SCS LABCOTER® 2 Parylene Coater Standard Operating Procedure

These instructions are intended for reference only and do not replace proper training and certification. In addition, recipe optimization is always needed per process and sample needs.

Written by Caroline Yu and edited by Dr. Jaeun Yu
1. **BADGER:** Enable the tool in badger.

2. **VENT:** Turn the vacuum switch to the VENT position.
3. **OPEN CHAMBER:**
   When the chamber pressure reaches >1000 mbar, take off the bell jar. Be careful not to bump any internal parts.

4. **LOAD SAMPLE:**
   Place samples onto the stage. Carefully place the bell jar onto the tool. Make sure the rubber L-gasket is sealed completely onto the tool.

5. **LOAD PARYLENE DIMER:**
   Fold aluminum foil into a boat. Tare on the balance. Add parylene dimer into the boat and log the weight in the logbook.
Please inform the superuser or the cleanroom staff if the parylene dimer material is running low.

Open the door and load the boat into the vaporizer. Close and seal the vaporizer load door.

6. **PUMP CHAMBER:**
   Hold down the liquid nitrogen fill cover and turn the vacuum switch to the VACUUM position.
7. **SET THE LN2 TIMER:**
Set the timer to minimize the usage of liquid nitrogen while the furnaces are cooling down after the deposition has finished.

Power off the timer and rotate the long “hours” hand to the desired time (e.g. if you want to set 4 hours, move the hand to the black numeral “4”). The “hours” hand can rotate in increments of 15 minutes and can be set up to 15 hours.

8. **FLOW LN2:**
When the pressure is < 50 mbar, power the timer on and open the liquid nitrogen valve on the wall. The short “minutes” hand will start counting down. A full turn corresponds to 15 minutes.

Log the time it takes to pump down the chamber and the pressure after LN2 is filled.

Please inform the cleanroom staff if the liquid nitrogen tank is running low.
9. **PROCESS START:**
When the pressure is < 5 mbar, turn both the furnace and vaporizer switches to the ENABLE positions.

Press PROCESS START/STOP button.

10. **DEPOSITION:**
First the FURNACE and the CHAMBER GAUGE temperatures reach to the set points. Then, the VAPORIZER temperature rises to its set point.

When the process is finished, the green button will blink. Press the flashing green button to off. Turn both the furnace and vaporizer switches to the DISABLE positions.

Wait until the FURNACE temperature cools down to below 185 degrees C.

11. **VENT AND UNLOAD SAMPLE:**
When the FURNACE temperature is lower than 185 degrees C, turn the vacuum switch to the VENT position.

Open the bell jar and remove your coated sample.

12. **CLEAN:**
Remove the spent aluminum dimer boat from the vaporizer.
Make sure the rubber L-gasket is free of parylene debris and place the bell jar onto the tool.

Clean up the balance and the table.

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<tr>
<th>13. <strong>PUMP DOWN:</strong></th>
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<tbody>
<tr>
<td>Hold down the liquid nitrogen fill cover and turn the vacuum switch to the VACUUM position. Wait until the pressure reaches around 50 mbar.</td>
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<tr>
<td>Close the liquid nitrogen valve on the wall.</td>
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<thead>
<tr>
<th>14. <strong>BADGER LOGOUT:</strong></th>
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<tr>
<td>Don’t forget to disable the tool in badger after you’re done.</td>
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