

## Managing the Gum Bichromate Process

Successful gum printing can be achieved through a careful management of the many variables associated with the process. Those factors include the following:

- **Paper:** preshrinking, adequate sizing
- **Humidity:** moisture content in the paper and working environment
- **Exposure:** UV sources; diffusion vs undiffused sources, time of day/month of the year (sun)
- **Pigment:** consistent quantity and quality; staining control
- **Gum/Pigment Ratio:** gum arabic – using more gives higher contrast, too much causes emulsion to flake in development
- **Developing:** water temperature, bath manipulations
- **Technique:** brushing style, measuring style, development style
- **Negative:** damage from heat under hot lights, registration issues, density and contrast
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### How to Make the Print

#### 1

Gum printing is a contact printing process. Select a digital image. Convert it into a negative using Photoshop. Make sure you size it the same as your final print. Try to start with negatives that have good (not necessarily high) contrast and density. Print out on transparency film.

#### 2

With your negative ready and under subdued light or a safelight, combine one part gum arabic, one part dichromate, and a small length of watercolor from a tube in a plastic container. As an example for a typical 8 x 10 print, combine 3 eyedroppers full of gum with 3 eyedroppers full of dichromate. Then add about 2-3cm of watercolor from a tube. Mix thoroughly and occasionally stir as you use it!

#### 3

After you have mixed thoroughly, brush the emulsion onto the paper over an area slightly larger than your negative. Brush as quickly and evenly as you can. You may need to switch to a dry brush to help smooth the emulsion. Try not to lay the emulsion on too thick or thin, with your primary aim keep it even. Here is where finesse plays an important part in the process.

#### 4

Allow the emulsion to dry. A fan or a blow dryer set on the cool mode will help to speed the process along.

#### 5

Place your negative on top of the dry emulsion taking care that the "emulsion" side of your negative is in contact with the gum emulsion. Insert into your contact printer or sandwich with your plate glass.

## 6

Now expose your image to a UV source. A sunlight exposure may take from 1 to several minutes depending upon many factors such as pigment choice, gum/sensitizer ratio, time of day/season of year (if using the sun), and negative density. As an arbitrary starting time for your very first print, set the timer for three minutes and adjust your next prints accordingly.

## 7

When the timer goes off, remove your print from the contact printer or plate glass. Rinse the emulsion for a few seconds (5-10) under a very gentle stream of water to remove the least affected dichromate first. You will probably see some orange solution wash away almost immediately. Why let your paper soak unnecessarily in dichromate that otherwise can easily be removed by a brief initial rinse? After the rinse, place your paper face down in a tray of water for 5-15 minutes, then gently into another tray for an additional 5-15 minutes, then finally (if needed) into a third tray for the same amount of time. Your goal is to develop an acceptable print within 20 – 30 minutes. It is not unusual to use a small brush to help clear away small areas of unwanted pigment. However, if you find that the print is not clearing away in the allotted time or you need to scrub your emulsion to remove unwanted pigment, try exposing the next print for a shorter period of time. On the other hand, if the emulsion has swept off your paper or is flaking and fragmenting during the brief initial rinse time or in the first wash, try doubling or tripling your exposure time.

## 8

Now you may hang your print to dry or place face up on a drying screen. Afterward, it is usually recommended that another coat be applied of the same color or perhaps another color over top of the first layer to help improve the tonal range and density of the print. Simply repeat steps 2 through 8. After the last coating sequence, when your paper has dried, some printers suggest to remove any residual dichromate (indicated by an orange stain especially visible in the highlights) by briefly soaking the paper once more in a 5% (or less) solution of potassium metabisulphite.