# STAINING FELDSPARS

(from a Western Washington University Geology Dept. mimeograph, circa early 1980s.....yes, its *that* old!).

CHEMICALS

- Hydrofluoric Acid = concentrated (52 percent), which is how it comes from the bottle.

- Sodium Cobaltinitrite = saturated solution; use about 15 grams of the yellow powder in 25 ml of distilled, deionized water.

- Barium Chloride = saturated solution; start with 5 grams in 25 ml of distilled, deionized water; add more Barium Chloride and stir until some will not dissolve. Allow some of the undissolved residue to remain in the bottom of the jar, but do not stir or shake immediately before using.

- Amaranth = saturated solution; use about 5 grams of the purple-red amaranth powder in 50 ml of distilled, deionized water.

Note: A solution is saturated when you can keep stirring it and no more of the solid dissolves.

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**THIN SECTION STAINING PROCEDURE**

Caution: Use the required chemicals in a fume hood and do not get any on your skin.

Prepare the thin sections using standard methods except do not glue on the cover slip. (If you need to stain already covered thin sections, try popping the cover slip off by freezing the sections. Experiment first on an expendable section to see if this works with the particular kind of epoxy or cement you are using.

For sedimentary petrology, half-stained sections are desirable, therefore you must mask the half of the section that is to be left unstained. Wrap one-inch wide masking tape gently around one end of the slide, overlapping the loose ends on the back. Seal tightly the edge of the tape crossing the center of the slide but do not push hard on the rest of the tape or you may have trouble removing the tape later.

If the thin section may be greasy (from fingerprints and such), wipe it gently with acetone or denatured alcohol, being careful not to touch the tape.

Etch the face of the thin section with concentrated hydrofluoric acid for 1 to 3 seconds. Use *extreme* caution in handling HF: wear a rubber apron, goggles, and rubber gloves (test your gloves in water to be sure they have no leaks). Do the etching in a fume hood that is turned on. You will need a plastic eyedropper, a shallow plastic dish, and a plastic beaker full of water. Do not put HF in a glass container: the acid dissolves glass. Hold the thin section, rock side up, over the shallow dish. Take a dropper full of HF and, beginning in the center of the thin section and moving towards the sides, cover the unmasked half of the sample with acid, letting excess acid run off into the dish. Put the dropper down in a safe spot and then dip the thin section several times in the beaker of water to rinse it. Move to the sink, and rinse off any remaining acid

with running water. Gently blow the thin section dry.

Immerse the unmasked end of the thin section in a saturated solution of sodium cobalinitrite for 15 seconds.

Rinse off the excess cobaltinitrite in tap water and dry gently but thoroughly with compressed air (you may also warm the section in a warm oven to dry it completely).

Immerse the unmasked end of the section in a saturated solution of barium chloride for 15 seconds.

Dip in water to rinse off excess solution, and blow dry.

Hold the unmasked end of the section in a saturated solution of amaranth (F.D. & C. Red No. 2) for 5 seconds.

Dip twice in standing water to rinse off some of the excess amaranth (do not overrinse or the red dye will be removed from the plagioclase) and blow dry.

Gently remove masking tape, taking care not to peel the rock off the slide.

Apply a cover slip.

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