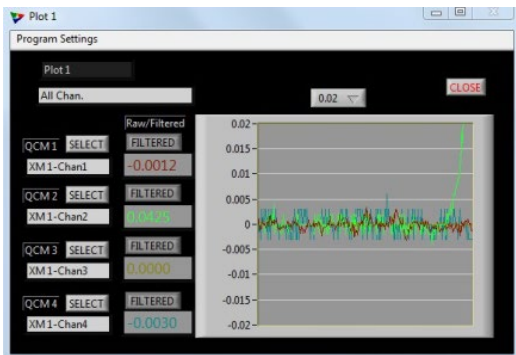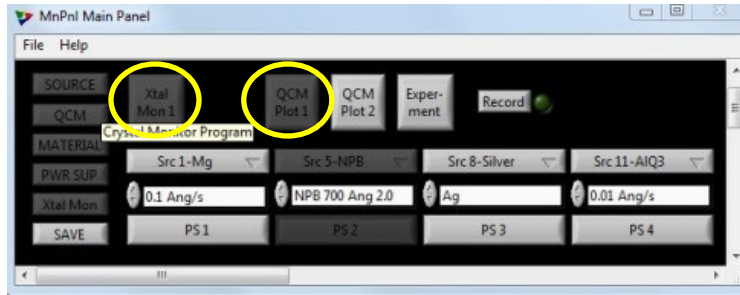

6. At " Depo" step, once the target rate is reached, click "START" to start the deposition by opening the shutter. Or click "SHUTTER" to open it manually.
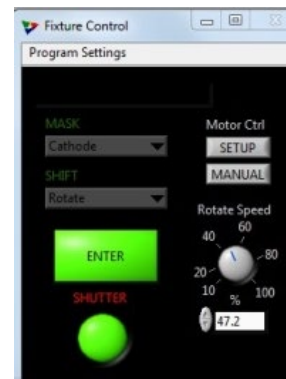
Unload the sample:

1. Wait for few minutes after deposition for the sources to cool off. Turn off "HI VAC ON". Then vent the chamber by clicking "VENT OFF". It will turn bright green to indicate venting is on. Wait for the chamber pressure rises up to ~7.5E2. Then click the same button again to turn off the N2. Important! If it's not off, it will overpressure the glovebox once the chamber door is open.
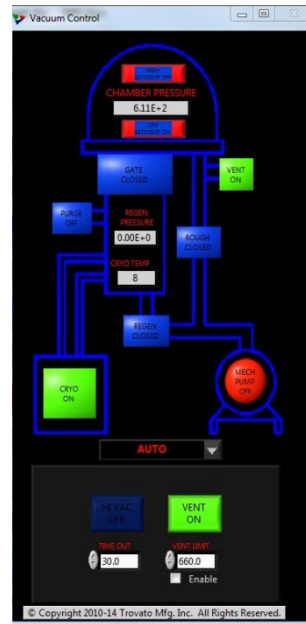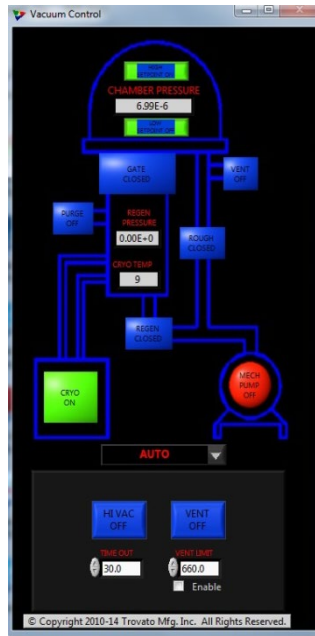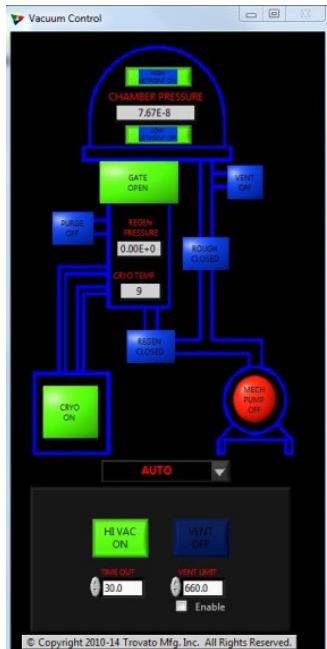
2. Follow similar procedures for loading to remove substrate from the fixture.

3. Once the chamber door is close, click "Hi Vac ON" to pump down the system.

4. Log off FOM through general usage computer