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# KL Lift Off PhotoResist

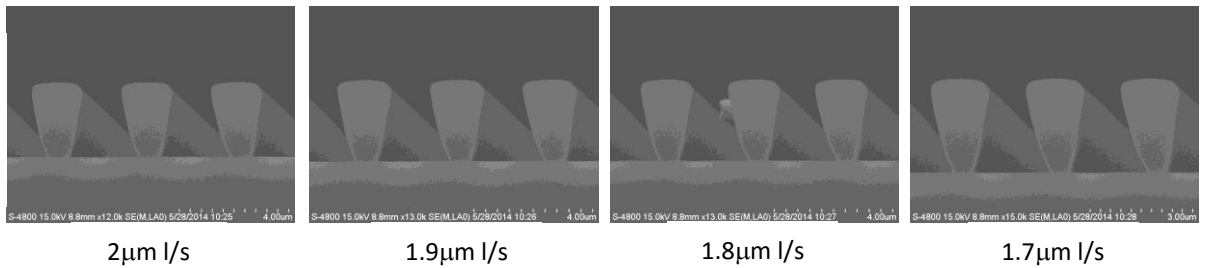
## Negative Photoresist with Lift Off Profile

**Description:** *KL Lift Off Resist* is a negative photoresist with **Lift-Off profile** for i-Line, and broadband applications.

- Wide process window for consistency across substrates, while still retaining ability to adjust resist profile
- Film Thickness range of 2 – 10  $\mu\text{m}$
- Designed for use with industry standard 0.26 N TMAH developers
- Customization available to:
  - Adjust Lift-Off Angle
  - Adjust PhotoSpeed

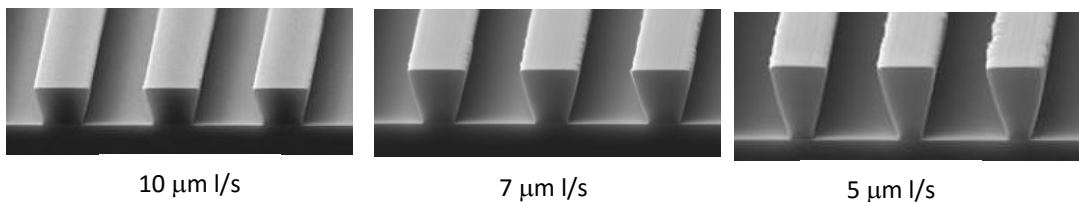
### Stepper Performance

Stepper (365 nm):  
Nikon i9c, 92  $\text{mJ}/\text{cm}^2$   
3.8 $\mu\text{m}$  FT



### Broadband Performance

Broadband  
195  $\text{mJ}/\text{cm}^2$   
7  $\mu\text{m}$  FT



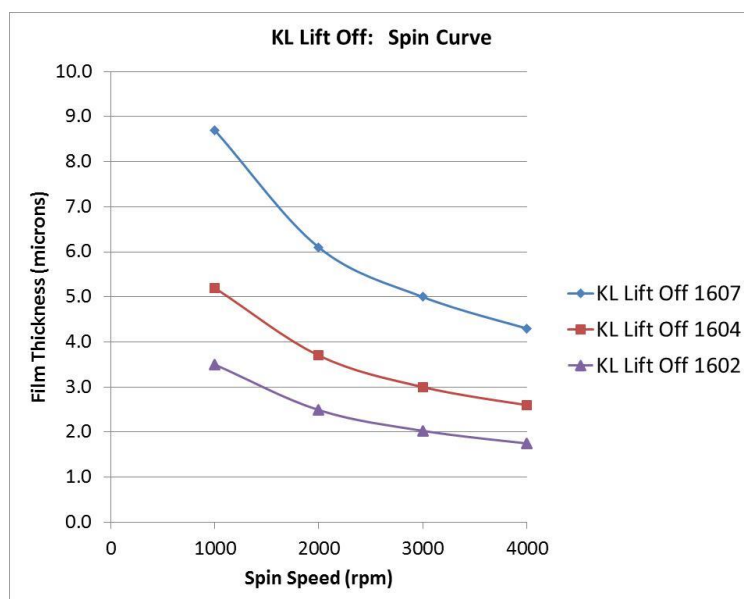
| KL Lift Off Process Guide        |          |                                     |                                |                                |
|----------------------------------|----------|-------------------------------------|--------------------------------|--------------------------------|
| Film Thickness                   | Product: | 1607<br>7 μm                        | 1604<br>4 μm                   | 1602<br>2 μm                   |
| Softbake                         |          | 110°C for 60 sec                    | 110°C for 60 sec               | 110°C for 60 sec               |
| Expose (broadband) on Si         |          | 195 mJ/cm <sup>2</sup>              | 130 mJ/cm <sup>2</sup>         | 105 mJ/cm <sup>2</sup>         |
| or Expose (i-line stepper) on Si |          | 138 mJ/cm <sup>2</sup>              | 92 mJ/cm <sup>2</sup>          | 75 mJ/cm <sup>2</sup>          |
| PEB                              |          | 110°C for 60 sec                    | 110°C for 60 sec               | 110°C for 60 sec               |
| Develop                          |          | double spray puddle,<br>each 45 sec | single spray puddle,<br>60 sec | single spray puddle,<br>60 sec |

