



## FORMULARY REDUCER IV FOR NEGATIVES

### 1-liter kit

Formulary Reducer IV is similar to Ansco 311. It is not a true reducer; rather it is only a bleach. The chemicals in this kit are used to convert the silver metal in the negative back to a silver halide, which then can be reconverted to silver metal in a redevelopment step. Any standard developer (not included in this kit) can be used for the redevelopment.

The reduction of the negative is accomplished in the redevelopment step. Redevelopment can be stopped at any stage desired, then the negative can be fixed to remove the residual silver halide in the negative. The removal of the silver halide, in effect, is equivalent to removing silver density from the original negative. Within reason, the process of bleach-redevelopment can be repeated any number of times to achieve the degree of negative reduction desired.

Reducer IV is a proportional reducer. Silver metal is converted to silver halide in approximately the same amount as it exists in the negative. The final result of bleaching and redevelopment is as if the film has less original development. In this respect, the action of Reducer IV followed by redevelopment can be thought of as film development in reverse.

Using a reducer correctly is an art and requires experience. We strongly urge you to practice using this reducer with scrap negatives before attempting reduction of a negative of value.

### CHEMICAL SAFETY

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

The chemicals used in Reducer IV are reasonably safe. Although potassium ferricyanide contains cyanides, they 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.

Please consult with local sewer and water authorities regarding the proper disposal of darkroom chemicals in your area.

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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 FULL REFUND.

### MIXING THE SOLUTION

You will need one bottle of a 1-liter capacity. A dark brown bottle is desirable but not required.

Chemical	Amount
Distilled Water (20° C/68° F)	750 ml
Potassium ferricyanide	35 g
Potassium bromide	10 g
Distilled water to make	1000 ml

Place about 750 ml of cool water in the storage container and add the potassium ferricyanide. Stir the solution (or cap and shake the container) to dissolve the solid. Add the potassium bromide and again stir the solution (or cap and shake the container) to dissolve the solid. Finally add cool water to bring the total volume in the container up to 1000 ml. Cap and shake the solution to ensure the final solution is homogenous.

### USING THE REDUCER

There are two steps in using Reducer IV (1) bleaching and (2) redevelopment. Both steps should be carried out in subdued light.

(1) **Bleaching.** The negative to be reduced must be free of hypo before bleaching otherwise permanent reduction will result. Soak the negative in water for a few minutes then transfer it to a tray (or other convenient container) containing undiluted Reducer IV solution. In a minute or two, the image will be converted to a straw color. Leave the negative in the Reducer IV solution for another minute or so after the image has been completely bleached, then wash it in running water for 3 to 4 minutes.

The Reducer IV solution can be returned to the storage container for reuse.

(2) **Redevelopment** Any developer, except a fine grain developer, can be used. The sodium sulfite in the fine grain developers acts as a silver solvent and some of the image will be lost. Suitable developers are Beutler (Catalog number 01-0060), Rodinal (Catalog number 01-0160), or Developer 3 used as a single-bath developer (catalog number 01-0030). Kodak's and Formulary paper developers are also suitable. Use subdued light and tray development. The redevelopment agent can be diluted to slow its action. Stop the redevelopment at the stage desired, then wash and fix normally.

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