

# Laurell Spin Coater Standard Operating Procedure

(Any question, contact staff 940-369-5318)

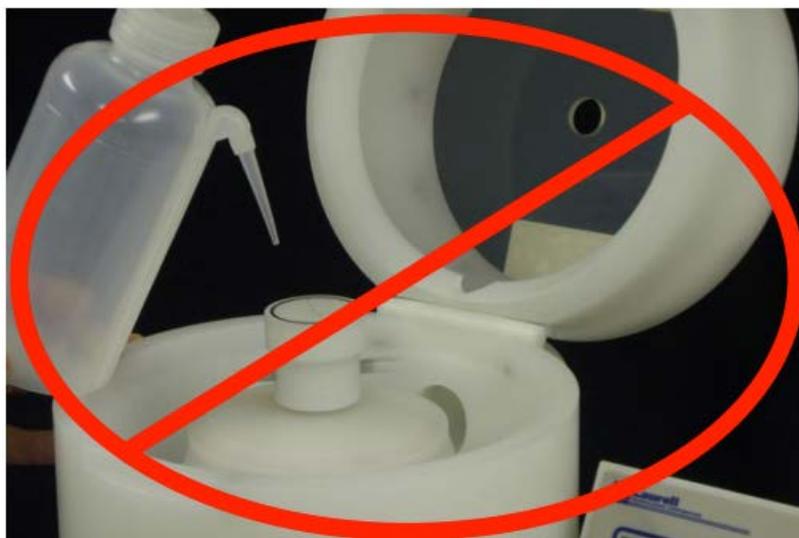
Revision:1.0 —Last Updated:May 20 /2014 Revised by J.C. Li

## Warnings:

Your wafer should not be wet or have sticky chemicals of any kind on the back side. If it is, water and chemicals can get pulled into the vacuum line. This will eventually destroy the tool and may cause problems for the vacuum system as a whole.

Similarly, you must never spray solvents onto the chuck while it is on the tool; the solvents will be pulled into the vacuum line. This will eventually destroy the tool and may cause problems for the vacuum system as a whole. For this reason, when cleaning the bowl, a dummy wafer should always be clamped onto the chuck.

It is a good idea (although not required) to dehydrate your wafer prior to spinning on resist. 30 minutes in a 120 C oven should do it.



## Operation Procedure

## 1. Spin Coating

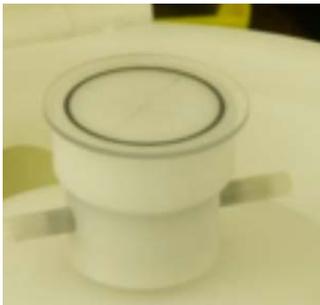
1. Turn on the house vacuum on the wall (right side of the hood)
2. Turn on the compress air switch (CDA pipe switch as labelled)
3. Press the black breaker button at the back.
4. Open the lid of coater and place the **liner** inside
5. Make sure to center the substrate on the vacuum chuck.



**\*\*\*YOUR SAMPLES MUST COMPLETELY COVER THE O---RING\*\*\***

**Use this chuck for samples 2"- 6" . Use ADAPTER for small samples!!!**

USE THIS ADAPTER CHUCK FOR SMALLER SAMPLES (LIKE GLASS SLIDES).



- The fragment adapter must be installed with a single o-ring for fragments.
- The inside o-ring is for fragments  $\geq 11\text{mm} \times 11\text{mm}$ .
- The outside o-ring is for fragments  $\geq 20\text{mm} \times 20\text{mm}$ .
- Only 1 size o-ring should be installed in the adapter at any one time.



- Improper installation of two simultaneous o-rings on the fragment adapter.

6. Make sure the waste cup is connected at the back of the spinner to catch any waste.
7. Set the required program (**see below "program a recipe"**)
8. Turn the vacuum on by pressing vacuum button on panel.

9. Dispense the solution/PR/Polymer on the substrate. (depends on the program, PR can be dispensed through the hole on top with the lid closed)

10. Close the lid of coater and press **start**.

## 2. Program a recipe

1. Turn on the spin processor. The 650 will initialize and default to the “Select Process” screen.

2. If editing an existing program, highlight the desired program. If creating a new program highlight the empty line. Press the “Edit Mode” key. If this is a new program a program name will be assigned. The program name will appear on the title line.

3. Use the navigation keys to move from line-to-line or the “tab<” or “tab>” key to move to field-to-field. The “TAB” key enables the field to be editable. Make changes to the field by using the “UP” or “DOWN” arrow keys.

4. Add or delete steps by highlighting the “steps” field with the “Tab” key and increase or decrease the number.

5. Move from step-to-step by using the “FWD” or “REV” keys.

8. When finished press the “Run Mode” key to run the program.

### Example Program:

Program: Coat\_1

Valve Identification

A	E
B	F
C	G
D	H

Step	Time		Speed 0-6,000	Valves X=ON								Accel	Comment
	99 Min	59.9 Sec		A	B	C	D	E	F	G	H		
1		5	500	A	B	C	D	E	F	G	H	500	This step is to get the chuck rotating at step 2 spin speed.
2		1.5	500	A X	B	C	D	E	F	G	H	500	Spin speed same as step 1. Dispense for 1.5 sec.
3		1.5	2000	A	B	C	D	E	F	G	H	1500	Spin off excess material
4	1	30	4000	A	B	C	D	E	F	G	H	2000	Dry film
5				1	2	3	4	5	6	7	8		

### 3. Clean up

1. After you are done with all your wafers, load a dummy wafer onto the chuck and turn on the vacuum.
2. Spray acetone onto the wafer from a squirt bottle.
3. Run the “clean” program (Program 5) and keep spraying acetone onto the wafer through the hole in the lid while the program runs. This should spray acetone all over the inside and clean out the resist residue.



4. Clean Program:

Step 1: Time 10 sec, Speed 1000 rpm

Step 2: Time 10 sec, Speed 3000 rpm

Step 3: Time 10 sec, Speed 5000 rpm

5. If any resist remains, do it again.
6. After it is all cleaned, do the same thing with isopropanol.
7. Wait for any solvent to drain into the waste reservoir, then remove it and dump it into the cup sink of the hood. Rinse out the waste cup with acetone and isopropanol in the hood. Rinse the cup sink with DI water.

### 4. Shut Down

1. All contaminated pipettes should be disposed of in the **RED “Solvent Waste”** trash can.
2. Wipe the residue off the top liner and the bowl right after the process.



3. Clean up the spinner hood area and remove your sample.
4. Clean up the adapter if there is resist on it (put a small amount of solvent on the wiping paper to wipe down).
5. Push the black breaker button to turn off the unit.
6. Turn off the house vacuum on the wall.
7. Turn off the compress air switch.