PHOTOGRAPHERS' FORMULARY

FORMULARY GOLD 231 TONER

To prepare 1 liter of toner solution

This toner can be used to produce either deep blue tones or red tones. For blue tones, the black-and-white print is toned without any pretreatment. For red tones, the print is first toned to a Sepia hue with a sulfide toner (such as Formulary Hypo-Alum Toner) then toned again with the chemicals contained in this Kit.

With either technique, the actual color that is obtained is dependent upon the type of paper used to make the print. Slow, warm-tone papers tone more readily than do fast cold-tone papers. Prints that have been fully exposed and developed in dilute developers tend to give the best results.

CHEMICALS CONTAINED IN THIS KIT

Chemical	Amount
Ammonium thiocyanate	105 grams
Gold chloride, 1% solution	60 ml
Sodium thiosulfate, pentahydrate	100 grams

CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the chemical warnings on each package). **Consult with local sewer and water authorities regarding proper disposal of darkroom chemicals in your area**

Ammonium Thiocyanate is considered to be nontoxic but it can cause skin eruptions on some individuals. If this should happen, discontinue exposure and consult a physician. The thiocyanate group in this chemical is only remotely related to the deadly cyanide and cannot be converted to it.

Gold chloride is a caustic and can cause skin burns. In dilute solution, gold chloride will stain the skin purple. The stain is due to gold metal banded to the protein of the skin and cannot be chemically removed. The only procedure for removing these spots is to let them wear off. If you are concerned with finger stains, we strongly urge you to use rubber gloves, such as Playtex gloves, when working with this toner.

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.

MIXING THE TONING SOLUTION

Once mixed, the toning solution is not very stable. Therefore, plan on toning a number of prints in a single working session.

Because of the instability of the working solution, directions are given for the preparation of two stock solutions, which are combined to make the working solution. The individual stock solutions are stable for an extended period of time (6 months to a year) and only a portion of each need be used to make a working solution.

Stock Solution A

You will need a 1-liter storage container and mixing bowl.

Chemical	Amount
Distilled water (52°C/125°F)	500 ml
Ammonium thiocyanate	105 grams
Distilled water to make	750 ml

Place the warm water in a mixing bowl and add the ammonium thiocyanate. Stir the mixture to dissolve the solid then add sufficient water to bring the final volume up to 750 ml (A little less than 250 ml will be needed). Stir the final solution to ensure the solution is homogeneous. Transfer the solution to its storage container.

Stock Solution B

You will need a 250 or 500 ml storage container, a graduated cylinder, and a plastic funnel to mix this solution.

Chemical	Amount
Distilled water (20°C/68°F)	100 ml
Gold chloride solution, 1%	60 ml
Distilled water to make	250 ml

Place the plastic funnel on the storage container and add 100 ml of water to the storage container. Pour all of the gold chloride solution contained in the kit into the storage container. Measure 90 ml of water and add half of it to the gold chloride-solution container then transfer this rinse water to the storage container. Use the other half of the 90 ml portion of the water to wash the funnel used for transfer.

10 Percent Sodium Thiosulfate Solution (For use as an after-bath in Red Toning Only)

Chemical	Amount
Distilled water (52°C/125°F)	750 ml
Sodium thiosulfate, pentahydrate	100 grams
Distilled water to make	1000 ml

Place the warm water in a storage container and add the sodium thiosulfate. Cap and shake the container to dissolve the solid. Add sufficient cold water to bring the final volume up to 1000 ml. Cap and re-shake the solution to ensure the solution is homogeneous.

Working Solution

The working solution is prepared by mixing 3 parts of Stock Solution A and 1 part Stock Solution B. Stock Solution B is to be added to Stock Solution A.

Unfortunately, the working solution is not very stable after mixing. In addition, the capacity depends upon silver density of the print and the method in which the print is toned (see below). Therefore, the capacity is very hard to estimate before the fact. You can plan to tone about 20 8x10 prints per liter but save your poorer prints to be toned towards the end.

Chemical	100 ml	500 ml	1000 ml
Stock Solution A	75 ml	375 ml	750 ml
Stock Solution B	25 ml	125 ml	250 ml

Pour Stock Solution A into the toning tray and add Stock Solution B to it. Mix the solutions by rocking the tray. Use at room temperature.

USING THE TONER

For Blue Tones

Immerse a well-washed and wet black-and-white print in the toning solution. Rock the tray to wash the print with fresh toning solution. The degree of blue toning depends upon the length of time in the toning bath. Tone to the hue desired then remove the print and wash in running water for 10-20 minutes.

When first using this toner, you will not know the time needed to achieve the desired hue. We suggest you use a few test strips of the prints you wish to tone to calibrate the bath.

For Red Tones

For red-toning, the print must be first sepia toned using Formulary Sepia-Sulfide Toner, Bleach and Redevelopment (Catalog number 06-0035). This process involves an initial bleaching of the print with a ferricyanide-bromide toner then redeveloping the image with a sulfide bath. Directions for the use of the Sulfide Toner are contained in that kit.

Mixed tones of blue and red can be obtained it the print is first partially toned in a sulfide bath without initially bleaching the image. Some kits to carry out this type of sulfide toning are Formulary Hypo-Alum Toner (Catalog numbers 06-0100 and 06-0110) and Formulary Polysulfide Toner (Catalog number 06- 0190).

You starting with a sulfide-toned print use the following procedure to obtain red toner.

Be sure the print is well washed and wet before toning. Immerse the print in the working solution of the toning bath. Proper toning takes a considerable amount of time (15-45 minutes). During this time occasionally rock the tray to wash the print with fresh toning solution.

As toning proceeds, the color of the print will first turn to brown and then to red.

The exact color of the toning is dependent upon the time the print remains in the toning bath. To obtain the desired hue, we recommend that you first tone a test strip of the print in order to calibrate the time of toning.

After Treatment for Red Toned Prints

Wash the print for 1-2 minutes in running water then re-fix it in a 10 percent solution of sodium thiosulfate. Finally, wash the print thoroughly (10-20 minutes) in running water.

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