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(505) 474-0890

## **Traditional Kallitype Printing**

*Dick Stevens' Formulas<sup>1</sup>*

### **Your Kit contains:**

- 25 ml - Silver Nitrate 10% Solution
- 25 ml - Ferric Oxalate 20% Solution
- 25 ml - Ammonium Dichromate 5% contrast booster
- 250 g - EDTA Clearing Agent
- 250 g - Sodium Thiosulfate fixer
- 1 Quart - Black tone developer
- 3 droppers

### **The Emulsion**

Take equal parts solution of:

- Solution "A" (10% Silver nitrate solution)
- Solution "B" (20% ferric oxalate solution)

\* If you have Tween 20, 1 drop of 10% Tween 20 per emulsion for an 8x10 print may be used as a spreading agent.

A good starting point is about 20 drops each of the 10% silver nitrate & the 20% ferric oxalate per 8x10, 12 drops each per 5x7. The amount may vary according to the paper used.

### **Contrast**

You may adjust the contrast with small additions of 5% ammonium dichromate. If one drop is too strong, dilute the solution.

### **Coating**

In a dimly lit room, coat paper with either a brush or coating rod. The paper should be liberally coated but not running wet<sup>2</sup>.

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<sup>1</sup>From Dick Stevens' book, "Making Kallitypes, a definitive guide, Focal Press, Boston, 1993

<sup>2</sup>A Japanese Hake brush works fine but you will need to buy a good one as the cheap ones shed hairs.

### **Resting**

After coating, allow the paper to sit for about 1-2 minutes. The Tween 20 will help even the coating out and pull it into the paper.

### **Drying**

Dry under gentle heat. A hairdryer works fine or you may just let it air dry naturally if you are not in an extremely moist climate.

### **Printing**

Contact print under sunlight or a UV light source. Print times are about 1-2 stops faster than traditional palladium. There will be little print out image so timing will have to be done by trial and error or test strip. Kallitype prints will bleach in the fix, so either tone before fixing or overprint by a stop or two. These are the only effective solutions to the bleaching problem.

### **Developing**

Place in the developer for at least 5 minutes. Standard develop times range between 8-10 minutes. Image will appear immediately so this must be done quickly, or else watermarks may appear. Different developers will change the color tone of the print.

### **Clearing (optional)**

This depends on the developer you are using. Some developers clear instantly in the developing tray. **The Black Kallitype developer that comes with the kit does require clearing.** Clear for 3-5 minutes in a bath of EDTA Tetrasodium of 2 tablespoons to 1 liter of water. The EDTA may be reused until approximately 20 8x10's have been cleared.

### **Fixing**

Fix in a 5% solution of sodium thiosulfate. 50 grams to 1 liter of water. Water should be around the 68° F range because if the water is too warm, it'll accelerate the bleaching. Fix for about 2 minutes, and then quickly place in a tray of fresh water<sup>3</sup>. This amount of fix will be sufficient for fixing 10 8x10 prints. It should be discarded after each printing session.

### **Final Washing**

Wash for 15-20 minutes and dry on archival blotters or screens.

### **Toning**

Kallitype prints may be toned with any of the noble metals. Toning is one way to keep Kallitype prints from bleaching during the fixing process, however, there will be color shifts and you will lose the prints original color. Toning will also increase the permanence of the Kallitype print. If you intend to tone your image, tone between your clearing bath and your fixing bath.

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<sup>3</sup>Unlike silver bromide prints, the Kallitype's silver is not enmeshed in a gelatin colloid and fixes much faster. I believe that even more dilute fix and shorter times may be equally as effective.

### **Toning Formulas**

To 1 liter of water add 5 grams of citric acid.

Add to this mixture either<sup>4</sup>:

-5ml gold chloride 5%,

or

-5ml standard palladium solution No. 3,

or

-5ml standard platinum solution No. 3.

After development and a thorough wash, place print in toning bath. Tone until desired color is reached. The noble metal salt in the toning bath will become depleted. A black deposit will appear in the bottom of the tray, which is silver that has been replaced by the noble metal. You may now fix and do the final wash. If sufficient toning has been done, the print will not bleach back.

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<sup>4</sup>Those of an experimental bent can try mixing a portion of 2 or more of the solutions for intermediate colors.