

Softbake

After the photoresist is applied to the desired thickness, a softbake is used to remove the residual solvents of the photoresist. After the softbake, the wafer is cooled to room temperature.



The softbake, also called prebake, is the thermal baking step performed after spin coating the photoresist but before UV exposure. Its main purpose is to remove solvents from the photoresist film and improve adhesion to the wafer.

Why is Softbake Necessary?

1. Solvent Removal
: Reduces solvent content to stabilize the resist and prevent bubbling or scumming during exposure and development.
2. Improves Adhesion
: Helps the resist bind better to the wafer or substrate surface (Especially critical for features with fine geometry).
3. Resist Film Stability
: Prevents resist flow or reflow during exposure, maintaining pattern fidelity.
4. Controls Film Properties
: Modifies resist thickness, uniformity, and refractive index.
: Impacts sensitivity and contrast of photoresist.

Key Equipment Requirements for Softbake

- Uniform temperature control (90–110°C typical)
- Hot plate (preferred) or oven system
- Good wafer contact uniformity (e.g., vacuum chuck)