" NEW "CYANOTYPE KIT

This kit contains chemicals to prepare 100 ml of sensitizer solution.
Coats approximately 50 8 x 10's when applied with a coating rod

The new Cyanotype process is a great improvement over the classic formula in providing a much smoother texture, a more intense blue with Dmax (maximum density) near that of black, and a longer tonal scale. Printing time is cut by approximately two thirds. It also loses little, if any, blue color in the final wash water, and is much more suited to a greater variety of papers. The new formula differs from the old in two significant ways: the chemicals require a certain degree of preparation, and they are more toxic than the classic formula. However, neither poses any significant problem, even if you're not used to grinding and mixing your own chemistry.

CHEMICALS CONTAINED IN THIS KIT

Chemical	Amount
Ferric Ammonium Oxalate	30 g
Potassium Ferricyanide	10 g
Ammonium Dichromate (1.25% Sol.)	10 ml
Citric Acid	10 g
Distilled water to make	100 ml

CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the chemical warnings on each package. The chemicals in this kit needing special attention: Ferric ammonium oxalate, Potassium ferricyanide and Ammonium 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 bound to the iron atom and are not free to act as a poison. The 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.

Ammonium dichromate: All chromium compounds are extremely dangerous. When mixing, do so in a well-ventilated area and use a surgical or painters filter mask and gloves.

Ferric ammonium oxalate: Do not inhale. Use a dust mask and rubber gloves. This product may irritate eyes and skin upon contact. Use proper protective products.

The user assumes all risks upon accepting these chemicals.
IF FOR ANY REASON YOU DO NOT WANT TO ASSUME ALL RISKS, PLEASE RETURN THE KIT WITHIN THIRTY (30) DAYS FOR A FULL REFUND.

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MIXING THE STOCK SOLUTION

FOR BEST RESULTS USE DISTILLED WATER

1. Heat about 30 ml of distilled water to approximately 120°F and dissolve the 30g of ferric ammonium oxalate.
2. Add the 10-ml of ammonium dichromate solution and mix thoroughly. This inhibits decomposition during storage, ensuring a long shelf life. Do this procedure under tungsten light (incandescent) no more than a shaded or subdued 25-watt light bulb.
3. Using a mortar and pestle (cat. No. 09-0130), finely grind the 10g of potassium ferricyanide. Wear a protective dust mask, and pay attention to thoroughly completing this step, done when all the red crystals are crushed to a yellow powder. This is important; the potassium ferricyanide must be well dissolved in step 4.
4. Keeping the solution hot, add 10g of the finely ground potassium ferricyanide, stirring thoroughly, until few (preferably no) red crystals remain and green crystals begin to appear. Set the solution aside in a dark place to cool for about one hour, to just above room temperature.
5. Separate the liquid from green solids by filtering (use a common paper coffee filter). Discard the green sludge, which is now ferric potassium oxalate. The volume of extracted solution should be about 33 ml.
6. Add distilled water to this solution to make 100ml (Note: the solution can be made more dilute by adding water to make up to 200 ml. Emulsion speed with greater dilution is faster, but produces a less intense blue.)
7. Store the sensitizer solution in a brown bottle in a dark, dry location. Shelf life should be in excess of one year if stored properly.

THE NEGATIVE FOR A CYAN PRINT

"New" Cyanotype is a contact printing process. Therefore you will need a negative the size of the print you wish to make. Tests determine a density range of 1.7 works well.

A WORD ON PAPER

Thanks to John Barnier and his experimentation, and Mike Ware for this formula. The favored overall paper for Cyanotype is Crane's Parchmont Wove. Crane's platinotype paper keeps a constant deep, rich blue color from sheet to sheet, but was not as consistent in texture. Three other good papers are Bienfang 360-layout paper, Twinrocker White Feather Deckle, and Buxton. Whatever paper you choose, make sure it is acid-free, 100% cotton rag. The "new" Cyanotype is an excellent indicator of impurities or other manufacturing defects in the paper. A few hours after coating a sheet of paper check its color. A pale yellow-green is the desired color. If it turns a true green or, worse yet, blue, discard it. These colors indicate chemical additives in the paper's production, or an otherwise unsuitable environment for the "new" Cyanotype sensitizer.

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CLEARING AGENT

The addition of a solution of citric acid to the sensitizer just before coating will greatly speed up clearing of the image. First, make a 40% solution by adding the packet to enough water to make 25 ml of solution. Add one drop to each 2 ml of sensitizer solution for each print. Keep this additive separate from the sensitizer because when combined it will shorten its shelf life.

SENSITIZING THE PAPER

Coating by the rod method requires about 1.5 ml of sensitizer per 8x10. Brush coating requires approximately twice as much chemistry. The glass rod is simply just that, and a better way to coat paper, in our opinion. Try to avoid excess sensitizer, which may pool and crystallize.

Our Micro Mixers (Cat. Nos. 09-0340 through 09-0360) are the perfect tool for measuring small quantities of chemistry. You may coat in the darkroom under a red light, or using a 40 watt light bulb with a shade (subdued light).

One thing noticed is an aging effect of the sensitizer. If used immediately, the sensitizer washed off slightly in the water, and exhibited a slight grainy texture. If a print is made several days after the sensitizer has "ripened" there is a smooth texture and no loss of blue in the wash water. The sensitizer is a slight yellow-green color right after mixing but will turn a more pure yellow in a couple of days.

It is simple to let the sensitized paper dry at room temperature in the dark for about one hour. There should be no difference if you prefer heat drying with a hair dryer. If possible, expose the paper within a few hours of coating.

We recommend using a split-back contact print frame (Cat. Nos. 07-2000 through 07-2020) with GE BL 40 UV light bulbs for exposure. Bulbs may be obtained from a light distributor - check your yellow pages. You will have to determine your own exposure times by testing, but a good starting point for a 4x5 print is 0.5 ml of sensitizer measured with the Micro Mixer, and a constant exposure time of 11 minutes under UV bulbs, three inches from the contact printing frame.

Your final step will consist of "GENTLY" washing your print until the yellow stain is gone - approximately 20 minutes. Hang to dry.

For questions concerning this product, please call the Formulary at 406-754-2891.

Cat. No: 07-0095

note: This document is the exact copy of the paperwork that accompanies the Photographer's Formulary New Cyanotype Kit, reformatted on letter size paper and saved as a PDF file for distribution to students so they may familiarize themselves with the materials and processes before they purchase a kit.

The actual document can be downloaded from the Photographer's Formulary website www.photoformulary.com under the Technical Info tab, listed as Formulary New Cyanotype 07-0095 (not to be confused with Formulary Cyanotype 07-0090-07-0091, that is the traditional Cyanotype kit).