

PHOTOGRAPHERS' FORMULARY INC.

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FORMULARY/CAW P.O.P. TONER

Makes working solution to tone approximately 50 8x10 Prints

Formulary/CAW POP Toner is a thiocyanate and gold toning formula for use with the Chicago Albumen Works gelatin chloride printing-out paper (P.O.P.). The color of the print/d-cut image may be variously described as blood-red, rust-red, brick-red or plum-red. The exact shade will vary depending on several factors. However, differences in print-out color have little bearing on the color of the finished print, for toning and fixing determine the final hue. Depending on the length of time the print is toned, the final hue can range from red-brown through purple-brown. No developer is required. Paper can be obtained from:

The Chicago Albumen Works
P.O. Box 805 Front Street
Housatonic, MA 01236
(413) 274-6901

CHEMICAL SAFETY:

All chemicals are dangerous and must be treated with respect. Please read the chemical warnings on each package. Please exercise extreme care when handling, and avoid skin or eye contact.

Solution A of this formula contains ammonium thiocyanate. It is considered to be non-toxic but 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 cyanide and cannot be converted to it.

Solution B contains gold chloride which is caustic and cause skin burns. In dilute solution, gold chloride will stain the skin purple. The stain cannot be chemically removed and will have to be left to wear off. If you are concerned with finger stains, we strongly urge you to use rubber, Playtex-type gloves, when working with this toner.

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The user assumes all risk upon accepting these chemicals. If for any reason you do not wish to assume all risks, please return the chemicals for a full refund, WITHIN THIRTY DAYS.

LIFE OF THE SOLUTIONS:

The shelf life of both stock solutions is indefinite in full, tightly capped bottles. The life of the working solution is approximately one 8-hour working session.

CAPACITY:

500 ml. each of Stock Solution A and Stock Solution B can make enough working toner solution (with replenishment, discussed later) to tone approximately fifty 8"x10" prints in three printing sessions, assuming one liter batches of working toner per session.

PREPARE THE TONER:

1. Mix the following stock solutions (adapted from Kodak, Limited, London, Toner T-53):

STOCK SOLUTION A

Ammonium Thiocyanate	10 grams
Distilled Water (120°F)	500 ml.

Allow this stock solution to stand overnight.

STOCK SOLUTION B

Gold Chloride	1 gram
Distilled Water (70°F)	500 ml.

Both stock solutions will keep indefinitely.

MIX THE WORKING SOLUTION:

The working solution is prepared from the two stock solutions as follows:

Tap water (70°F)	900 ml.
Stock Solution A	50 ml.
Stock Solution B	50 ml.

Upon addition of Solution B, toner will turn red momentarily. Working dilution of toner may be used immediately

DRYING THE PRINT:

Dry the print emulsion up on clean blotters or screens. Flatten dry prints in a heated mounting press (180° - 200°F)..

PROOFS:

Stable proofs may be produced by merely fixing and washing the exposed P.O.P. paper. There is no control of color, and the final hue will be an orange-brown color. For untoned proofs, print even darker than for normally processed prints and place prints directly in the hypo with no pre-rinse. A slight improvement in color will be seen if a higher concentration of hypo is used (300 grams/1000 ml.), and if it is "aged" with a few scrap prints before use.

NOTE: Do not leave negatives in contact with unprocessed P.O.P. longer than necessary, as the excess silver nitrate in the paper can transfer to the negative, causing indelible stains. It is a good precaution to place a very thin (0.001" or thinner) sheet of clear polyester (i.e. Mylar®) between the negative and the printing paper during exposure. The use of this very thin polyester and a more or less point light source will result in negligible softening of the image.

Add 70 ml Kodak® Liquid Hardener to the plain hypo fixer

OR

Use Kodak® Fixer (contains hardener)
Mix according to instructions on packet.

Do not rinse the print between toning and fixing

The use of two successive fixing baths (5 minutes in each) is strongly recommended. Discard the first fixing bath when fifteen 8x10 prints (or equivalent) per liter have been fixed. Rotate the second bath to the first position and make a fresh second bath. Do not repeat this cycle more than five times before starting with both baths fresh. Prints will undergo significant color changes during the first minutes of fixing. Do not judge image tone or depth until the print is completely dry.

The use of any fixer formula other than the plain sodium thiosulfate plus hardener or a plain hardening fixer is not recommended. Rapid fix products, while they will fix P.O.P. prints perfectly well, will bleach the image excessively and are likely to produce less than optimal colors in the finished print.

Discard the fixer in the first tray after the toning session. For the next session, mix one liter of new fix to use in the second tray, and rotate the last session's fixer from the second tray to the first tray. Repeat for each session. Additional sodium thiosulfate (Formulary cat. no. 10-1360) can be purchased in bulk.

Prints will undergo significant color changes during the first minutes of fixing. Do not judge image tone or depth until the print is completely dry.

The use of any fixer formula other than plain sodium thiosulfate is not recommended. Common fixer and rapid fix products, while they will fix P.O.P. prints perfectly adequately, will bleach the image excessively and are likely also to produce less than optimal colors in the finished print.

WASH THE PRINT:

Wash in running water (70°F) for at least 30 minutes. (The use of a hypo clearing agent (Formulary cat. no. 03-0165) will reduce washing time and conserve water. If any yellowing occurs upon flattening later, eliminate the use of the hypo clearing aid and wash in water only.)

PROCESS THE PRINT:

NOTE: Toning should be done in dim room light.

1. Rinse the exposed print in slowly moving water (65°-70°F) for approximately one minute. (A slight milkiness may appear, this is silver nitrate from the emulsion reacting with chlorine in the water to form insoluble silver chloride.)

2. Toner prints in the working solution until desired color change has occurred (2-10 minutes). At about one minute into the toning, the entire image will take on a yellow-orange appearance. Soon thereafter, the shadows will begin to re-intensify, and the highlights will begin to appear light gray in color. For a mid-range (purple-brown) hue in the finished, dry print, tone until the highlights take on a faint cool (bluish-gray) tone compared to the mid- and shadow tones. Less toning produces warmer toned prints; more toning produces colder toned prints. In judging the degree of toning, observe the degree of color change rather than the actual color.

Replenish toner with approximately 8 ml. each of Stock Solutions A and B for every 8x10 print toned. If the toning time becomes progressively shorter, reduce the amounts of replenishment; conversely, prints with large black borders may require a slightly higher replenishment rate.

In order to achieve greater session-to-session uniformity, one may substitute exhausted toner (saved from the previous printing session) for one half of the water used to dilute Stock Solutions A and B for use, for example:

Old toner	450 ml.
Tap Water (70°F)	450 ml.
Stock Solution A	50 ml.
Stock Solution B	50 ml.

FIX THE PRINT:

Fix 10 minutes in a plain hypo fixer (70°F):

Sodium Thiosulfate (hypo)	150 grams
Tap Water (85°F)	1000 ml.

In most cases the print will not require hardening. However, if prints experience surface abrasions or chipping, this is usually due to water quality or washing procedures. This can be remedied in one of two ways: