

# PHOTOGRAPHERS' FORMULARY

## FORMULARY LOW CONTRAST PAPER DEVELOPER 120

Formulary Developer 120 is equivalent to the older Ansco 120. It is a soft, metol-based, paper developer and is most useful in portrait photography. In general, Developer 120 will print half-a-grade softer than indicated by the paper with only a minimal amount of contrast reduction. The print will have good blacks and neutral toners.

### CHEMICALS CONTAINED IN THIS KIT

Your kit will contain the following chemicals:

#### KIT SIZE

CHEMICAL	1 LITER	2 LITERS
Metol	12.3 g	24.6 g
Sodium Sulfite	36 g	72 g
Sodium Carbonate monohydrate	36 g	72 g
Potassium Bromide	1.8 g	3.6 g

### CHEMICAL SAFETY

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

Metol - some individuals become sensitized (develop allergic symptoms or rashes) when using Metol. If this should occur, discontinue use and call a physician.

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

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

### MIXING THE STOCK SOLUTION

We recommend distilled water for mixing all stock solutions. We also recommend you wear a dust mask, splash goggles, rubber gloves and a rubber apron anytime you are mixing dry chemicals.

You will need a 1 liter (or 2 liter) storage bottle and a glass mixing bowl of the appropriate size.

#### KIT SIZE

CHEMICAL	1 LITER	2 LITERS
Water (52° C/125° F)	750 ml	1500 ml
Metol	12.3 g	24.6 g
Sodium Sulfite	36 g	72 g
Sodium Carbonate, monohydrate	36 g	72 g
Potassium Bromide	1.8 g	3.6 g
Water (20° C/68° F)	1000 ml	2000 ml

Metol undergoes rapid oxidation with oxygen gas dissolved in water. This oxidation is most apparent when mixing a metol developer. There are two techniques to minimize this initial oxidation: (1) degassing the

water by boiling; and (2) dissolving a pinch of sodium sulfite before adding the metol. We suggest you use both techniques.

Boil the water and allow it to cool to about 52° C/125° F then transfer it to the mixing bowl. Add a pinch of sodium sulfite. This small amount of sulfite minimizes the initial oxidation; however, more will prevent the metol from dissolving. Add the metol and stir to dissolve. Add the bulk of the sodium sulfite and, again, stir to dissolve the solid. Next, add the sodium carbonate, stir to dissolve. The potassium bromide is added last. Be sure it is dissolved before continuing. Finally add cool water to bring the total volume up to 1000 ml (or 2000 ml); stir to ensure the solution is homogenous and transfer it to its storage container.

### **SHELF LIFE OF THE STOCK SOLUTION**

The stock solution has a shelf life of about three months in a full, tightly-capped bottle. As the solution deteriorates, it turns brown.

### **WORKING SOLUTION**

Dilute one part of the stock solution with two parts of water to make the working solution. For example, dilute 100 ml of the stock solution with 200 ml of water to make 300 ml of working solution; or dilute 150 ml of the stock solution with 300 ml of water to make 450 ml of working solution.

### **LIFE OF THE WORKING SOLUTION:**

The working solution, once it has been used, does not store well. Therefore, plan on discarding the working solution after a working session.

### **TYPICAL DEVELOPING SEQUENCE**

A typical development run using Developer 120 with a fiber-based paper would be as follows:

**Use all solutions at 20° C/68° F.**

Develop:	1.5 to 3 minutes
Stop:	1 minute in a fresh water bath
Fix:	1 to 2 minutes in Formulary TF-4 Archival Rapid Fix, or equivalent fixer.
Wash:	1 minute in running water
Clear:	2-3 minutes using Formulary Hypo Clear Agent (Cat. No. 03-0165)
Wash:	30 minutes in running water (up to 2 hours may be necessary with some fiber-based papers. Test wash times with Residual Hypo Test (Cat. No. 03-0150)



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