

Sawatec SM-200 Coater Line for photoresists: User Manual

Version of 2024-11-26

1. Introduction

This user manual explains how to operate the Sawatec SM-200 manual coater line in Zone 13 for the coating and softbake of standard (novolak) i-line photoresists and LOR products.

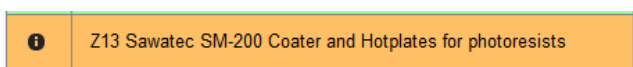
The coater line is composed of several modules:

- HMDS hotplate OPTIhot VB20
- Sawatec SM-200 coater
- Präzitherm hotplate PTZ 28-2 ET
- High temperature hotplate

NOTE: Only standard CMi photoresists and LOR/PGMI polymers can be coated on this equipment. Custom polymers are coated in the Sawatec LSM-250 for MISC polymers.

2. Login

- Login on the “Z13 Sawatec SM-200 Coater and Hotplates for photoresists with CAE on zone 13 accounting computer.



3. Surface preparation (HMDS or dehydrate)

- The OPTIhot VB20 is used for surface preparation.



- For dehydration, just open the cover and leave wafer/chips for 10 minutes on the hotplate. The temperature is set to 135°C and should not be changed.
- For HMDS, place the wafers/chips on the hotplate, verify the lid and close the cover.
- On the controller (left one), from the main menu, click on “Selection”:



- Select the process and click OK. The recommended processes are :
 - o HMDS standard (dehydrate + HMDS)
 - o HMDS NO DEHYDRATE
- To start the process click on “Automatic” and then “Start”.



- **Make sure to keep the cover closed during the whole process (HMDS is toxic !)**
- At the end of the process, there will be several cycles of N2 purging and pumping to remove HMDS from the chamber. Check the counter to know when the program is done.



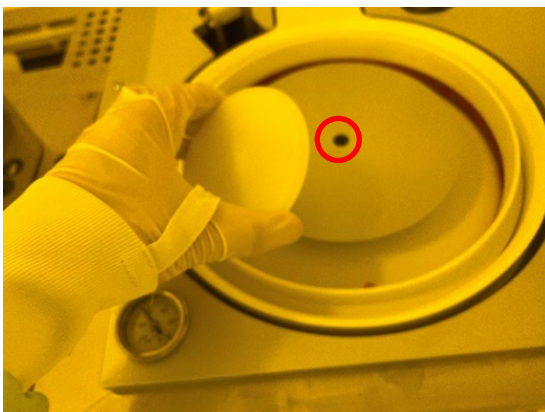
- Wafers can then be removed and loaded on the Sawatec coater unit.

4. Coating with Sawatec SM-200

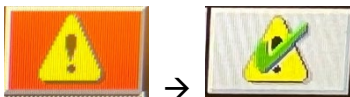
- To use the coater, you must wear additional protective gloves!
- Select your preferred chuck from the available ones based on the size/diameter of your substrate.



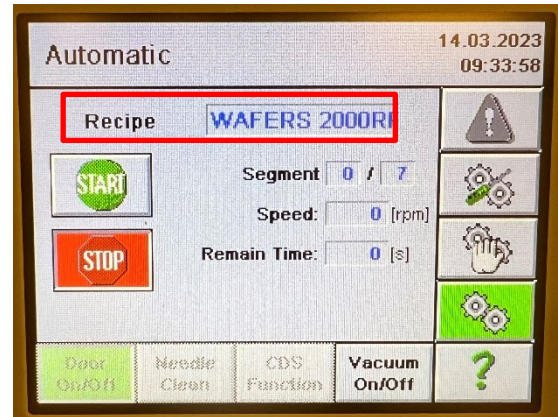
- Insert the chuck in the center hole of the aluminum disk.



