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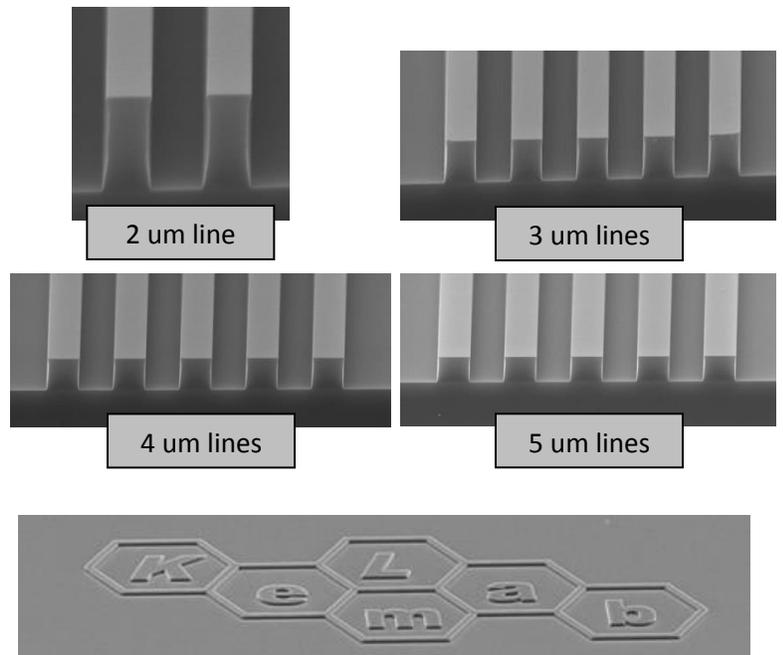
KemLab KLT 6000

Positive Photoresist

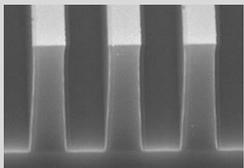
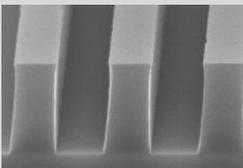
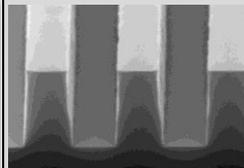
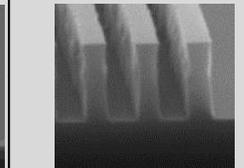
Description: KLT 6000 is a positive photoresist for use in i-Line, g-Line and broadband applications. KLT 6000 offers high sensitivity, high throughput, and excellent process latitude.

- Cover 2.5 – 12 microns in a single coat
- Designed for use with industry standard 0.26 N TMAH developers
- No PEB necessary
- Custom formulations available

4 micron film thickness



Process Guide

| Product: | KLT 6008 | | KLT 6005 | KLT 6003 |
|--------------------------|---|---|--|---|
| | 11 um | 8 um | 5 um | 3 um |
| Film Thickness | | | | |
| Softbake | 105°C for 150 sec | 105°C for 150 sec | 105°C for 120 sec | 105°C for 90 sec |
| Expose (broadband) on Si | 210 mJ/cm ² | 180 mJ/cm ² | 120 mJ/cm ² | 90 mJ/cm ² |
| PEB (optional) | 90° C for 90 sec if needed | | | |
| Develop | double spray puddle, each 90 sec | double spray puddle, each 75 sec | double spray puddle, each 45 sec | single spray puddle, 60 sec |
| Broadband Exposure |  3 micron lines |  3 micron lines |  2 micron lines |  1 micron lines |

KLT 6000 Positive Photoresist

Substrate

KLT6000 adheres to variety of substrates; including gold, glass, aluminum, chromium and copper. It is recommended to use HMDS (hexamethyldisilazane) primer. HMDS primer will increase adhesion of KLT6000 to most substrates.

Spin Coat

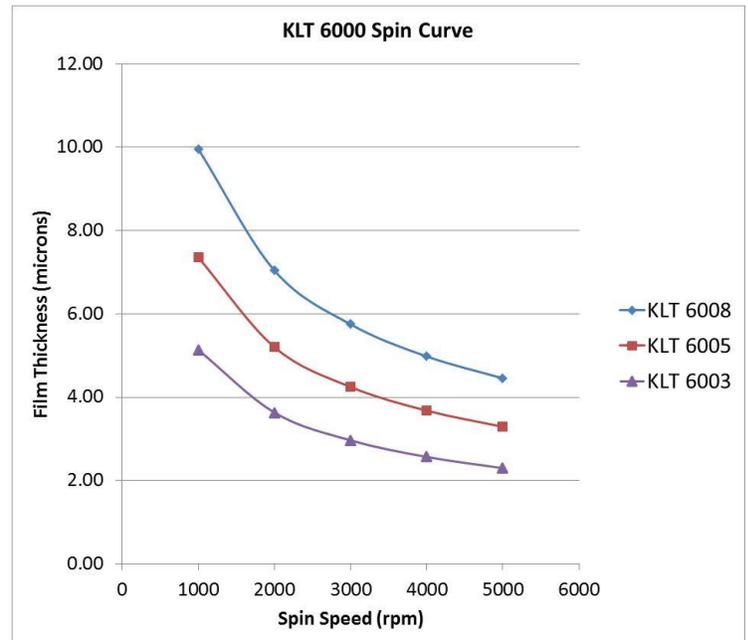
Film Thickness is targeted using the spin speed curve (right). Coat program includes a 5 - 10 second spread cycle; the longer time being used for thicker films. Spin time at final speed is 45 seconds. Spin curves are determined using 6 inch Si and static dispense of approximately 4 ml of KLT6000 photoresist.

