



## GEL4050 Igneous and Metamorphic Petrology Thin Section Staining Procedures - FELDSPARS

### Materials needed

1. Amaranth stain (red) solution	1.40g Amaranth in 100mL H <sub>2</sub> O Shake until dissolved.	Keep refrigerated. Amaranth slowly loses its staining effectiveness
2. Barium chloride (BaCl <sub>2</sub> ) solution	5.50g BaCl <sub>2</sub> in 100mL H <sub>2</sub> O Shake until dissolved.	BaCl <sub>2</sub> gradually precipitates as BaCO <sub>3</sub> because CO <sub>2</sub> diffuses through plastic bottles.
3. Sodium cobaltinitrite (Na <sub>3</sub> Co(NO <sub>2</sub> ) <sub>6</sub> ) solution	60.0g Na <sub>3</sub> Co(NO <sub>2</sub> ) <sub>6</sub> in 100mL H <sub>2</sub> O Shake until dissolved.	Sodium cobaltinitrite damages plastic bottles
4. Hydrofluoric Acid (HF) fumes	Need only the fumes from an open bottle.	Fumehood ONLY! Do NOT remove from fumehood.
5. Container with rinsewater		
6. Tweezers		
7. Thin section drying rack to stand sections on end.		

### Prep Work

1. Thin section must be polished with 600 grit. NO coverslip!
2. Etch thin section rock side by holding it for about 10 to 15 seconds over the HF bottle opening. (If only ½ of the slide is to be stained, cover part of the slide with scotch tape) Do NOT hold with hands, use tweezers. Gently move the exposed rock part over the HF bottle opening so each part of the rock section is exposed to the HF fumes. **Do NOT rinse!**
3. Have four dishes / pans available holding the various solutions and the rinse water. You will need to completely submerge the etched thin section into these solutions.

### Procedure

*Note: Do NOT touch etched surface during the various staining process steps. The stain is sensitive and may rub off. For the same reason do NOT use running water to rinse thin section.*

1. After etching submerge whole thin section in sodium cobaltinitrite solution for about 1 minute.
2. Remove section and rinse.
3. Submerge thin section in the BaCl<sub>2</sub> solution for 20 seconds.
4. Remove section and rinse.
5. Submerge thin section in Amaranth solution for 30 seconds.
6. Remove section and rinse.
7. DRY section standing on edge. Do NOT lay sections down flat.
8. Do not touch, grind, polish the surface anymore before cover slip is mounted or you will damage or remove the stain.
9. After section is dry, mount the cover slip as usual.

### Stain thin section slide ID

*Note: Use PPL for the initial investigation of your section*

Quartz (PPL) = clear

K-Spar (PPL) = yellow

Plagioclase (PPL) = red to pink; pure Albite NaAlSi<sub>3</sub>O<sub>8</sub> will not stain unless pretreated with potassium chloride (KCl) solution right after etching