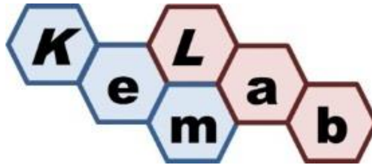

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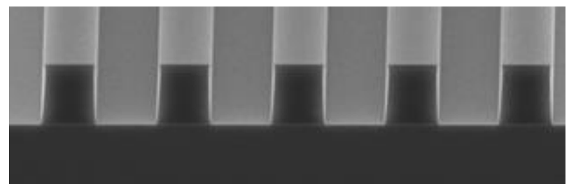
K-PRO Series

Positive Photoresist for Packaging Applications

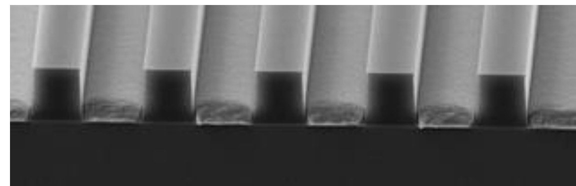
Description: K-PRO is a positive photoresist for use in i-Line, g-Line and broadband packaging applications.

K-PRO offers high sensitivity, high throughput, and excellent process latitude.

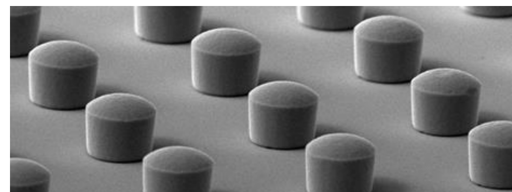
- Increased Heat Resistance
- Cover 5 – 25 microns in a single coat
- Designed for use with industry standard KOH, TMAH, and potassium borate developers
- No PEB needed



Silicon substrate: Film Thickness 25 µm: 15 µm



Copper Substrate: Plated Cu on Cu substrate
Film Thickness 15 µm: 10 µm line/space 1:1



Copper Substrate: Photoresist strip - 10 µm Cu Post

K-PRO Process Guide

Product:	**K-PRO 7**	**K-PRO 7/K-PRO 15**	**K-PRO 15**	**K-PRO 15**
Film Thickness:	**7 microns**	**10 microns**	**15 microns**	**25 microns**
Soft bake	115°C for 3 min	115°C for 3.5 min	115°C for 4 min	115°C for 5.5 min
Rehydration Time	30 minutes	30 minutes	30 minutes	30 minutes
Exposure (broadband)	125 mJ/cm^2	160 mJ/cm^2	210 mJ/cm^2	380 mJ/cm^2

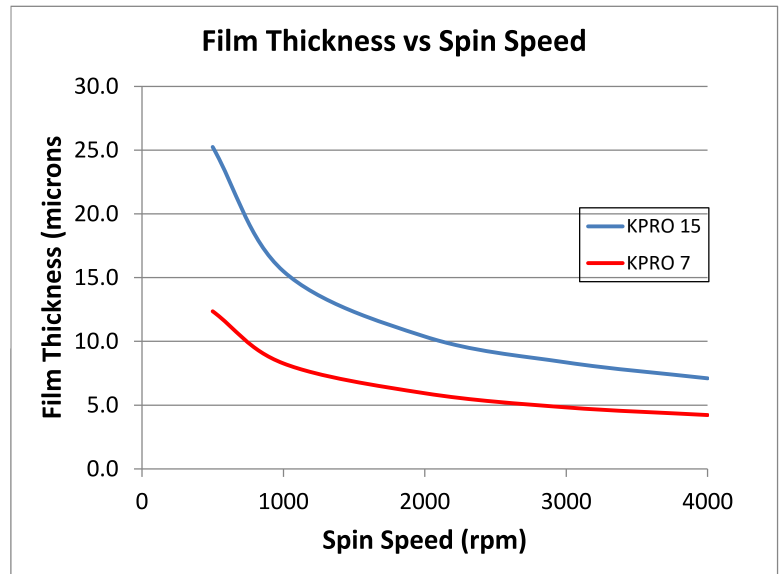
K-PRO Positive Packaging Photoresist

Substrate

K-PRO adheres to a variety of substrates; including silicon, gold, glass, aluminum, chromium and copper. Adhesion promoters, such as HMDS, will increase adhesion of K-PRO to many substrates. Substrate preparation should include dehydration bake.

