PHOTOGRAPHERS' FORMULARY

FORMULARY IRON BLUE TONER

TO MAKE 1 LITER OF TONING SOLUTION

Formulary Iron Blue toner is an inexpensive but effective toner that is equivalent to Ansco Toner 241. The toner will work on most papers, but each type of paper will yield a slightly different tone.

Blue toning is a favorite of those photographers working with winter or water scenes. Just a hint of blue enhances the impression of winter snow, and softens an otherwise stark photo.

A number of different formulations for iron blue toners have been published. All of the formulations are based upon the formation of Prussian blue.

The chemicals in this kit give a brilliant blue tone. To allow you to vary the blue color to a softer, blue-gray tone, this kit also contains borax for the preparation of an after-bath.

CHEMICALS CONTAINED IN THIS KIT

CHEMICAL	AMOUNT
Potassium Ferricyanide	8 g
Ferric Ammonium Citrate*	8 g
Borax	5 g
Succinic Acid	37 g

*Ferric Ammonium Citrate is somewhat light sensitive and should be stored in the dark or a dark brown container.

FOR YOUR CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the Chemical warnings on each package.

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, a high concentration of strong acid (such as hydrochloric acid) is not used in the iron blue toning process. Succinic is not sufficiently strong to release the cyanide ions.

To dispose of excess potassium ferricyanide (solid or in solution), wash the material down the drain with excessive amounts of water.
Consult with local sewer and water authorities regarding 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 WITHIN 30 DAYS FOR A FULL REFUND.

CAUTION: Never use metal utensils or containers in the preparation of or the use of toning solutions.

MIXING THE STOCK SOLUTIONS

We recommend you wear a dust mask, splash goggles, rubber gloves and a rubber apron anytime you are mixing dry chemicals. Use distilled water.

You will need a glass or plastic temporary mixing container, one with a capacity of 1000 ml to mix the toning solution. You will also need a 1-liter brown storage container to store the mixed toning solution and a second 1-liter container if you prepare the borax after-bath.

CHEMICAL	AMOUNT
Water* (48° C/120° F)	500 ml
Ferric Ammonium Citrate	8 g
Potassium Ferricyanide	8 g
Succinic Acid	37 g
Water (20° C/68° F) to make	1000 ml

*Use distilled water or demineralized water if possible.

Place the water in the mixing container and add the ferric ammonium citrate. Stir until the solid completely dissolves. Add the potassium ferricyanide and stir the solution until the solid dissolves. While stirring, slowly add all of the Succinic Acid. Stir solution until all the solid dissolves. Finally add cold water to bring the final volume up to 1000 ml and stir to ensure the solution is mixed thoroughly. Store the toning solution in a brown bottle. Ferric Ammonium Citrate is somewhat light sensitive and, in strong light, will be converted to ferrous ions, which will cause the solution to turn dark blue.

0.5% BORAX SOLUTION (AFTER BATH)

CHEMICAL	AMOUNT
Water* (20 C/68 F)	1000 ml
Borax	5 g

*Distilled water is not necessary for this bath.

Place the water in the storage container and add the borax. Cap the container and shake it to dissolve the solid.

TONING THE PRINT

All toners work best if the print is fixed with a non-hardening fixer such as TF-4 (catalog number 03-0141). A hardening fixer decreases the permeability of the gelatin of the print thus decreasing the ability of the toning chemicals to reach the silver in the print.

Blue toning will cause some darkening of the final print; the depth of the blue color is dependent on the silver density of the original print. Best results are obtained when the original print has a density somewhat lighter than you desire in your final toned print.

To tone the print, immerse the fixed and washed print in undiluted toning solution in a plastic tray and agitate it. If you start with a dry print, be sure to presoak it in water. The longer the print remains in the toning solution, the deeper the tone. You will have to use test strips to determine the toning time needed to get the hue of the final tone desired. When the print is removed from the toning bath, it will appear blue-green.

Wash the print in running water. The print will turn blue during this wash. Wash only for a few minutes. Prussian blue is very slightly soluble in water for an extended period of time. (Using an extended wash is a good technique to lighten an over-toned print.)

If your wash water is alkaline, you will have to use tray washing because Prussian blue is quite soluble in base. Place 1 or 2 ml of acetic acid from your stop bath in your tray water to acidify the water. Use at least two separate tray washings, changing the water often.

BORAX AFTER BATH

The intense blue color of blue toning can be muted by soaking the print (after the wash) in a borax solution. Immerse the toned and washed print in the borax solution in a plastic tray. The duration of the soak will determine the tonal change going from blue to gray-blue.