

## Sub-Protocol: Photomask Cleaning

Description: This document details the protocol for the cleaning glass/chromium photomasks. This step is not necessary for freshly manufactured, unused photomasks.

### MATERIALS

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Acetone  
Isopropanol  
Nanostrip

### EQUIPMENT

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Glass tank designated for Nanostrip  
Hotplate  
Teflon mask holder  
Mask tweezers  
HDPE trays

### PROCESS

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#### 1. SAFETY

- 1.1. Nanostrip is very hazardous. Wear acid-resistant gloves, goggles, and chemical apron at a minimum. All work should be conducted in a corrosives fume hood.

#### 2. SOLVENT CLEAN

*Note: perform in chemical fume hood*

- 2.1. Soak the photomask in a shallow acetone bath in a solvent compatible receptacle (HDPE tray labeled for solvent use, or glass tank designated for photoresist stripping). Liberally spray with acetone to remove large debris and significant photoresist residue.
- 2.2. Repeat with a shallow bath of isopropanol.
- 2.3. Repeat with deionized water.
- 2.4. Blow dry with N<sub>2</sub>.

#### 3. NANOSTRIP CLEAN

*Note: perform in corrosives appropriate fume hood*

- 3.1. Fill the glass Nanostrip tank with a shallow layer of solution, enough to cover the photomask.
- 3.2. Place the tank on a hotplate and set to 60 °C. Allow plate to reach temperature.
- 3.3. Prepare two HDPE trays with deionized water for rinsing.
- 3.4. Place the photomask in the Teflon mask holder chrome/pattern side up.
- 3.5. Carefully transfer the mask to the tank still in the holder and let soak for > 10 minutes.

- 3.6. Carefully transfer the mask to the first rinsing tray and rinse briefly.
- 3.7. Transfer mask to the second tray and rinse 5× with deionized water.
- 3.8. Blow dry photomask with N<sub>2</sub>.

#### 4. CLEAN AND DISPOSE OF NANOSTRIP

- 4.1. Turn-off hotplate and allow solution to reach room temperature.
- 4.2. While waiting, fully rinse water trays and mask holder and dry thoroughly.
- 4.3. When the solution has cooled, decant carefully with aid of glass funnel into labeled glass waste beaker.
- 4.4. Triple rinse tank.