KemLab
PHOTORESIST MANUFACTURING & INNOVATION

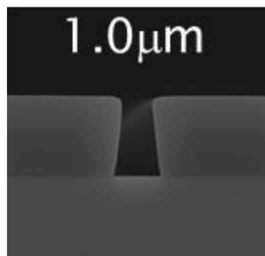
APOL-LO 3200

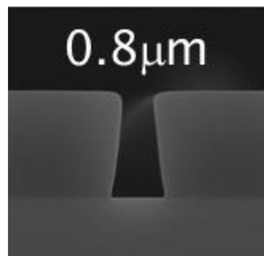
Advanced Photoresist with Lift-Off Profile

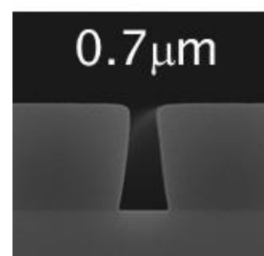
APOL-LO 3200 Series resist is a negative tone Advanced Photoresist with a **Lift-Off profile** for i-Line, and broadband applications.

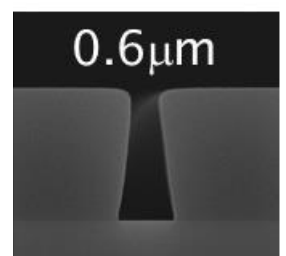
- Improved resolution
- Wider process window
- Film Thickness range of 2 – 10+ µm
- Designed for use with industry standard developers
- Customization available to:
  - Adjust Lift-Off Angle
  - Adjust PhotoSpeed

APOL-LO 3202
Film Thickness: 2.2 µm
Exposure: Nikon i9c stepper

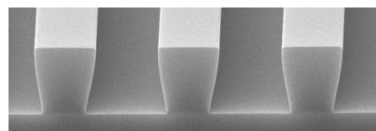


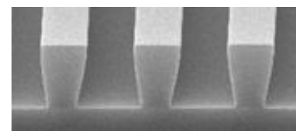


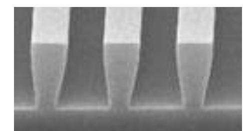




APOL-LO 3207
Film Thickness: 6 µm
Exposure: Broadband


5 µm l/s


4 µm l/s


3 µm l/s

APOL-LO 3200 Photoresist

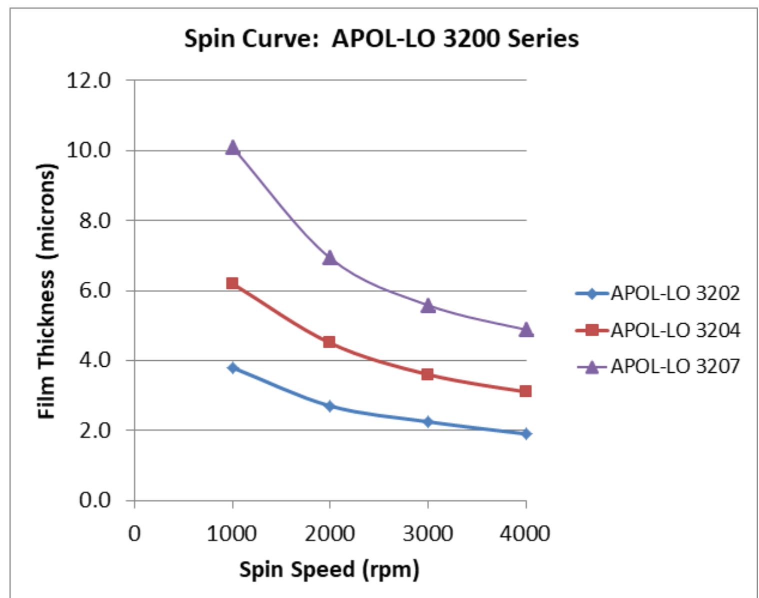
APOL-LO: Lift Off Process Guide				
Product:	3202	3204	3204 or 3207	3207
Film Thickness:	2 µm	4 µm	6 µm	10 µm
Softbake	110°C for 60 sec	110°C for 60 sec	110°C for 60 sec	110°C for 90 sec
Expose (broadband) on Si	140 mJ/cm^2	145 mJ/cm^2	150 mJ/cm^2	200 mJ/cm^2
PEB	110°C for 60 sec	110°C for 60 sec	110°C for 90 sec	110°C for 90 sec
Develop (TMAH 0.26N)	40 sec	60 sec	75 sec	120 sec

Substrate

APOL-LO Photoresist 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 3ml of photoresist.



Product	Film Thickness Range (microns)	Approx Viscosity (cst)
APOL-LO 3202	2 - 4	25
APOL-LO 3204	3 - 6	67
APOL-LO 3207	5 - 10+	180

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

Sensitive at i-Line and broadband exposures (see process guide above) & n,k curve (page 3)

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

APOL-LO 3200 Photoresist

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Develop

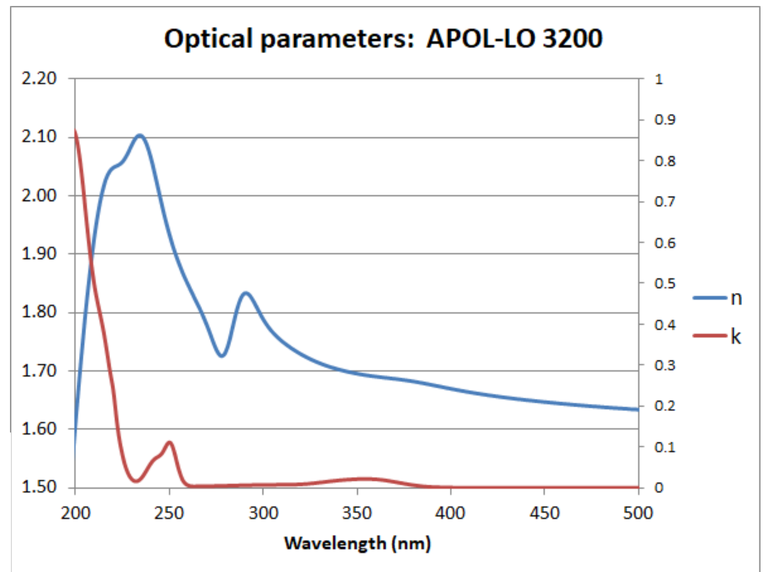
APOL-LO Photoresists are optimized for use with 0.26N TMAH developers. They are also compatible with other industry developers.

Photoresist Removal

Removal is performed using industry standard removers (NMP, DMSO, etc.) at 50 – 80°C.

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. APOL-LO Series photoresists contain a combustible liquid; keep away from ignition sources, heat, sparks and flames.

APOL-LO Series photoresists are 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.