

Substrate Cleaning

1. Simple Clean

1. Removes organic contaminants

2. Process

1. Cover the surface of the wafer with Acetone.
2. Thoroughly scrub the surface of the wafer with a swab.
3. Rinse the wafer with IPA.
4. Blow dry the wafer with N₂ gun.

2. Photoresist Stripper

3. O₂ Plasma Etching

1. O₂ plasma etching will remove organic films and residues.
O₂ plasma etching can be done in the asher.
2. Link to asher

4. RCA Clean

1. Removes organic, oxide, and metallic contaminants
2. Process
 1. Organic Clean: Removal of insoluble organic contaminants with a 5:1:1 H₂O:H₂O₂:NH₄OH solution.
 2. Oxide Strip: Removal of a thin silicon dioxide layer where metallic contaminants may accumulated as a result of (1), using a diluted 20:1 H₂O:HF solution.
 3. Ionic Clean: Removal of ionic and heavy metal atomic contaminants using a solution of 6:1:1 H₂O:H₂O₂: HCl.

5. Piranha Clean

1. Removes organic materials (photoresist, oil, etc.)
2. **WARNINGS: Do not use Piranha clean on aluminum**
3. Process
 1. Mix 98% H₂SO₄ (sulfuric acid) and 30% H₂O₂ (hydrogen peroxide) in volume ratios of 2-4:1
 2. Heat to 100°C