

PHOTOGRAPHERS' FORMULARY

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Liquid Cyanotype Kit

Contains solutions to make approximately 24 8 x 10 prints

The popular and inexpensive cyanotypes have a long scale and distinctive blue color. The process can be used to produce a pale white image on a blue background or a blue image on a white background. Cyanotype is an ultraviolet contact printing process that requires a negative the same size as the print you desire. The image can be transferred to a variety of media: paper, cloth, leather, etc.

The blue color of the print is due to Prussian blue formed from the reaction of ferrous ions (from photo reduction of the ferric ammonium citrate) and potassium ferricyanide. Under most conditions the image is permanent; however, Prussian blue will fade when alkaline. Since perspiration is alkaline, a cyanotype print can be permanently damaged if touched. Cyanotype prints tend to fade in strong light. The color will return if the print is stored in a dark damp area. A faded cyanotype can also be treated with a hydrogen peroxide oxidation bath to restore its color.

CHEMICALS CONTAINED IN THIS KIT

This kit contains the following chemicals:

Chemical	Amount
arrowroot starch	20 grams
Potassium ferricyanide solution (Sol. B)	40 grams in 500 ml water
ferric ammonium citrate (green) solution (Sol. A)	100 grams in 500 ml water
potassium dichromate	1 grain

CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the chemical warnings on each bottle. This kit contains two chemicals that need special attention: potassium ferricyanide and potassium dichromate.

Potassium ferricyanide: In spite of the fact that this compound contains cyanide, it is not particularly toxic. The reason is that the cyanide groups are chemically bound to the iron atom in the compound and not free to act as a poison. Potassium ferricyanide is not the insidious poison that sodium cyanide is. Cyanide groups can be released as hydrogen cyanide gas if the potassium ferricyanide is placed in a strong acid solution; however, strong acid is not used in the cyanotype process.

Potassium dichromate is both toxic and an oxidizer. To dispose of excess solid potassium dichromate always wash the solid down a drain with copious amounts of water. Never dispose of the solid in a wastepaper basket.

Spillage of a dichromate solution on the skin will cause a chemical burn, which will appear as an ulceration. In addition, all chromium salts are potential carcinogens.

We strongly advise you to use disposable rubber gloves when handling this compound or its solutions. Clean all trays and containers thoroughly with water followed by soap and water. Please consult with local sewer and water authorities regarding the proper disposal of darkroom chemicals in your area.

The user assumes all risks upon accepting these chemicals: **IF FOR ANY REASON YOU DO NOT WISH TO ASSUME ALL RISKS, PLEASE RETURN THE CHEMICALS FOR A CREDIT OR EXCHANGE.**

MIXING THE STOCK SOLUTIONS

1 % Potassium Dichromate Solution (optional)

Chemical	Amount
water (52°C/125°F)	100 ml
Potassium dichromate	1 gram

Place the solid potassium dichromate in the storage container and add 100 ml of water. Stir the solution to dissolve the solid. Store in a bottle with plastic cap. (Do not use a metal cap; the dichromate will corrode it.) Since potassium dichromate is toxic, we recommend that you mix this solution in a sink and, after mixing, wash all the utensils before removing them from the sink.

We strongly recommend that you wear rubber gloves when mixing and handling this solution.

Hydrogen Peroxide Oxidation Bath (optional, not included in kit)

Add 50 ml of 3% hydrogen peroxide to 500 ml of water. Stir the solution gently to obtain a homogeneous solution. Hydrogen peroxide solution will slowly degas; therefore, it should not be kept in a tightly capped container. In addition, the solution will slowly lose its potency. For consistent results, the solution should be fresh when used.

3% hydrogen peroxide is not included in this kit. It may be obtained from your local drug store.

Mixing the Sensitizer Solution

The sensitizer should be mixed in subdued light and be used as soon as feasible. The sensitizer solution is stable for about 2-4 hours after mixing.

Standard Sensitizer: Mix together equal volumes of the two stock solutions. For example, use 25 ml of stock solution A and 25 ml of Stock Solution B.

Lower Contrast Sensitizer: Dilute the mixed sensitizer with water. The greater the dilution, the softer the print.

Higher Contrast Sensitizer: The addition of 1% potassium dichromate solution to the standard sensitizer solution will increase the contrast of the final print. The following sensitizer solution is designed to contain 6 drops of the dichromate solution per 2 ml of standard sensitizer solution. At this level, you can expect a loss of two steps using Kodak No. 2 Step Table.

NEW IDEAS AND SUGGESTIONS FOR USING CYANOTYPE

There are several good books in your public library in the photography section that will help you on this process.

Quits are covering the country so to speak - using the Cyan process. Let your imagination go to work on pillows, jackets, and wall hangings! It isn't just a picture on paper process anymore.

One book we found interesting was Jan Arnow's book entitled *A Handbook of Alternative Photographic Processes*. In it she gives the following ideas to change the color of Cyan prints from the normal blue to several other colors. The process is done as a toning after you have completed the Cyan process entirely.

TONING SOLUTIONS

Brown to Black Tones

Ammonia 28% 10 ml
Distilled Water 100 ml

AND

Tannic Acid 10 grams
Distilled Water 500 ml

Mix both solutions separately. This is a two-step immersion process. Immerse the print in the ammonia solution until the color has been bleached-out. Wash in cool water for 10 minutes. Then immerse the print in the tannic acid solution until the desired color is achieved. Wash under running water for 15 minutes and dry.

Violet Tones

Prepare either a mild borax solution OR prepare a warm 5% solution of Lead Acetate (5 grams of lead acetate in 100 ml of water). Immerse the print in either solution until the desired color is achieved. Wash in running water for 15 minutes, then dry.

TROUBLESHOOTING

Problem

Areas of the coated surface were pre-exposed even before printing

The emulsion on the negative was eaten away during exposure

Entire print turned blue and overexposed while drying.

Stains remained in the skin after washing and would not come out

Explanation

The areas where the support was dried is too humid, OR the chemicals are too old.

The support was still damp when exposed.

It was not washed enough. To prevent this, rinse well, and dry print in darkened room.

Stains can be removed only by scrubbing with strong soap. Rubber gloves will prevent skin stains.



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