

#### Sol-Gel Materials:

Tetraethyl orthosilicate (TEOS): 99.999% - Aldrich  
Millipore water: 17.7-17.8 – Barnstead Epure  
Ethanol – 95% - Aaper Alcohol  
Phosphoric Acid: 85% - EMD

#### Sol-Gel Preparation:

In a 2 ml micro centrifuge tube: ethanol, then TEOS, then water, then 1%  $\text{H}_3\text{PO}_4$  were combined. They were mixed with a vortexer, tightly sealed, and stored in the dark to gel (18-20 hours). Volumes were delivered with micropipettes and are as follows:

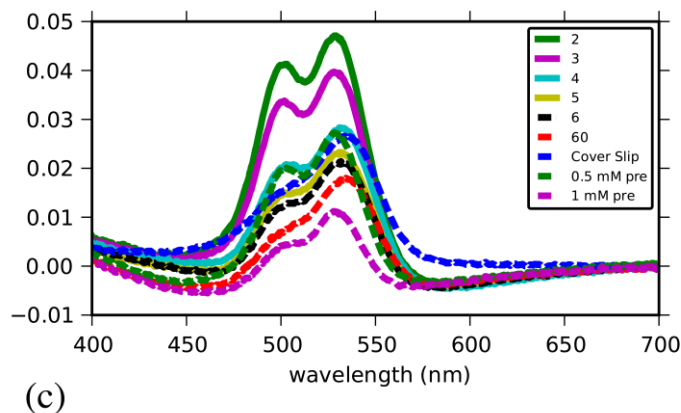
Ethanol	633.8 $\mu\text{L}$
TEOS	317.5 $\mu\text{L}$
Millipore Water	180.0 $\mu\text{L}$
1% $\text{H}_3\text{PO}_4$	3.51 $\mu\text{L}$

#### Thin Film Preparation/ Spin Coating:

After the 18-20 hours of time allotted for the sol to gel, the sol-gel was mixed again prior to thin film preparation. Using a micropipette, 80  $\mu\text{L}$  of sol-gel was delivered onto a 25  $\times$  25 mm cover slip (Fisherfinest Premium Cover Glass) and spin coated into a thin film at 6100 rpm for 110 seconds.

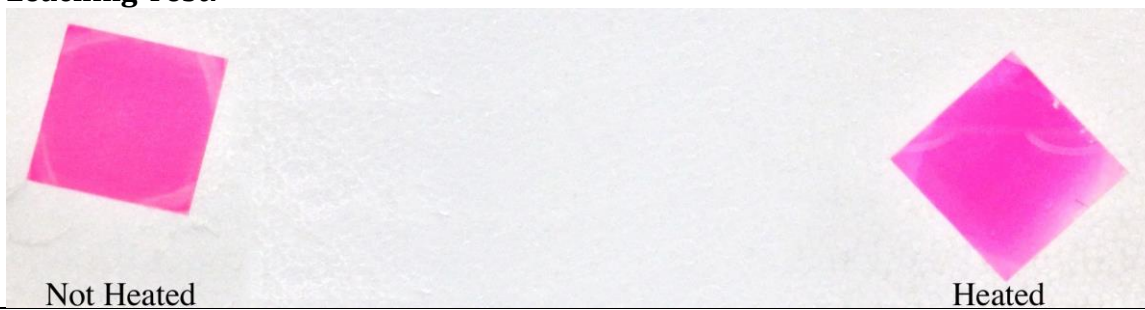
Spin Coater: Laurell Technologies – Model WS-400A-6NPP/LITE

Cover Slip Preparation: Acetone wash, 5  $\times$  Millipore rinse, 10% NaOH wash, 5  $\times$  Millipore rinse, Store in Millipore water. During each washing the cover slips are sonicated for 30 minutes. On fifth rinse, cover slips are sonicated for 5 minutes prior to next washing step.



**Fig. 2 (c)** Shown above are the absorption spectra for the longer post spin coating delay samples; post doped cover slip, and pre doped thin films which were overlapped in Figure 2 (a). Interestingly, the ratio Dimer/Monomer decreases with post spin coating delay.

## Leaching Test:



**Fig. 5 (ESI)** Presented above are both the heated and non-heated thin films after 5 days aging. Both had been doped by the developed method prior to aging.



Shown above: Non-heated film after one hour of extraction in water.



Shown above: Heated film after one hour of extraction in water.



Shown above: Non-heated film after one hour of extraction in ethanol.



Shown above: Heated film after one hour of extraction in ethanol.