

# Recipe using SU8-3050 for 50 $\mu\text{m}$ thickness

---

## Preparation

Take the SU8-3050 bottle out of the fridge and cool it down for 30 minutes before use.

## Dehydration

- 1) Place your wafer on a hotplate for  $t=10$  minutes at  $T=200^\circ\text{C}$ .
- 2) Let the wafer cool down.

## Coat

- 1) Dispense 1 ml of resist for each inch (25 mm) of substrate diameter
- 2) Spin at 500 rpm for 10 seconds with acceleration of 100 rpm/second
- 3) Spin at 3000 rpm for 30 seconds with acceleration of 300 rpm/second

## Soft Bake

Use a level hotplate with good thermal control and uniformity for the Soft Bake step of the process.

Table 1 Soft Bake Time

Thickness ( $\mu\text{m}$ )	Soft Bake Time (minutes @ $95^\circ\text{C}$ )
50	15

Recommended temperature for the soft bake is  $95^\circ\text{C}$ . Kavli Nanolab is using 6 inch wafers to protect the hotplate from getting dirty. This means that the programmed temperature for Kavli Nanolab is  $100^\circ\text{C}$ .

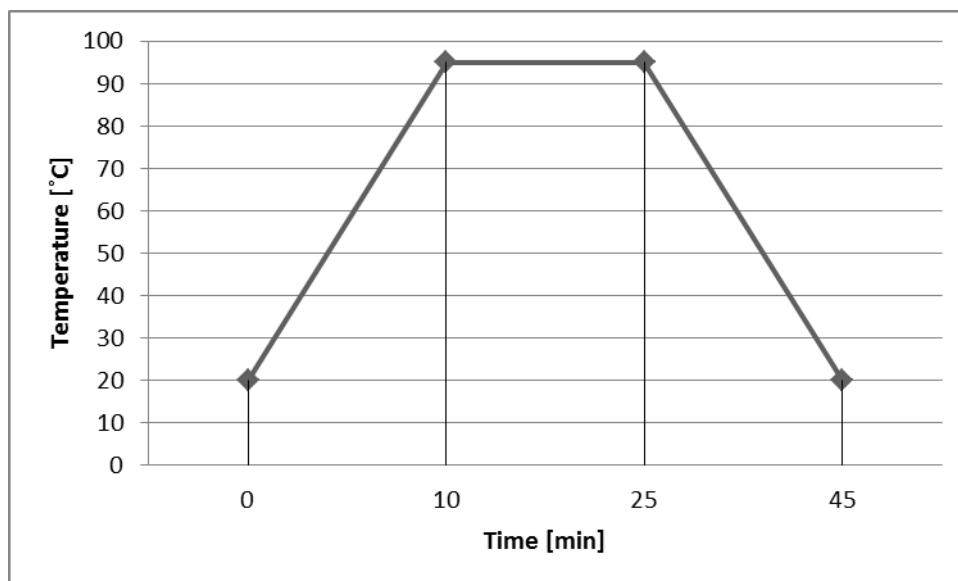


Figure 1 Soft Bake Times for SU8-3050

## Exposure

The exposure tool EVG 620 is used for exposing the resist, using soft contact. A hard mask is used for a better resolution.

With an exposure energy of 8,5 mJ/cm<sup>2</sup>, an exposure time of 12 seconds is used.

*Note: Optimal exposure will produce a visible latent image within 5-15 seconds after being placed on the PEB hotplate and not before.*

## Post Exposure Bake (PEB)

Should take place directly after exposure.

Table 2 Post Exposure Times

Thickness (µm)	PEB Time (minutes @ 65°C)	PEB Time (minutes @ 95°C)
50	1	5

Recommended temperatures for the post exposure bake are 65 and 95°C. Kavli Nanolab is using 6 inch wafers to protect the hotplate from getting dirty. This means that the programmed temperatures for Kavli Nanolab are 70 and 100°C.

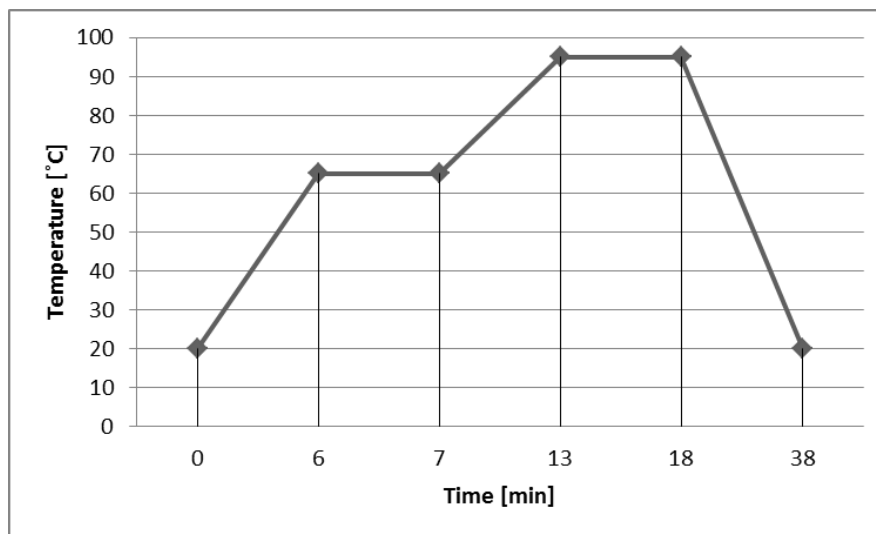


Figure 2 Post Exposure Bake Times for SU8-3050

*Note: After 1 minute of PEB at 95°C, an image of the mask should be visible in the SU8-3050 photoresist coating. No visible latent image during or after PEB means that there was insufficient exposure, temperature or both.*

## Development

- 1) Develop for 10 minutes in developer mr-Dev 600
- 2) Rinse for 30 seconds in Isopropyl Alcohol (IPA)
- 3) Use a dry spinner for drying the wafer

## Reference

MicroChem, „SU-8 3000 Permanent Epoxy Negative Photoresist,” [Online]. Available: <http://www.microchem.com/pdf/SU-8%203000%20Data%20Sheet.pdf>