

# Trovato Thermal Evaporator SOP

3/27/2025

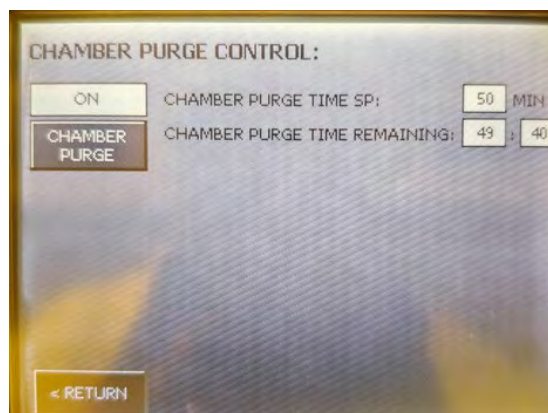
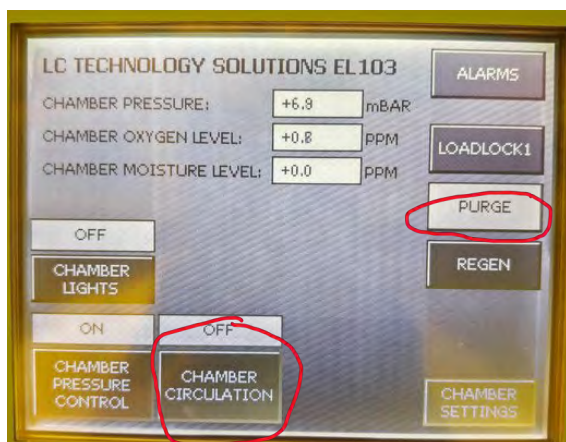


# System Operation:

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

## Load Substrates:

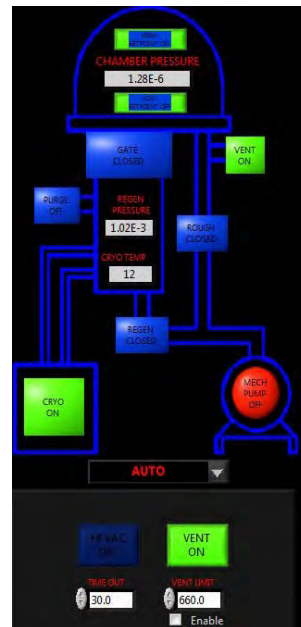
1. Put glove box in "PURGE" mode: Turn "OFF" Chamber Circulation, push "PURGE" and "Chamer Purge" ON. You should see and hear N2 fill up the gloves.



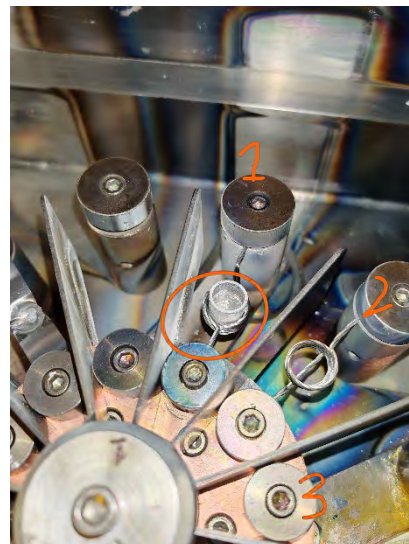
2. Turn on the vacuum pump for the glovebox:



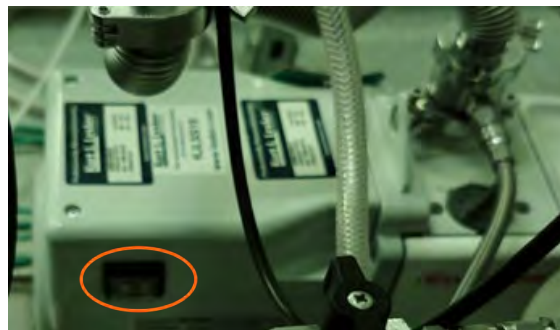
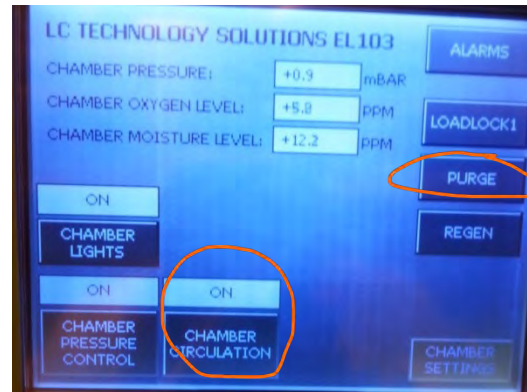
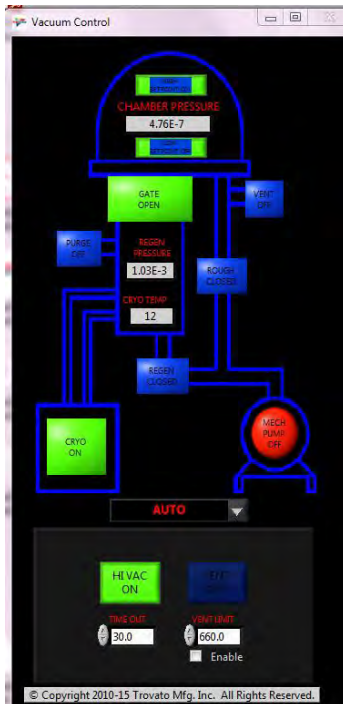
3. Turn off "Hi Vac ON" button. Click on "Vent ON" to vent the chamber to 7.1 E2. Click on "Vent ON" to turn it off !!




4. Open the back of the chamber door to load sample onto plate right above the source with Kapton tapes. Refill material into crucible if needed. Source 1: Al, Source 2: Au, Source 3: Cu.



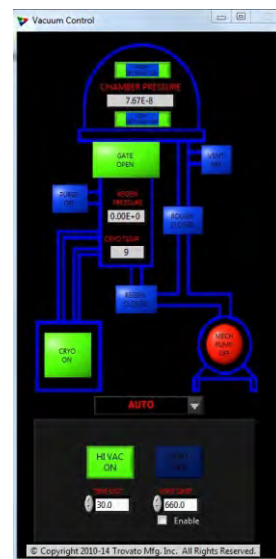
5. **Pump down** the chamber by clicking **“HI VAC ON”** and **Turn off** “Chamber Purge”, **Turn ON** “Chamber Circulation”, **Turn OFF** the glovebox pump.



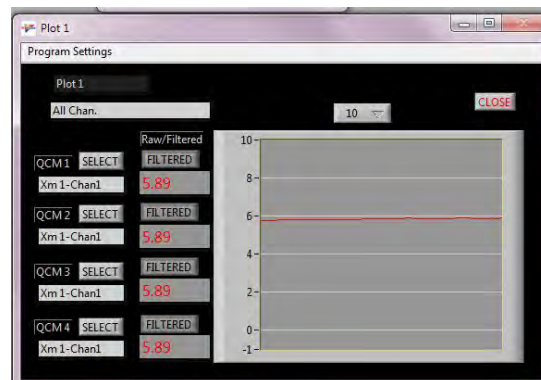
## Deposition Operation:

1. Open  the software if not open: click “HI VAC ON” to start Auto pump down procedures. Roughing pump will pump down the chamber to crossover pressure ( $< 2 \times 10^{-1}$  torr) then Hi Vac gate is open and the cryo pump will pump down the chamber further. The pressure should be  $< 7 \times 10^{-6}$ .





3. Once the desired vacuum reached, **Choose source for your dep** “Src-1 Al” or “Src-2 Au” or “Src-3 Cu” metal depositions. **Click “PS1”** to turn on the power supply. **Click “Xtal Mon 1” and “QCM plot”** to bring out the thickness monitor pages.



Plot 1->program settings-> chan.1 only, all chan, chan2 only etc

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. Under “Thickness” to **set desired thickness target** if needed.

