

PHOTO LITHOGRAPHIC PROCEDURES

The oldest photo lithographic materials are the easiest to comprehend - even if we don't use them anymore. Therefore, students should review this process first.

OUTMODED PROCESS - GUM BICHROMATE/ALBUMIN BICHROMATE

1. Chromates:

Chromates are salts of chromium that have an unusual property. When mixed with proteins they will remain in solution until exposed to light. After exposure to light (ultra-violet) they will cause the protein in which they are exposed to congeal - to harden. In effect, proteins containing bi-chromates are fried by exposure to light. They are no longer soluble in water.

2. Process:

- a. A stone or plate is coated with gum containing chromate. This is allowed to dry.
- b. A negative (high contrast) image is secured to the surface.
- c. The sandwiched printing surface and negative are exposed to ultra-violet light.
- d. The printing surface is rubbed with grease that is buffed to a thin film.
- e. The printing surface is flooded with water and rolled up with ink.

Explanation: The non-exposed areas will wash away.

DIAZO PRINTING PROCESS

1 A plate (or stone) is coated with diazo emulsion under yellow or red safe light. The best plates for this have a thin silica coating.

2. Once dry the printing surface is sandwiched with a negative and exposed to light

3. The exposed plate is removed to a well-ventilated sink for development. Minimal light should strike the plate until developed.

4. The plate is laid on a flat surface and a pool of well-shaken developer is poured onto the image. (The non-image areas of an exposed plate are yellow. The image areas are typically blue green.)

5. With a damp (squeezed nearly dry) sponge the developer is pushed over the entire plate. This creates both the printing and the non-printing surfaces so all of the plate should be contacted.

6. As the lacquer thinner dries from the developer the image will become stronger. After a minute of agitation the image should be quite clear.

7. Once the image is visible the developing sponge may be rinsed and a small pool of water introduced to the mixture. Continued agitation should strengthen the image areas as residue from non - printing areas collects on the image.

8. After two minutes rinse the developer sponge again. Add more water and agitate.

9. Rinse the plate and fan dry.

10. Apply Asphaltum Gum Etch (A.G.E.) (commonly called "age") with a separate damp sponge.

11. Roll up and print.

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