## Substrate

KL Lift-Off Resist adheres to a variety of substrates; including gold, glass, aluminum, chromium and copper. For silicon, HMDS (hexamethyldisilazane) primer can increase adhesion.

## Spin Coat

Film Thickness is targeted using the spin speed curve (right). Coat program includes a 5-10 second spread cycle. Spin time at final speed is 45 seconds. Spin curves are determined using 6 inch Si and static dispense of approximately 3 ml of photoresist.



## Soft Bake

Soft-bake on contact hotplate: 110°C for 60 seconds

### For films over 7 microns:

Soft-bake on hotplate: 110°C for 90 seconds

## Exposure & Optical Parameters

KL6000 is suitable for i-Line and broadband exposure (see process guide above).

| Product          | Film Thickness Range (microns) | Approx Viscosity (cst) |
|------------------|--------------------------------|------------------------|
| KL Lift Off 1607 | 5 - 10                         | 140                    |
| KL Lift Off 1604 | 3 - 5                          | 48                     |
| KL Lift Off 1602 | 2 - 3.5                        | 24                     |

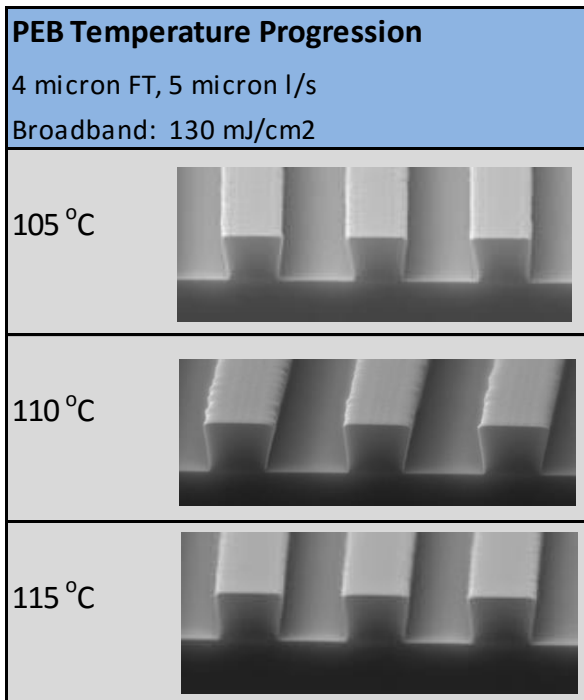
## Post-Exposure Bake (PEB)

PEB is necessary to crosslink the photoresist. PEB can be changed to modify performance.

PEB on contact hotplate at 110°C for 60 seconds.

### For films over 7 microns:

PEB on contact hotplate: 110°C for 90 seconds



## Develop

KL Lift Off Resists are optimized for use with 0.26N TMAH developers.

## Photoresist Removal

KL Lift Off Resists can be removed using industry standard removers (NMP, DMSO, etc.) at 50 – 80°C.

Thicker films may benefit from using a two bath process; the first bath to remove the bulk of the resist, and the second bath to clean it off thoroughly.

## Storage

Store products upright in tightly closed containers at 40-70°F (4-21°C). Keep away from oxidizers, acids, bases and sources or ignition.

## Handling & Disposal Considerations

Consult the SDS for handling and appropriate PPE. KL Lift Off PhotoResists contain a combustible liquid; keep away from ignition sources, heat, sparks and flames.

KL Lift Off PhotoResist is compatible with typical waste streams used with photoresist processing. It is the user's responsibility to dispose in accordance with all local, state, and federal regulations.

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