

# PHOTOGRAPHERS' FORMULARY INC.

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## FORMULARY HYPO CLEAR AGENT

### To make 1 liter of Stock Solution

Removing fixer from film and paper is the most important step in archival processing. Formulary Hypo Clear Agent aids in the removal of the thiosulfate ions which are found in all photographic fixers. Thiosulfate ions are very difficult to remove from either paper or film by a simple wash. However, when paper or film is soaked in Hypo Clear Agent, the thiosulfate ions are replaced by sulfite ions by a process called ion exchange. The sulfite ions are easily removed by a water wash. Washing after the use of Hypo Clear is imperative.

### CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the warning on each package. None of the chemicals used in mixing Formulary Hypo Clear Agent need special attention.

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

A stock solution is first prepared for convenience of storage. The working solution is prepared by dilution of the stock solution as needed.

### STOCK SOLUTION

#### FOR BEST RESULTS USE DISTILLED WATER

To mix and store the stock solution, you will need a 1-liter mixing bowl and container. You will also need a graduated cylinder or other volume-measuring device.

CHEMICAL	AMOUNT
Warm Water (125°F/52°C)	750 ml
Sodium Sulfite	200 g
Sodium Bisulfite	2 g
Cold Water To Make	1000 ml

Place the warm water in the mixing container and add sodium sulfite. Stir or swirl the solution to dissolve the sulfite. Next, add the sodium bisulfite to the container and again stir or swirl the solution until the solid has dissolved. Finally, add cold water to bring the total volume in the container up to 1000 ml.

### WORKING SOLUTION

Dilute 1 part of the stock solution with 9 parts of water to make the working solution. For example to prepare 1 liter of working solution add 100 ml of the stock solution to 900 ml of water. Be sure to stir the final solution after mixing.

### CAPACITY OF THE WORKING SOLUTION

The capacity of the Hypo Clear Agent (with pre-wash) is 50 8x10 sheets of paper, or 30 to 40 rolls of film (80 Square inches) per liter of working solution.

### USING HYPO CLEAR AGENT

The following chart shows the recommended times for the pre-wash\*, Hypo Clear, and the final wash for paper and films at 18.5-21°C/65-70°F.

Paper or Film	Pre-Wash with Water	Hypo-Clear with Water	Final wash with Running Water
Single Weight Paper	1 min	2 min	10 min
Double Weight Paper	.. min	3 min	20 min
Film	30 sec	1-2 min	5 min

The pre-wash is not mandatory but with its use the capacity of the Hypo Clear Agent will increase by 2.5 times.



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**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:** Na<sub>2</sub>SO<sub>3</sub> + 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.

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

\*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

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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**

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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.

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10-1175



# Material Safety Data Sheet

NFPA	HMIS		Personal Protective Equipment
	Health Hazard	(3)	 See Section 15.
Fire Hazard	(0)		
Reactivity	(0)		

## Section 1. Chemical Product and Company Identification

Common Name/ Trade Name	Sodium bisulfite	Code	S3700
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 SOUTH SAN PEDRO STREET GARDENA, CALIFORNIA 90248-9985	CAS#	7631-90-5
Commercial Name(s)	Not available	RTECS	VZ2000000
Synonym	Not available.	TSCA	On the TSCA list.
Chemical Name		CI#	Not available.
Chemical Family	Not available.	<u>In case of emergency</u>	
Chemical Formula	NaHSO <sub>3</sub>	CHEMTREC (24hr) 800-424-9300	
Supplier	SPECTRUM QUALITY PRODUCTS 14422 S. SAN PEDRO STREET GARDENA, CA 90248-9985	Emergency phone: (310) 516-8000	

## Section 2. Composition and Information on Ingredients

Name	CAS#	Exposure Limits			% by Weight
		TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )	CEIL (mg/m <sup>3</sup> )	
Sodium bisulfite	7631-90-5				100
Toxicological Data on Ingredients	Sodium bisulfite:				

## Section 3. Hazards Identification

Potential Acute Health Effects	Very dangerous in case of skin contact (irritant), of ingestion. Slightly dangerous to dangerous in case of eye contact (irritant), of inhalation. Very slightly to slightly dangerous in case of skin contact (corrosive, permeator). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. This product may irritate eyes and skin upon contact.
Potential Chronic	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. Toxicity of the product to the reproductive system: Not available. Repeated

Health  
Effects

exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

#### Section 4. First Aid Measures

Eye  
Contact

Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Seek medical attention.

Skin  
Contact

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Hazardous  
Skin  
Contact

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation

Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Hazardous  
Inhalation

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion

DO NOT induce vomiting. Have conscious person drink several glasses of water or milk. Seek immediate medical attention.

