

F PHOTOGRAPHERS' FORMULARY

FORMULARY FILM DEVELOPER 23

CATALOG NUMBER 01-0040 TO MAKE 1 LITER
CATALOG NUMBER 01-0050 TO MAKE 2 LITERS
CATALOG NUMBER 01-0051 TO MAKE 4 LITERS

Formulary Film Developer 23 is a metol-based semi-compensating film developer similar to Kodak D-23. The developer produces negatives with low to medium contrast. Developer 23 is a favorite of Zone System users.

Four rolls of film can be processed in 1 liter of Formulary 23 without replenishment. With replenisher (Formulary DK-25R, cat. No. 01-0057) a total of 20 to 25 rolls of film per liter can be developed.

The chemicals in this kit are used to make a working solution with a shelf life of 6 months.

CHEMICALS CONTAINED IN THIS KIT

Chemical	1 Liter	2 Liters	4 Liters
Metol	7.5 g	15 g	30 g
Sodium Sulfite	100 g	200 g	400 g

FOR YOUR CHEMICAL SAFETY

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

Only one chemical used in the kit, metol, needs special attention. Some individuals become sensitized to metol. If this should occur, discontinue use and see 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 WITHIN 30 DAYS FOR A FULL REFUND.

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

MIXING THE DEVELOPER WORKING SOLUTION

You will need a brown bottle with a capacity of one, two or four liters, and a mixing container.

We recommend you wear rubber gloves, splash goggles, dust mask and a vinyl apron whenever mixing dry chemicals.

KIT SIZE

Chemical	1 Liter	2 Liters	4 Liters
Distilled Water (48° C/120° F)	750 ml	1500 ml	3000 ml
Metol	7.5 g	15 g	30 g
Sodium Sulfite	100 g	200 g	400 g
Cold water to make	1000 ml	2000 ml	4000 ml

10-0710

MATERIAL SAFETY DATA SHEET (M. S. D. S.)

SECTION – I, CHEMICAL IDENTIFICATION

NAME OF PRODUCT : METOL (p-METHYL AMINOPHENOL SULPHATE)
CHEMICAL FORMULA : $\text{HOC}_6\text{H}_4\text{NHCH}_3 \frac{1}{2} \text{H}_2\text{SO}_4$
CAS NO. : 55-55-0

SECTION – II, HAZARDS IDENTIFICATION

- TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
- IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
- IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
- IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
- WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.

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SECTION – III, FIRST-AID MEASURES

- IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
- IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
- IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
- IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
- WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION – IV, FIRE FIGHTING MEASURES

- EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
- SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
- UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

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SECTION – V, ACCIDENTAL RELEASE MEASURES

- WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
- SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
- VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION – VI, SAFE HANDLING / PERSONAL PROTECTION

- WEAR APPROPRIATE RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES.
- SAFETY SHOWER AND EYE BATH.
- USE ONLY IN A CHEMICAL FUME HOOD.
- DO NOT BREATH DUST.
- AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
- AVOID PROLONGED OR REPEATED EXPOSURE.
- WASH THOROUGHLY AFTER HANDLING.
- TOXIC.
- IRRITANT.
- POSSIBLE SENSITIZER.
- KEEP TIGHTLY CLOSED.
- PROTECT FROM LIGHT.

SECTION – VII, PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR	:	WHITE CRYSTALS, ODORLESS
PHYSICAL PROPERTIES		
MELTING POINT	:	260 ⁰ C (DEC)
AUTOIGNITION TEMPERATURE	:	531 ⁰ C

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SECTION -VIII, STABILITY AND REACTIVITY

- INCOMPATIBILITIES
 - ACIDS
 - ACIDS CHLORIDES
 - ACID ANHYDRIDES
 - OXIDIZING AGENTS
 - SENSITIVE TO LIGHT
- HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

THERMAL DECOMPOSITION MAY PRODUCE CARBON MONOXIDE, CARBON DIOXIDE, AND NITROGEN OXIDES.
SULFUR OXIDES.

SECTION -IX, TOXICOLOGICAL INFORMATION

ACUTE EFFECTS

- HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.
- CAUSES EYE AND SKIN IRRITATION.
- MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
- PROLONGED OR REPEATED EXPOSURE MAY CAUSE ALLERGIC REACTIONS IN CERTAIN SENSITIVE INDIVIDUALS.
- TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SECTION -X, OTHER INFORMATION

The information submitted is based on our current knowledge and experience. In view of the many factors that may affect processing and application, these data do not relieve processor from the responsibility of carrying out their own tests and experiments, neither do they imply any legally binding assurance of certain properties or of suitability for a specific purpose. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed.