- After login, the system will be in "alarm" status. To acknowledge the alarm, press on the following buttons on the touchpanel:



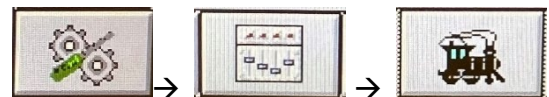
- Recipe selection is done by pressing the following buttons:



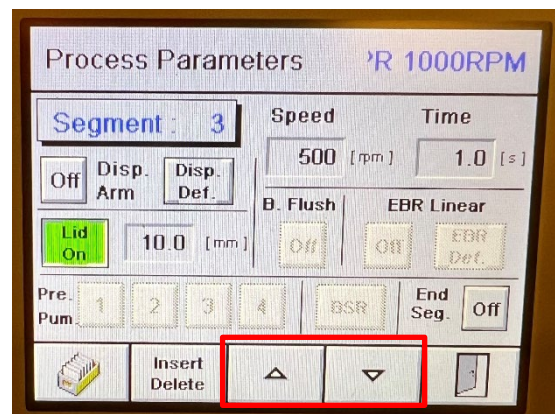
- Select the process in the list. The recommended processes are :
 - WAFERS "XXXX"RPM (wafers and low viscosity PR)
 - HV PR "XXXX"RPM (wafers and high viscosity PR)
 - CHIPS "XXXX"RPM (small chips)

Warning: Do not edit the standard CMI recipes! Save with a different name and edit your own programs if you need to adjust the parameters.

- To double check recipes, push the following buttons:



- Users can go through the steps of the active recipe with the arrows buttons.



- To create, copy, delete & save recipes, push:



Warning: Do not edit the standard CMI

recipes! Save with a different name and edit your own programs if you need to adjust the parameters.

- Load the wafer on the chuck and activate the vacuum.

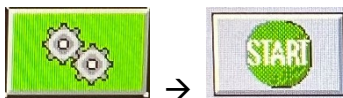


The pressure should be close to -0.8 Bar indicating good substrate fixation.

- Use a 3ml pipette to dispense the resist from the bottle onto the wafer. For wafers, a resist pool of 5cm diameter is dispensed at the centre. For small chips, cover the complete surface with photoresist.



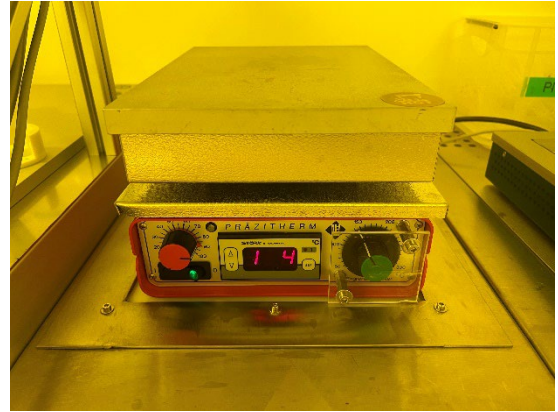
- When done, dispose of the pipette in the dedicated trash.
- Start the spin-coating sequence by pressing the following buttons:



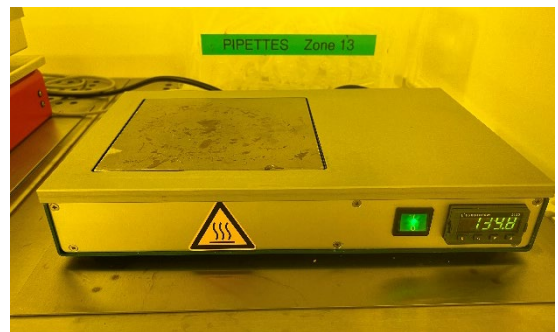
- Wait for process completion. The cover glass will move back to standby position and the vacuum is released automatically.
- The wafer is then ready to be transferred to the hotplate.

5. Soft-baking

- To use the hotplates, you must wear additional protective gloves!
- The präzitherm hotplate PTZ 28-2 ET (right of the coater) is used for the softbake of the photoresist.



- The second hotplate (right of the bench) is used for the curing of LOR 5A at 190°C.



- Make sure to check the temperature with the surface probes and adjust the setpoint if necessary.
- Measure the softbake duration with a timer