For fine tuning film thickness of KLT6000 and most other positive photoresists under 10 microns:

$$\text{New Spin Speed} = \text{Spin Speed} \times \left(\frac{\text{measured film thickness}}{\text{desired film thickness}} \right)^2$$

Soft Bake

The recommended soft-bake by hotplate is 105°C +/- 5 °C. Typical bake time is 120 seconds; longer bake times can help to drive the casting solvent out of thicker films.

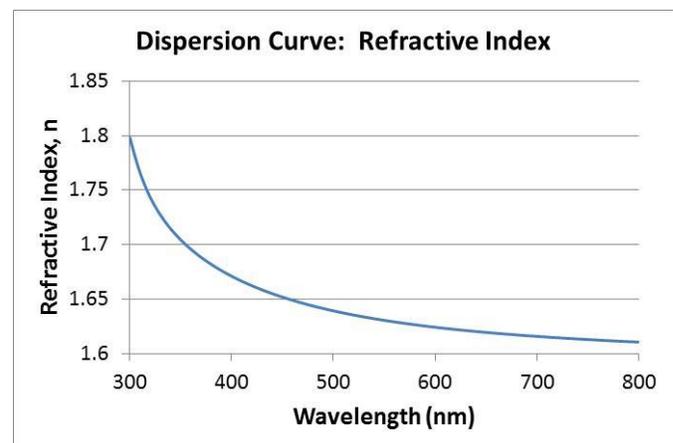


| Product | Film Thickness Range (microns) | Viscosity (cst) |
|----------|--------------------------------|-----------------|
| KLT 6008 | 5 - 12+ | 210 |
| KLT 6005 | 4 - 7 | 98 |
| KLT 6003 | 2.5 - 4.5 | 45 |

Exposure & Optical Parameters

KLT 6000 is suitable for i-Line, broadband or g-Line exposure.

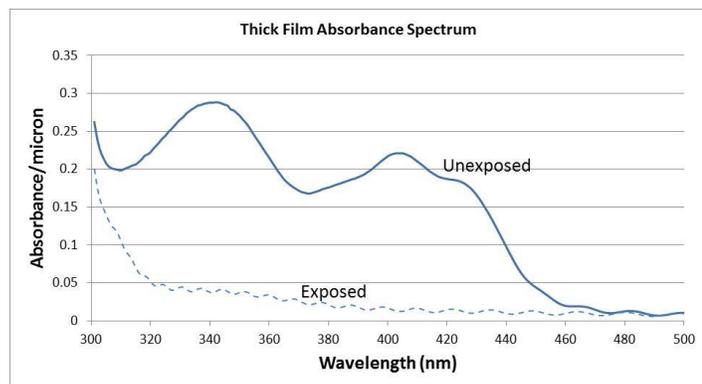
Dispersion curve for Refractive Index (n) is shown below



KLT 6000 Positive Photoresist

Exposure & Optical Parameters *(continued)*

Absorbance curve:



Dill Parameters are provided for optical exposure modelling.

Dill Parameters at 365 nm

| | |
|-------------------------------|-------|
| Dill A (micron) ⁻¹ | 0.371 |
| Dill B (micron) ⁻¹ | 0.075 |
| Dill C (cm ⁻² /mJ) | 0.036 |

Post-Exposure Bake (PEB)

PEB is not necessary for most applications.

If PEB is preferred for a particular process, bake on a contact hotplate at 90°C for 90 seconds.

Develop

KLT6000 is designed for use with 0.26N TMAH developers. It can be developed with immersion, puddle or spray puddle. Thicker films benefit from refreshing developer during the develop step; such as with a double puddle.

See Process Guide Table for details.

Etch Resist

Wet chemical etchants (for Au, Cu, Cr, Al, etc) do not degrade the patterns made with KLT6000.

Photoresist Removal

KLT6000 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.

KLT 6000 Positive Photoresist



Handling & Disposal Considerations

Consult the MSDS for handling and appropriate PPE. KLT 6000 contains a combustible liquid; keep away from ignition sources, heat, sparks and flames.

KLT 6000 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.

The information is based on KemLab's experience and is, to the best of our knowledge, accurate and true. We make no guarantee or warranty, expressed or implied, regarding the information, use, handling, storage, or possession of these products, or the application of any process described herein or the results desired, since the conditions of use and handling of these products are beyond our control.