Spin Coat

Film Thickness is targeted using the spin speed curve (right).

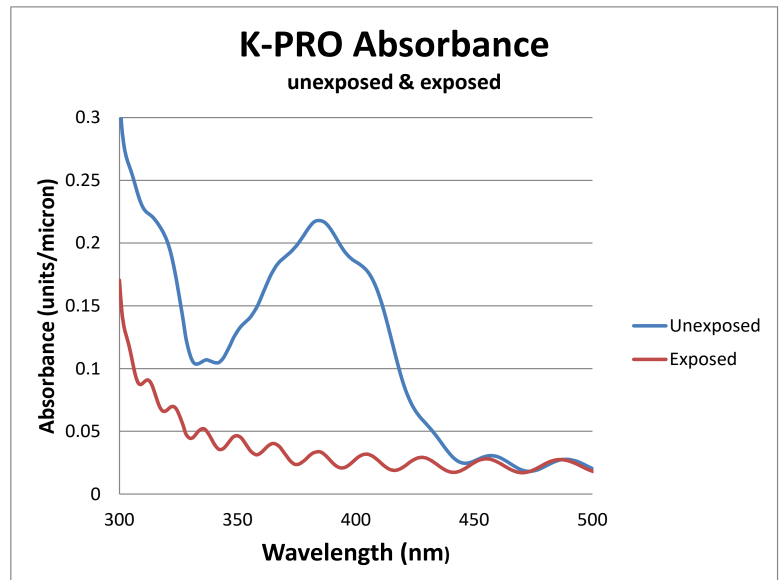


Soft Bake

The recommended soft-bake by hotplate is 115°C. Typical bake time is 3 – 5 minutes.

Rehydration Time

30 minutes at 35 – 50% relative humidity is recommended.



Exposure & Optical Parameters

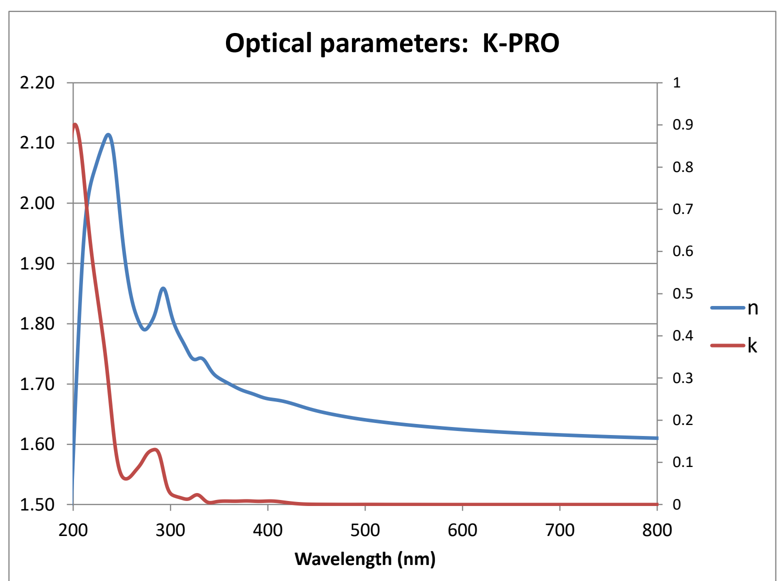
K-PRO is suitable for i-Line, broadband or g-Line exposure. See absorbance curve.

Post-Exposure Bake (PEB) - not recommended.

Develop

K-PRO is designed for use with a variety of industry standard developers such as: 0.26N TMAH, KOH, and Potassium borates. It can be developed with immersion, puddle or spray puddle.

These thick films benefit from refreshing developer during the develop step. For example, use two developer baths for immersion; or multiple puddles.



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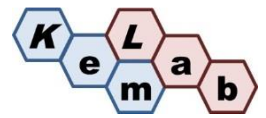

K-PRO Positive Packaging Photoresist

Etch Resist

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

Photoresist Removal

K-PRO can be removed using industry standard removers (such as NMP) at 50 – 80°C.

Thicker films may benefit from using a two bath process; the first bath removes 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 MSDS for handling and appropriate PPE. K-PRO contains a combustible liquid; keep away from ignition sources, heat, sparks and flames.

K-PRO 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.

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