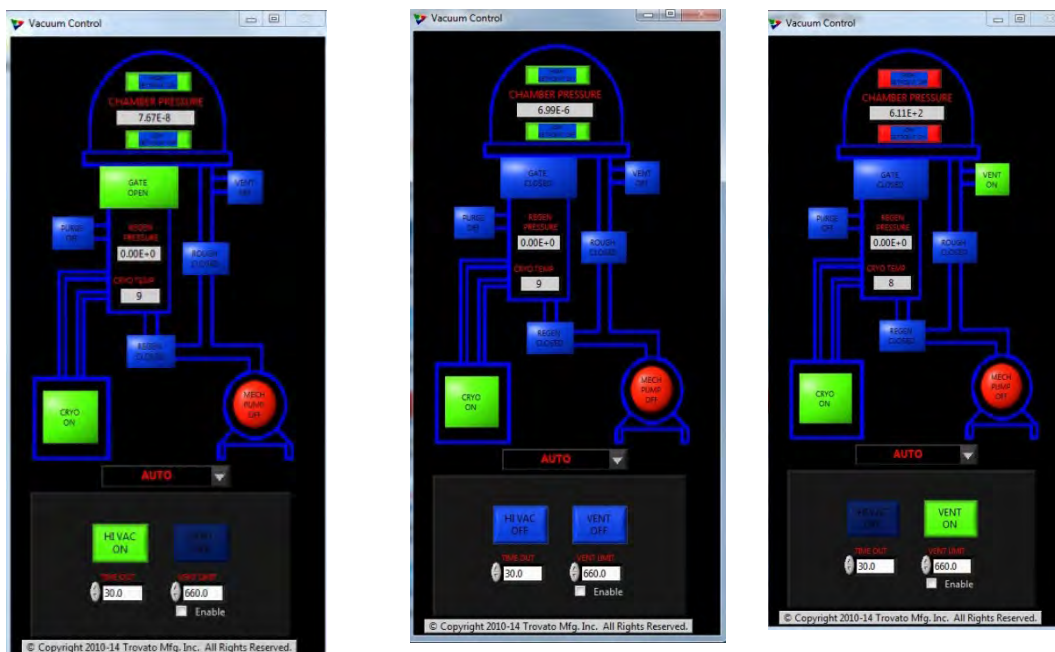
Click “START” under “RampUp” to warm up material. Once it runs all the time in “RampUp”, Click “ZERO” and “START” at Thickness to start counting the thickness. Use “Manual” mode to increase or decrease power to desired dep rate.

“RampDn”: Once the thickness is reached. Click “START” to ramp down the source power.



Unload the sample:

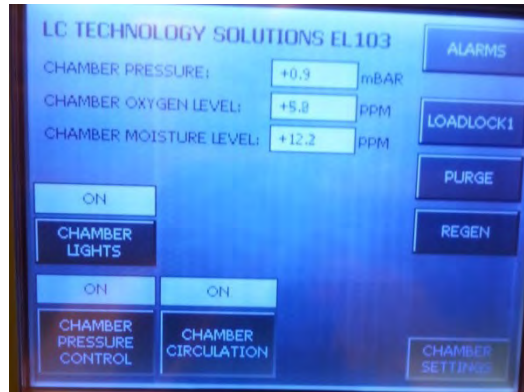
1. Wait for 10-20 minutes after deposition for the sources to cool off. Turn off “HI VAC ON”. Then vent the chamber by clicking “VENT OFF”. It will turn bright green to indicate venting is on. Wait for the chamber pressure rises up to  $\sim 7.3E2$ . Then click the same button again to turn off the N2. **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

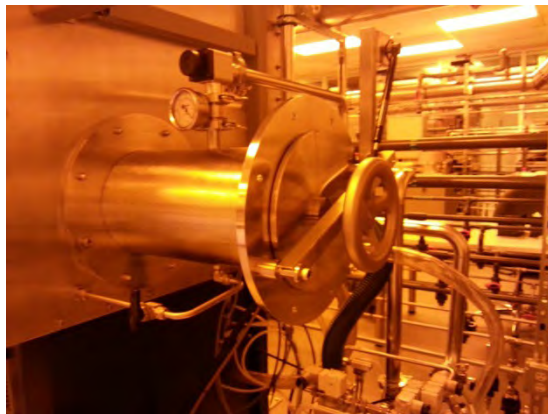
## Glove Box Operation:

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

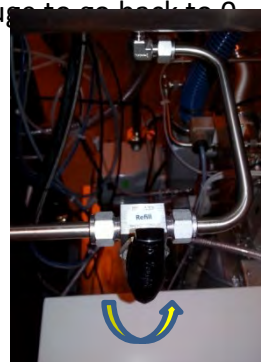


2. Transferring items into the glove box:

\*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 N<sub>2</sub> 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 N<sub>2</sub>. 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.

