

# PHOTOGRAPHERS' FORMULARY INC.

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## THE ABC PLUS PYRO DEVELOPER

CATALOG NUMBER 01-5070 TO MAKE 33 LITERS OF WORKING SOLUTION

Photographers' Formulary is pleased to present a formula developed by Harald Leban specifically for rotary processing in Jobo® equipment or BTZS® processing tubes. Thanks go to Carl Weese for his painstaking testing and allowing us to use his information in our instruction sheets. The testing was done on several hundred negatives under a wide range of lighting conditions, being developed in Jobo® Expert drums. The results were clean negatives that can be processed in fairly short times at a relatively low (70°F) temperature in a single batch of chemistry. This formula however does not perform well in tray development because it produces a strong silver image with very little stain.

### FOR YOUR CHEMICAL SAFETY;

All chemicals are dangerous and must be treated with respect. Please read the warnings listed here. Always use rubber gloves and dust mask when using chemicals.

**METOL:** Some individuals become sensitized (develop allergic symptoms or rashes) when using metol. If this should occur, discontinue use and consult a physician.

**PYROGALLOL:** Pyro is quite toxic and is readily absorbed through the lungs, skin and mouth. Pyro is also a phenol and has the potential to cause skin burns. Use rubber gloves and keep your work area clean with lots of soap and water. Brief contact with the skin will cause a darkening which is not a chemical burn. Prolonged skin contact will cause a chemical burn, which closely resembles a heat burn. Pyro dust is to be avoided, use good ventilation and do not inhale. Once the chemical is mixed into a liquid it is only necessary to avoid full skin contact. Keep container tightly closed and away from light.

### KEEP AWAY FROM CHILDREN

**FIRST AID:** If contact is made, flush with water. If extensive contact is made or if in eyes, consult a physician. If inhaled or swallowed, get medical attention at once.

IF FOR ANY REASON YOU DO NOT WISH TO ASSUME ALL RISKS IN USING THESE CHEMICALS, PLEASE RETURN WITHIN 30 DAYS FOR A CREDIT.

### ABC PLUS STOCK SOLUTIONS

<b>"A" Solution</b>	500 ml
Distilled Water 75°F	400 ml
Metol	10 g
Sodium bisulfite	10 g
Ascorbic Acid (Vitamin C )	5 g
Pyrogalllic Acid (pyro)	75 g
Potassium Bromide	.75 g
EDTA Tetra Sodium	2 g
Distilled water to make	500 ml

<b>"B" Solution</b>	1000 ml
Distilled Water 75°F	700 ml
Sodium Metaborate	300 g
EDTA Tetra Sodium	5 g
Distilled water to make	1000 ml
<b>"C" Solution</b>	1000 ml
Sodium Metaborate	1.5 g
Distilled water to make	1000 ml

The most expensive and sophisticated way to rotary process is with the Jobo® system with its expert drum system. BTZS® tubes can be used if you use special care. These plain tubes can be spun by hand in a tray of water, or set on motorized print rollers. This is a typical processing sequence to run five sheets of 8X10 film in a Jobo® Expert drum. Simply modify the volumes to work with other rotary systems.

STOCK SOLUTION "A": It is advisable to use distilled water, but high quality filtered tap water can be used. Use room temperature water. Take a small finger pinch of sodium bisulfite and add it to the water. Add the metol and stir until completely dissolved. Add the remaining sodium bisulfite and stir until completely dissolved. Add the pyro to the stock solution outside or in a well-ventilated room. Stir until the pyro is completely dissolved. Add the remaining ingredients in the order listed. Mark as Stock Solution A.

STOCK SOLUTION "B": Distilled water is a "MUST" for solution "B". This solution is highly concentrated and a considerable quantity of the sodium metaborate may precipitate if the water is not pure. Dissolve the sodium metaborate in room temperature distilled water. Any residual amount of this chemical will dissolve by itself after 24 hours. The small amount of residual left will not affect the solution activity even if used immediately. Add the EDTA and stir well.

The shelf life of the stock solution is indefinite. Partially filled and capped bottles will last for years. Always use glass bottles for long-term storage of developer solutions.

STOCK SOLUTION "C": Take 1.5 grams (1/3 tsp.) of the 49.5 gram packet of sodium metaborate and dissolve completely in 1000 ml of distilled water. Enough sodium metaborate has been provided to make 33 liters of this solution. Half of this solution will be used as a pre-soak and the other half will be used as an after bath.

PRE-SOAK: Take half of the Stock Solution C and with the drum rotating on the processor pour into the processor and set the timer for five minutes.

WORKING SOLUTION: Measure out 15 ml of stock solution "A" into a small graduate, 30 ml of stock solution B in a second graduate, and 1 liter of water in a large graduate. When the pre-soak has one minute remaining, pour A and B into the liter of water and stir the solution, now mixed at a ratio of 1.5:3:100.

Dump the presoak, pour in the mixed developer and set the timer for the proper development, remember to include "drain time".

At the end of development, dump the solution being careful not to splash, and do two quick water rinses in a period of one minute. DO NOT use an acid stop.

FIXING: We recommend the use of our TF-4 Archival Rapid Fix, catalog number 03-0141. It is truly a wonder soup with pyro developers. Acid hardener or acid stop bath will interfere with stain formation and defeat the purpose of the effects of pyro staining. TF-4 is a non-hardening fixer - **do not use an acid stop bath.**  
Fix for five minutes.

AFTER-BATH: Add the second half of Stock Solution "C" and run for two minutes. Most of the staining action occurs during this post-development staining treatment. Do this carefully and consistently from one session to the next.

FINAL WASH: Wash for 20 minutes. More stain develops during this somewhat prolonged wash. You may perform the wash in your rotary drum by changing the water every couple of minutes, or you can remove the films and place them in a tray with hand agitation, or in a vertical washer. Rinse the negatives in very dilute Forma-Flo<sup>®</sup>, catalog number 03-0196, or Kodak<sup>®</sup> Photo-Flo<sup>®</sup>.

DEVELOPMENT TIMES: THESE ARE STARTING TIMES. PLEASE DO TESTING BEFORE DEVELOPING NON-REPLACABLE FILMS.

FILM	DILUTION	TIME
TRI-X : EI 200	1:2:75	8 minutes at 70°
Lotus Bergger BPF 200: EI:100	1:2:100	8 minutes at 70°
ILFORD FP4 PLUS: EI 64	1:2:100	7 minutes at 75°
HP5 PLUS: EI: 250	1:2:50	9 minutes at 70°
TMY T-MAX FILM: EI 250	1:2:75	9 minutes at 70°

Please refer to the NOV-DEC, 1999 issue of PHOTO TECHNIQUES for additional information.  
Also refer to "THE NEW PLATINUM PRINT" available from us, catalog number 08-0099

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