Hazardous  
Ingestion

DO NOT induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

#### Section 5. Fire and Explosion Data

Flammability of the Product Non-flammable.

Auto-Ignition Temperature Not applicable.

Flash Points Not applicable.

Flammable Limits Not applicable.



Products of Combustion	Not applicable.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No specific information is available in our database regarding the product's risks of explosion in the presence of various materials.
Fire Fighting Media and Instructions	Non-flammable.
Special Remarks on Fire Hazards	No additional remark.
Special Remarks on Explosion Hazards	No additional remark.

**Section 6. Accidental Release Measures**

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Corrosive solid. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

**Section 7. Handling and Storage**

Precautions	Keep container dry. DO NOT breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.
Storage	Corrosive materials should be stored in a separate safety storage cabinet or room.

**Section 8. Exposure Controls/Personal Protection**

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Gloves (impervious). Wear appropriate respirator when ventilation is inadequate.
Personal	Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing

Protection in  
Case of a  
Large Spill

not be sufficient; consult a specialist BEFORE handling this product.

Exposure  
Limits

TWA: 5 (mg/m<sup>3</sup>) from ACGIH Consult local authorities for acceptable exposure limits.

### Section 9. Physical and Chemical Properties

Physical state and appearance	Solid.	Odor	Not available.
Molecular Weight	104.07	Taste	Not available.
pH (1% soln/water)	Not available.	Color	Not available.
Boiling Point	Not available.		
Melting Point	Decomposes.		
Critical Temperature	Not available.		
Specific Gravity	1.48 (Water = 1)		
Vapor Pressure	Not available.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Evaporation rate	Not available.		
Viscosity	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in cold water, hot water.		

### Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	No additional remark.
Incompatibility with Various Substances	No specific information is available in our database regarding the reactivity of this material in presence of various other materials.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	No additional remark.
Special Remarks on Corrosivity	No additional remark.

### Section 11. Toxicological Information

Routes of Entry	Ingestion. Inhalation.
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Toxicity to Animals Acute oral toxicity (LD50): 2000 mg/kg (Rat).

Chronic Effects on Humans Toxicity of the product to the reproductive system: Not available.

Other Toxic Effects on Humans Very dangerous in case of skin contact (irritant), of ingestion. Slightly dangerous to dangerous in case of eye contact (irritant), of inhalation. Very slightly to slightly dangerous in case of skin contact (corrosive, permeator).

Special Remarks on Toxicity to Animals No additional remark.

Special Remarks on Chronic Effects on Humans No additional remark.

Special Remarks on other Toxic Effects on Humans No additional remark.

*Section 12. Ecological Information*

Ecotoxicity Not available.

BOD5 and COD Not available.

Products of Biodegradation Some metallic oxides.

Toxicity of the Products of Biodegradation The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation No additional remark.

*Section 13. Disposal Considerations*

Waste Disposal Recycle to process, if possible. Consult your local or regional authorities.

*Section 14. Transport Information*

DOT Classification Not a DOT controlled material (United States).

Identification Not applicable (PIN and PG).

Special Provisions for Transport Not applicable.

DOT (Pictograms)

Section 15. Other Regulatory Information and Pictograms

Federal and  
State Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). Components present in this product at a level which could require reporting under the statute are:

NONE

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual report release of toxic chemicals that appear in 40 CFR 372 (used for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are:

NONE

WARNING: This product contains a chemical known to the State of California to cause cancer. Chemical ingredient(s) requiring this warning:

NONE

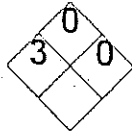
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Chemical ingredient(s) requiring this warning: NONE





Other Classifications

WHMIS (Canada)

DSCL (EEC)

Other Classifications	WHMIS (Canada)
	DSCL (EEC)

HMIS (U.S.A.)	Health Hazard	①	National Fire Protection Association (U.S.A.)		Flammability
	Fire Hazard	①			Reactivity
	Reactivity	①			Specific hazard
	Personal Protection	○			Health


Personal Protective Equipment		Protective Gloves (impervious).
		Synthetic apron.
		Vapor and dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
		Splash goggles.

Section 16. Other Information

References Not available.

Catalog Number(s) S1172, S1173

Other Special Considerations No additional remark.

Validated by E. Brull on 12/17/96.

Verified by E. Brull.  
Name

Emergency Phone: Number: 10

Notice to Reader

Emergency phone: (310)516-8000 Notice to Reader All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Chemical Mfg. Corp. assumes no responsibility for the completeness or accuracy of the information contained herein.