**THATCHER COMPANY MATERIAL SAFETY DATA SHEET****PRODUCT: SODIUM SULFITE, CATALYZED**

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MSDS Date: December 2, 2003

Emergency Contact: 1-800-424-9300

SECTION I**PRODUCT NAME:** Sodium Sulfite, Catalyzed**CHEMICAL NAME:** Sodium Sulfite, catalyzed**CHEMICAL FAMILY:** Inorganic Sulfite**SYNONYMS:** B 501; Catalyzed Anhydrous Sodium Sulfite**FORMULA:** Na₂SO₃ + catalyst**DOT SHIPPING INFORMATION:**

Not DOT Regulated

SECTION II - HAZARDOUS INGREDIENTS

This material contains no ingredients which are known by Thatcher Company to be hazardous unless listed below.

HAZARDOUS MATERIAL	CAS NUMBER	w/w %	EXPOSURE LIMITS IN AIR
Sodium Sulfite	7757-83-7		TLV = 5 mg/m ³ *
Cobalt Sulfate (as Co)	10124-43-3		TLV = 0.05 mg/m ³ * PEL = 0.1 mg/m ³

*recommended

The specific identity of some ingredients may be withheld for confidential business purposes. However, all known potential health effects from exposure to these ingredients are being addressed.

SECTION III - PHYSICAL DATA**BOILING POINT (F):** N/A**SPECIFIC GRAVITY:** 2.633 @ 15.4 EC**VAPOR PRESSURE (mm Hg):** N/A**% VOLATILE, BY VOLUME:** N/A**VAPOR DENSITY (air = 1):** N/A**EVAPORATION RATE:** N/A**SOLUBILITY IN WATER:** Soluble**APPEARANCE AND ODOR:** White to pink crystals or powder with saline, sulfurous taste.**SECTION IV - FIRE AND EXPLOSION DATA****FLASH POINT:** Nonflammable**FLAMMABLE LIMITS:**

Lel: N/A Uel: N/A

EXTINGUISHING MEDIA:



THATCHER COMPANY MATERIAL SAFETY DATA SHEET

PRODUCT: SODIUM SULFITE, CATALYZED

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Use any.

SPECIAL FIRE-FIGHTING PROCEDURES:

Wear self-contained breathing apparatus if necessary.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

When heated, catalyzed sodium sulfite decomposes and emits highly toxic fumes of sodium oxide and sulfur oxides.

SECTION V - REACTIVITY DATA

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS OR MATERIALS TO AVOID:

None.

HAZARDOUS DECOMPOSITION PRODUCTS:

When heated, catalyzed sodium sulfite decomposes and emits toxic fumes of sodium oxide and sulfur oxides.

SECTION VI - HEALTH HAZARD DATA

CARCINOGENIC LISTING:

NTP: No ingredients listed in this section.

IARC MONOGRAPHS: No ingredients listed in this section.

OSHA 29 CFR 1910: No ingredients listed in this section.

ENTRY ROUTES & EFFECTS OF OVEREXPOSURE:

Contact: Contact may irritate eyes.

Ingestion: If swallowed, can cause irritation of stomach, nausea and gas.

STATEMENT OF PRACTICAL TREATMENT:

Contact: Flush exposed area thoroughly with soap and water. For eyes, flush with cool water for at least 15 minutes. If irritation persists, get medical attention.

Ingestion: If swallowed, give several glasses of water and call a physician immediately.

SECTION VII - SPECIAL PRECAUTIONS



THATCHER COMPANY MATERIAL SAFETY DATA SHEET
PRODUCT: SODIUM SULFITE, CATALYZED
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HANDLING AND STORAGE PRECAUTIONS:

Store in a cool, dry area .

STEPS TO BE TAKEN IF MATERIAL SPILLS OR LEAKS:

Wear proper safety equipment. Sweep up material and put into drums. Flush residue to sewer with large amounts of water (if permitted).

WASTE DISPOSAL METHOD:

Dispose of in landfill. Comply with all local, state and federal regulations.

OTHER PRECAUTIONS:

N/A

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

Use dust mask as needed to avoid breathing dust.

VENTILATION:

Use adequate ventilation.

EYE PROTECTION:

Wear goggles or safety glasses.

SKIN PROTECTION:

Wear rubber gloves.

OTHER PROTECTIVE EQUIPMENT:

None required.

ACGIH = American Conference of Governmental Industrial Hygienists
CL = Ceiling Level
IARC = International Agency for Research on Cancer: Monographs
OSHA = Occupational Safety and Health Administration
N/A = Not Applicable
NTP = National Toxicology Program: Annual Report on Carcinogens
PEL = Permissible Exposure Level (OSHA)
TLV = Threshold Limit Value (ACGIH)
TWA = Time Weighted Average over 8 Hours
STEL = Short Term Exposure Limit (ACGIH)
ND = Not Determined

This information is, to the best of our knowledge, accurate but may not be complete. THATCHER COMPANY furnishes this information in good faith, but without warranty, representation or guarantee of its accuracy, completeness, or reliability.
