

# Thermal Evaporator #1 Instructions

## 1. Vent

- a. Turn off the Ion gauge filament
- b. Toggle switch to vent
- c. Wait for chamber vented LED to light
- d. Wait an additional minute to raise bell jar

## 2. Load

- a. Check crystal life by pressing "Display" 2 times. Replace if less than 88%. Press the "Display" button one more time to exit test mode
- b. Check mirror and replace if necessary
- c. Check shutter shield and sample holder for any loose flakes and remove using vacuum
- d. Attach samples to sample holder with screws and clips, make sure screw are tight
- e. Remove source tooling
- f. Load boats and source material and note their position
- g. Replace source shield. Do not short the sources
- h. Make sure the shutter covers samples when in the closed position
- i. Exercise the shutter open and close to ensure proper operation
- j. Wipe sealing surface with dry clean wipe

## 3. Evacuate

- a. Carefully lower bell jar. Guide the jar down with your hand if necessary
- b. Toggle switch to evacuate
- c. Wait for Hi-Vac to open. Wait two minute and turn on the ion gauge

## 4. Evaporate

- a. Set Maxtek thickness monitor parameter for the material being used
- b. Wait for pressure to reach  $5.0 \times 10^{-6}$  Torr
- c. Set filament selector to desired filament location and ensure voltage range is set to 10V
- d. Turn on filament power supply circuit breaker
- e. Increase current slowly until material starts to vaporize
- f. Out gas source if necessary, especially with Cr
- g. Start the crystal monitor and dial in your desired deposition rate
- h. When desired deposition rate is achieved, press start on the Maxtek and open the sample shutter at the same time
- i. Close the sample shutter once your desired thickness has been reached
- j. Decrease the source current to zero and turn off the filament power supply circuit breaker
- k. Allow the system to cool for ten minutes before venting the system

## 5. Vent

- a. See step number 1.

## 6. Evacuate

- a. See step number 3.

**Note: No N-type material is allowed to be evaporated in this system. Titanium evaporation is not allowed in this system**