

PHOTOGRAPHERS' FORMULARY INC.

PO Box 950 • Condon MT 59826 • 406-754-2891 • FAX 406-754-2896
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FORMULARY FIXER TEST SOLUTION FT-1

Fixer baths become exhausted when they accumulate excess silver ions. Unlike developing solutions, which discolor when they are exhausted, fixer baths show no outward appearance when they are spent. Therefore it is necessary to either keep an accurate count of the number of prints or rolls of film fixed or test the fixer solution periodically to determine when it has become exhausted. Fixer Test Solution provides a simple chemical test that allows you to determine when the fixer solution is exhausted and must be replaced.

The test is based upon the formation of insoluble silver iodide. The test solution contains potassium iodide. When this is added to a fixer solution containing an excess of silver ions, a distinctive yellow precipitate forms indicating the bath is spent.

CHEMICAL SAFETY

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

The potassium iodide used in FORMULARY FIXER TEST SOLUTION needs no special attention. However, the user assumes all risks upon accepting this chemical. IF FOR ANY REASON YOU DO NOT WISH TO ASSUME ALL RISKS, PLEASE RETURN THE CHEMICAL FOR A FULL REFUND.

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

MIXING THE TEST SOLUTION

You will need a 100 ml graduated cylinder to mix the solution and a 100-ml dark brown bottle for its storage.

Chemical	Amount
Potassium iodide	19g
Distilled water (cold) to make	100 ml

Place the solid potassium iodide in the storage container and add about 50 ml of cold water. Stir the solution (or cap and

shake the Fixer Test Solution container) until almost the entire solid goes into solution. Add cold water to bring the final volume up to 100 ml. (Since potassium iodide also occupies volume, you will only need a total of 90.95 ml of water.) Stir (or cap and shake) until all of the solid dissolves.

LIFE OF THE TEST SOLUTION

If stored in a dark brown bottle in a darkroom, the solution should have a life of more than six months.

Strong light like sunlight catalyzes the conversion of the iodide ions to elemental iodine, which causes the solution to turn brown. If left exposed to light, Fixer Test solution will have a life of only a few days.

USING THE TEST SOLUTION

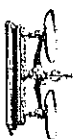
You will need a small glass container, such as a test tube or a whiskey shot glass, for the test and an eyedropper for volume measurement.

Place 5 drops of the fixer and 5 drops of water in the glass test container and mix. Add 5 drops of FIXER TEST SOLUTION. (If these volumes are too small for your test container, then add convenient equal volumes, such as 10 drops each, 1 ml each, etc.) The formation of a yellow-white precipitate of silver iodide is a positive test that indicates the fixer is exhausted and should be discarded or saved for silver recovery.

The formation of a slight white milkiness is a false positive test. A true positive test and a false positive test can be distinguished by (a) color and/or (b) dilution of the test solution with water.

Silver iodide is yellow. With experience, the true yellow color of the positive test precipitate can be distinguished from the milky white precipitate of the false positive test.

The false positive test is due to an excess of ions being mixed forcing the least soluble compound out of solution. If additional water (about 5 drops or a volume equal to the fixer used in the test) the compound forced out of solution will re-dissolve and the white milky precipitate will disappear. The yellow silver iodide is very insoluble in water and will not dissolve when additional water is added to the test solution.



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HEALTH HAZARD DATA (CONTINUED)

X INGESTION: HARMFUL IF SWALLOWED X POISON _____ SYSTEMIC TOXIC EFFECT _____
MAY CAUSE DISCOMFORT

X OTHER EFFECTS: A HUMAN & EXPERIMENTAL TERATOGEN & AN EXPERIMENTAL REPRODUCTIVE TOXIN:
SEE ABOVE:

TARGET ORGANS: SKIN X EYES X KIDNEYS _____ LIVER _____ BLOOD _____ LUNGS _____ OTHER X

FIRST AID: X EYES: flush with water for 15 minutes. X SKIN: remove contaminated
clothing and wash with soap and water. X INHALATION: remove from exposure
assist breathing. X INGESTION: GIVE WATER. INDUCE VOMITING. GET MEDICAL AID.
Seek physician for all overexposures.

PRIMARY ROUTES OF ENTRY: INHALATION _____ SKIN CONTACT X OTHER X

HAZARDOUS INGREDIENTS: N.A.

REACTIVITY DATA

STABILITY: STABLE X UNSTABLE _____
CONDITIONS TO AVOID: HIGH TEMPERATURE

HAZARDOUS DECOMPOSITION PRODUCTS: K_2O , I^-

HAZARDOUS POLYMERIZATION: MAY OCCUR _____ WILL NOT OCCUR X

CONDITIONS TO AVOID:

INCOMPATIBLE MATERIALS: OXIDIZERS, BF_3 , ClF_3 , $FClO_4$

SPILL OF LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
COLLECT SPILL AND PLACE IN A PROPER CONTAINER FOR DISPOSAL. VENTILATE WELL AND
SCRUB SPILL AREA WITH DETERGENT AND WATER SOLUTION.

WASTE DISPOSAL METHOD: DISPOSE FOLLOWING LOCAL, STATE, AND FEDERAL REGULATIONS.

SPECIAL PROTECTION INFORMATION

NIOSH APPROVED INORGANIC

RESPIRATORY PROTECTION: DUST MASK

VENTILATION: LOCAL EXHAUST

PROTECTIVE GLOVES: CHEMICAL RESISTANT

EYE PROTECTION: SAFETY GOGGLES

OTHER PROTECTIVE EQUIPMENT:

EYE WASH, LAB COAT OR WORK APRON

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

STORE IN CLOSED CONTAINERS IN A COOL, DRY AREA. AVOID CONTACT WITH SKIN AND EYES OR
BREATHING DUST. WASH THOROUGHLY AFTER HANDLING.

NAME: JAMES A. BELL

SIGNATURE: James A. Bell
TITLE: DIRECTOR OF REGULATORY AFFAIRS

DATE: SEPTEMBER 12, 1994

N.D.A. - NO DATA AVAILABLE

N.A. - NOT APPLICABLE