

Developing X-Ray Film (using Kodak GBX Developer and Fixer Solutions)

- 1) Prepare working solutions from the stock concentrate (4C)

Developer : Add (in order) 750mL H₂O, 10mL concentrate – stir for 2 min. with stir bar. Highly sensitive to oxidation by light, wrap flask in tin foil while in the lab.

Fixer : 95mL concentrate to 856mL H₂O, swirl to mix no need to stir.

ddH₂O : Use as stop solution and final rinse.

- 2) Expose Chemiluminescent blot to X-Ray film in cassette (from marked drawer in lab). Make sure to either use a safelight or do it in total darkness (Cordley 3073). You may need to play around with exposure times depending on application. I had no problem getting signal using my typical 10/30/45/60 sec exposure times.

To expose film in cassette: place sheet of film in the cassette over the blot and close the top. Count down each of the exposure times and flip/rotate the sheet to a new section with each increasing time. It is helpful to cut a corner of the film to correspond with the top corner of the blot, this way is easy to re-align things after developing.

- 3) Fill the clear plant tray tops (on shelf in plant room marked for this purpose) with each of the solutions. The metal lab cart is useful for this. For example: developer on top, water in middle, fixer on bottom.
- 4) In darkroom, remove film from cassette and drop into Developer solution for 30 sec. Rocking is required but I just gently swirl the tray for the time, as long as solution is moving across the film.
- 5) Using long forceps remove from Developer and briefly transfer to water stop bath. **DO NOT MIX DEVELOPER AND FIXER SOLUTIONS.**
- 6) Transfer film to Fixer solution, again with gentle rocking, for 30 seconds.
- 7) Rinse with water (30sec-1min) and let dry. You should see your image with little to no background. Using my exposures I have yet to see any background.
- 8) **STORAGE** – Can funnel solutions back into bottles (foiled) and re-use 2-3 times but quality of image will diminish as the chemicals break down. You can gauge the extent of the breakdown based on oxidation (extent of brown colour) of developer solution. Sort of trial and error based on application.
- 9) **DISPOSAL** – OSU asks you separate solutions in glass bottles and dispose of by calling EHS for an appointment (541-737-2273).