

## POSITIVE RESIST PR1-2000A

### Description

- Positive Resist PR1-2000A is a positive tone photoresist designed for 365 or 436 nm wavelength exposure, using tools such as wafer steppers, scanning projection aligners, proximity printers and contact printers. PR1-2000A excels in applications when superior adhesion is required. Use of adhesion promoters, such as HMDS is not recommended with PR1-2000A.
- These are the advantages of PR1-2000A over other resists:
  - superior resolution capability
  - fast photospeed
  - superior linewidth control due to suppression of reflective notching
  - substrate adhesion which is superior to that of any commercial positive resist
  - ease of removal after RIE process
  - shelf life exceeding 1 year at room temperature storage.
- The formulation and processing of PR1-2000A were designed with regard to occupational and environmental safety. The principal solvent in PR1-2000A is 1-methoxy-2-propanol and development of PR1-2000A is accomplished in a basic water solution.

### Properties

- |   |                              |
|---|------------------------------|
| ◆ Solids content (%)  | 29-31                        |
| ◆ Principal solvent   | 1-methoxy-2-propanol         |
| ◆ Appearance  | light yellow liquid          |
| ◆ Coating characteristic                                      | very uniform, striation free |
| ◆ Film thickness after 100°C oven bake for 15 minutes.        |                              |
| <u>Coating spin speed, 40 s spin (rpm):</u>                   | (nm)                         |
| 800   | 3800-4200                    |
| 2000  | 2340-2580                    |
| 3000  | 1900-2100                    |
| 4000  | 1634-1806                    |
| 5000  | 1424-1576                    |
| ◆ <u>Sensitivity (mJ/cm<sup>2</sup> for 1 μm thick film):</u> |                              |
| 365 nm exposure wavelength                                    | 70                           |
| 436 nm exposure wavelength                                    | 40                           |
| ◆ Guaranteed shelf life at 25°C storage (years)               | 1                            |

## Processing

1. Application of resist by spin coating at selected spin speed for 40 s.
2. 100°C bake in a bake oven for 15 minutes or 120°C hotplate bake for 60 s.
3. Resist exposure in a tool incorporating 365, 406 or 436 nm wavelengths.
4. Resist development in Resist Developer RD6 by spray or immersion.
5. Resist rinse in deionized water until water resistivity reaches prescribed limit.
6. Drying of resist.
7. Removal of resist in Resist Remover RR4 or in acetone.

The above procedure refers to substrates, which are good conductors of heat such as silicon, GaAs etc. Bake times need to be increased 3.5 times for substrates, which are poor conductors of heat such as glass.

## Handling Precautions

Positive Resist PR1-2000A is a flammable liquid. Handle it with care. Keep it away from heat, sparks and flames. Use adequate ventilation. It may be harmful if swallowed or touched. Avoid contact with liquid, vapor or spray mist. Wear chemical goggles, rubber gloves and protective coating.