Operating Procedure for EVAP2  
(Lesker PVD75 Ebeam/Thermal Evaporator)

Sample Load/Chamber Pump and Vent
1. To vent chamber and load sample, select the **Start PC Vent** icon.
2. Upon completion of vent cycle, open door and load sample.
3. Verify that Mylar window cover is in place, and replace if needed.
4. To pump chamber select the **Start PC Pump** icon.
5. The system may also be pumped manually using the VAC screen.
6. In sequence select **Rough Pump, Backing Valve**, then **Turbo**.
7. 1 hour later select **Filament ON**.

Recipe Selection and Edit
1. Select the **SQS-242** icon using the touch screen, or the track ball on the keyboard.
2. Select **File**.
3. Select **Process**.
4. Select the desired process. (EB Au, Therm Au Ge, etc…)
5. Select **Yes**.
6. **NOTE:**
   - Processes with the prefix **EB** utilize **Electron Beam Source #1**.
   - Processes with the prefix **Thermal** utilize **Thermal Source #2**.
7. Select **Edit**.
8. Select **Process**.
9. To edit the **Deposition Rate**, enter the desired rate in the **SetPt** window.
10. **NOTE:** **SetPt** values may range from **.5A/sec to 5A/sec** for all metals **EXCEPT for Ni. Ni may be run at a maximum rate of 2A/sec**.
11. To edit the **Film Thickness**, enter the desired thickness value in the **FinalThick** window.
12. **NOTE:** This value is expressed in **KiloAngstroms**
13. Select the **SQS-242** icon to minimize that screen.

Run Process
14. Select the **Deposition** icon.
15. If you are using **Electron Beam Source #1**, select the desired Crucible Position for your process. Below are the allowable configurations for metals.

<table>
<thead>
<tr>
<th>Pos 1: Titanium (Ti)</th>
<th>Directly in Hearth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pos 1: Chromium (Cr)</td>
<td>Copper Crucible</td>
</tr>
<tr>
<td>Pos 2: Aluminum (Al)</td>
<td>Directly in Hearth</td>
</tr>
<tr>
<td>Pos 3: Platinum</td>
<td>Directly in Hearth</td>
</tr>
<tr>
<td>Pos 3: Nickel</td>
<td>Directly in Hearth</td>
</tr>
<tr>
<td>Pos 4: Gold (Au)</td>
<td>Tungsten Crucible with Spacers</td>
</tr>
<tr>
<td>Pos 4: Silver (Ag)</td>
<td>Tungsten Crucible</td>
</tr>
</tbody>
</table>
*DO NOT CHANGE THE POSITION OF ANY METAL WITHOUT SMIF APPROVAL. ALL METALS MUST REMAIN IN THE ABOVE POSITIONS. CONTACT SMIF STAFF FOR INFO CONCERNING ALL OTHER METALS*

16. If you are using the Thermal Source #2 there is no Crucible Position selection.
17. In the Power Window verify that the EBeam and Thermal Source Power supply Setpoints are set to 0%.

- EB ON and EB Off icons control Source #1 (EBeam Gun).
- Power Supply 2 On/Off icon controls Source #2 (Thermal Source).

18. Select the desired Power Supply ON icon. (EBeam or Thermal Source)
19. Select the Platen Motion icon.
20. In the Platen Motor window select the Motor ON icon.
21. In the Drive Motor Continuous window select the Fwd icon to turn it ON.
22. Select the Sigma icon.
23. In the SQS-242 window, verify the Sigma Launch 242 is ON. If not, select ON.
24. In the the Sigma Process Name window verify that the desired recipe name is displayed.
25. In the Sigma Control window, select Sigma Start Process ON.
26. This will START your process!
27. Select SQS-242 to view Power Ramp and Dep Rate graph if desired.
28. Select View.
29. Select Sensor Reading to display crystal info.

**Sample Unload**

30. Upon completion of your process, under the Sigma Control window select Sigma Start Process OFF.
31. Select the Deposition icon.
32. In the Power window turn the chosen power supply OFF. (See Step 17).
33. Select Start PC Vent. (Vent Time is approximately 5 minutes).
34. Open door and remove samples.
35. Close chamber door.
36. Select Start PC Pump

**How To Reboot the Computer After An Unrecoverable Error**

37. Shut down the computer using the Start menu.
38. Allow the system to sit idle for 10 seconds.
39. Restart the computer using the toggle switch located on the front panel.
40. Select the KWare icon. Wait 10 seconds after software is fully open.
41. Login using “admin” as the user name and the password. Wait 10 seconds.
42. Select the Sigma Screen.
43. Select the “Launch SQS242” icon. There is no username or password required.
44. Wait 10 seconds. System is ready for use.