

Washington State University Vancouver Cleanroom

Standard Operating Procedure

Process: Spin Coating	
Equipment Name: Brewer Science CEE-200 Spin Coater	
Scheduling Name: Spin Coater (CEE200)	Revision Number: 1
Model: CEE 200	Revisionist: Sam Judd
Location: VECS 044	Date: 8/25/2023

The spin coater is used to uniformly distribute photoresist or other coatings by spinning the substrate. The maximum speed of the coater is 6,000 rpm and can accommodate sizes between 1/8" and 6". We have three different vacuum chucks to handle almost any size sample and have a centering tool to ensure uniform layers.

(Can use positive and negative photoresist when cleaned between different chemistries.)



Serial No.:
7321472
Asset No.:
410313
Voltage:
110 Volts

1. SAFETY REQUIREMENTS

- 1.1 Safety glasses must be worn whenever in the cleanroom, except when using a microscope or when wearing protective goggles.
- 1.2 Information regarding the hazardous materials used in the cleanroom may be found through SDS documentation located in the service room behind the cleanroom or cleanroom office (VECS 020).
- 1.3 Operate the spin coater with all protective shields in place.
- 1.4 Do not reach into the tool except to place your sample on the chuck or clean the bowl.
- 1.5 Read & understand the SDS for each chemical you plan to use in the spin coater before use.

Process Notes:

Material Limitations:

1. Can use positive and negative photoresist when cleaned between different chemistries.
2. Check with technician before using anything that is not a photoresist.
3. HMDS and honey are approved for this spin coater.

2) Startup procedure

- a) **Be sure the bowl is clean before use and when finished.**
- b) Turn the power ON using the POWER switch to the left of the display if needed.
- c) Use touchscreen pen to interact with the display.

2) Selecting a Recipe

- a) Select "Run Process" on touchscreen using the touchscreen pen.
- b) Select "Load Recipe" on touchscreen. Select one of the given recipes to load. Press "Yes" to complete the load process.

3) Editing a Recipe

- a) Select "Edit Process" on touchscreen.
- b) Each process step is comprised of three parameters:

- i) **Speed** - the spin speed for that step.
- ii) **Accel** - the acceleration/deceleration value for that step.
- iii) **Step Time** - the time allowed for that step.
- c) Set these parameters by pressing the boxes next to their title. A keypad will appear in which values may be entered.
- d) Note: dispense is not available on this tool.

Parameter	Minimum	Maximum
Speed	0	6,000 RPM
Ramp	0	30,000 RPM/s
Time	0	999.9 s

- e) Press the save button and enter a descriptive recipe name.
 - i) This name is limited to eight characters.
 - ii) Recipes names should clearly identify what they are for and who created them.
 - iii) The system can save up to 20 recipes.
 - iv) Be sure to record your recipe steps in your lab notebook.
- f) Then load your recipe as noted above.

4) Starting a Program

- a) Open lid using the lever on the edge.
- b) Select chuck that fits your sample or wafer.
 - i) Sample must be large enough to cover the O-ring to maintain vacuum and to prevent photoresist from sucking into the spindle.
 - ii) Wafer must overhang the chuck to prevent photoresist from sucking into the spindle.
- c) Load sample or wafer onto the chuck and center.
- d) Close the lid slowly.
- e) Select "Center" on touchscreen.
 - i) Vacuum will be turned on and the wafer will begin to spin at a speed of 30 rpm.
 - ii) Make sure your item is centered.
 - iii) Open door and adjust wafer if needed for better centering. This will turn off vacuum and rotation of chuck.
 - iv) Close the lid and watch for proper centering.
- f) Apply photoresist (or approved chemical) by opening the lid, dispensing, and closing the lid.
- g) Select "Spin" on touch screen to start the process defined by the recipe.
- h) DO NOT open the lid until process is complete!**
 - i) An alarm will sound and the indicator light will flash to notify you when the process is complete. Select "OK" on touch screen to silence alarm.
 - j) Unload wafer.

5) Cleaning the Spin Coater

- a) Always clean out the bowl when finished.
- b) Make sure hotplates are turned off before cleaning spin coater. Solvents can flash.
- c) Use waste acetone/IPA from hood for initial cleaning.
- d) Use acetone squeeze bottle for final cleaning. Do not spray any fluids down the spindle.
- e) Dispose of cleanroom wipes in the solvent waste bucket near the door.

6) ERRORS DURING RUN

- a) If the system losses vacuum before spin process, the alarm will sound and "Spin vacuum error" will appear on the touch screen.
- b) Select "OK" to silence the alarm and verify the vacuum and check the connection between wafer and chuck. Clean O-ring or chuck with acetone on cleanroom wipe. Try running again.

See manual on info website for more information.