

## develop-Brewer Hotplate and Develop Station Standard Operating Procedure

CORAL Name: **develop-Brewer**  
Model: Brewer Science Inc. Cee 200CBX  
Location: TRL Photo  
Purpose: Spray and puddle developing of thin and image reversal photoresist; post-exposure, image reversal, and hard bakes.  
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### Introduction

The Brewer Science Inc. Cee 200CBX station is a modular spinner and wafer hotplate unit designed for post-exposure photolithography processing. The spin module allows for spray and puddle developing modes for thin and image reversal photoresists with integrated front and backside DI water rinsing. The unit is plumbed with CD-26 and AZ-422 developers and has both green and red chucks for 4-inch and 6-inch wafers as well as capture chucks for 5-inch and 7-inch square photomask plates.

The hotplate module allows for post-exposure baking of red wafer-scale samples. Freshly coated samples with wet photoresist are not allowed on this system for “pre-bake”. The hotplate has hard contact, proximity, and lift-pin bake modes for temperatures up to 400C. Both the spinner and hotplate modules are programmable and controlled through a touchscreen PC.

### Safety

Read and understand the SOP for [Wet Processing Rules](#). Safety glasses are required in TRL. The spinner module operates at high speeds up to 6000rpm, keep the lid closed during operation. The spinner has safety interlocks for lid closure and for chuck vacuum. The developers in this system contain TMAH, be familiar with the MSDS for these materials before operation.

The hotplate module operates at high temperatures up to 400C. Always assume the hotplate is at high temperature and use appropriate caution.

### Procedure

1. Check reservations in CORAL to ensure you have reserved the correct machine at the correct time. If you are using the system for thermal processing be sure to allow enough time in your reservation for heating and cooling to temperatures other than the standard temperature (120C). Engage the tool in CORAL.
2. The touchscreen can be operated with the stylus or with a gloved finger. Login to the system with the password USER to run an existing recipe. To create a new recipe please see MTL Staff for specific training. Select RUN SPIN PROCESS or RUN THERMAL PROCESS from the menu options.

3. To run a develop recipe select RUN SPIN PROCESS
  - a. From the Spin Process screen, select LOAD to bring up the Recipe Selection Screen
  - b. Select your recipe and press ENTER
  - c. Open the spin module lid and make sure the correct wafer chuck is installed in the system (standard is green 6-inch). Load your sample onto the wafer chuck and center it using the appropriate centering device.
  - d. Close the spin module lid (safety interlock)
  - e. Press START CENTERING. The wafer will spin at a low speed for several seconds, during this time make sure the substrate is properly centered. If it is not centered, press VACUUM RELEASE and repeat step c.
  - f. When the substrate is centered, make sure the lid and vacuum interlocks are met: LID CLOSED, and SUBSTRATE PRESENT. Press START PROCESS to run the develop recipe on your wafer. For the duration of the process the lid must remain closed.
  - g. When the recipe is complete, press OK. Open the lid and remove your sample, the system is now ready for the next run.
4. To run a hotplate recipe select RUN THERMAL PROCESS
  - a. From the Thermal Process screen, select LOAD to bring up the Recipe Selection Screen
  - b. Select your recipe and press ENTER
  - c. Adjust the wafer pins to the correct position for your substrate size. The CURRENT TEMPERATURE indicator will turn green when the temperature is within tolerance. If N2 ambient is desired, turn the valve to the on position.
  - d. Lift the hotplate lid, load your sample onto the thermal chuck or lift pins, lower the lid and press START to begin the process.
  - e. When the process is complete, press OK. Lift the lid and remove your sample, the system is now ready for the next run.
  - f. When processing is complete, load the standard recipe so the hotplate will return to standby temperature. If you used N2 ambient, turn the valve to the off position.
5. When processing is complete and the system is ready for the next user, you may disengage from the tool in CORAL. Please be sure to enter accurate processing information into the CORAL dialogue as this is used for billing and tool maintenance.