

# PHOTOGRAPHERS' FORMULARY

## FORMULARY DIVIDED D-76 FILM DEVELOPER

These directions cover three kits.

Formulary Divided D-76 contains the same chemicals as Kodak® D-76; however, the amounts are slightly different. Another difference in the two developers is that instead of making one solution as is the case with Kodak® D-76, with Divided D-76 two solutions are prepared and used separately. Solution A contains the developing agents while Solution B contains the alkali. When film is developed in Divided D-76, it is first soaked in Solution A. Development does not take place in this solution because it is too acidic. For development, the film is transferred (without washing) to the alkali (Solution B). The extent of development is controlled by both the time the film remains in Solution B and by the amount of developing agent (Solution A) retained on the film prior to the transfer.

Divided D-76 offers several advantages over the classical D-76: (1) over-development is prevented because only a limited amount of developer is present on the film during the actual development; (2) the negative is thinner which helps produce very fine grain; (3) excellent tonal gradation is provided by the slight compensating action of the developer; and (4) development times are shorter.

### CHEMICALS CONTAINED IN THIS KIT

Your kit contains the following chemicals:

Chemical	Kit Size		
	1 liter	2 liter	4 liter
Metol	4 g	8 g	16 g
Sodium Sulfite	100 g	200 g	400 g
Hydroquinone	7.5 g	15 g	30 g
Potassium Bromide	1 g	2 g	4 g
Borax	60 g	120 g	240 g

### CHEMICAL SAFETY

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

Some individuals become sensitized (develop allergic symptoms or rashes) when using Metol. Please pay special attention to the warning on this package of chemical.

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

### MIXING THE SOLUTIONS

You will need two dark brown storage bottles with a 1-liter (2-liter, 4-liter) capacity and a mixing bowl. In addition you will need a temporary 100-ml container (200 ml or 400 ml) to mix the 1% potassium bromide solution needed in the preparation of Solution A.

#### Making a 1% Potassium Bromide solution

Before mixing Solution A, you will first need to prepare a 1% Potassium Bromide solution. Only a portion will be used in mixing Solution A. The remainder can be discarded or saved for future use. This solution is mixed in this manner to ensure an accurate concentration of the restrainer in the developer.

Place the Potassium Bromide in the temporary container and add 100 ml (200 ml, 400 ml) of water (20° C/68° F). Stir the solution to dissolve the solid. Be sure the solution is homogeneous before continuing.



**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.

Continue on page....2

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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.

Continue on page....3

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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 BREATHE 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<sup>0</sup> C (DEC)  
AUTOIGNITION TEMPERATURE : 531<sup>0</sup> C

Continue on page...4

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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  
Page 1 of 3

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.

HAZARDOUS MATERIAL	CAS NUMBER	w/w %	EXPOSURE LIMITS IN AIR
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:**

LeI: N/A Uel: N/A

**EXTINGUISHING MEDIA:**



THATCHER COMPANY MATERIAL SAFETY DATA SHEET  
PRODUCT: SODIUM SULFITE, CATALYZED  
Page 2 of 3

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  
Page 3 of 3

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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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GARDENA, CA  
NEW BRUNSWICK, NJ

# Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	2	Fire Hazard	1	Reactivity	0	
Health Hazard	2							
Fire Hazard	1							
Reactivity	0							
See Section 15.								

## Section 1. Chemical Product and Company Identification Page Number: 1

Common Name/ Trade Name	<b>Hydroquinone</b>	Catalog Number(s).	H1080, HY113
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS#	123-31-9
Commercial Name(s)	Not available.	RTECS	MX3500000
Synonym	1,4-Benzenediol	TSCA	TSCA 8(b) inventory: Hydroquinone
Chemical Name	1,4-Dihydroxybenzene	CI#	Not applicable.
Chemical Family	Aromatic alcohol. (Aromatic.)	<b>IN CASE OF EMERGENCY</b> <b>CHEMTREC (24hr) 800-424-9300</b>  CALL (310) 516-8000	
Chemical Formula	C <sub>6</sub> H <sub>4</sub> (OH) <sub>2</sub>		
Supplier	SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		

## 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> )	
1) Hydroquinone	123-31-9	2			100

Toxicological Data on Ingredients	<b>Hydroquinone:</b> ORAL (LD50): Acute: 320 mg/kg [Rat]. DERMAL (LD50): Acute: 5970 mg/kg [Mammal].
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## Section 3. Hazards Identification

Potential Acute Health Effects	Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.
Potential Chronic Health Effects	<b>CARCINOGENIC EFFECTS:</b> Not available. <b>MUTAGENIC EFFECTS:</b> Not available. <b>TERATOGENIC EFFECTS:</b> Not available. <b>DEVELOPMENTAL TOXICITY:</b> Not available. The substance is toxic to lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

**Continued on Next Page**



**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	After contact with skin, wash immediately with plenty of water. 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. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Serious 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. Seek medical attention.
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 immediate medical attention.
Serious Ingestion	Not available.

**Section 5. Fire and Explosion Data**

Flammability of the Product	May be combustible at high temperature.
Auto-Ignition Temperature	515.56°C (960°F)
Flash Points	CLOSED CUP: 165°C (329°F).
Flammable Limits	Not available.
Products of Combustion	These products are carbon oxides (CO, CO <sub>2</sub> ).
Fire Hazards in Presence of Various Substances	Slightly flammable to flammable in presence of open flames and sparks.
Explosion Hazards 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.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Special Remarks on Fire Hazards	Combustible when exposed to heat or flame.
Special Remarks on Explosion Hazards	Not available.

**Section 6. Accidental Release Measures**

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Continued on Next Page



**Section 7. Handling and Storage**

Precautions	Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, alkalis.
Storage	Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

**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. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 0.4 (ppm) TWA: 2 (mg/m <sup>3</sup> )
Consult local authorities for acceptable exposure limits.	

**Section 9. Physical and Chemical Properties**

Physical state and appearance	Solid. (Crystals solid.)	Odor	Not available.
Molecular Weight	110.11 g/mole	Taste	Not available.
pH (1% soln/water)	7 [Neutral.]	Color	White.
Boiling Point	286°C (546.8°F)		
Melting Point	170°C (338°F)		
Critical Temperature	Not available.		
Specific Gravity	1.33 (Water = 1)		
Vapor Pressure	Not applicable.		
Vapor Density	3.81 (Air = 1)		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water, methanol, diethyl ether.		
Solubility	Soluble in cold water, hot water, methanol, diethyl ether.		

Continued on Next Page





**Section 10. Stability and Reactivity Data**

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
Incompatibility with various substances	Reactive with oxidizing agents, alkalis.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	Air and light sensitive.
Special Remarks on Corrosivity	Not available.
Polymerization	No.

**Section 11. Toxicological Information**

Routes of Entry	Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals	Acute oral toxicity (LD50): 320 mg/kg [Rat]. Acute dermal toxicity (LD50): 5970 mg/kg [Mammal].
Chronic Effects on Humans	The substance is toxic to lungs, the nervous system, mucous membranes.
Other Toxic Effects on Humans	Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	An allergen.
Special Remarks on other Toxic Effects on Humans	Material is irritating to mucous membranes and upper respiratory tract.

**Section 12. Ecological Information**

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are as toxic as the original product.
Special Remarks on the Products of Biodegradation	Not available.



**Section 13. Disposal Considerations**

Waste Disposal

**Section 14. Transport Information**

DOT Classification CLASS 6.1: Poisonous material.

Identification : Hydroquinone : UN2662 PG: III

Special Provisions for Transport Not available.

DOT (Pictograms)



**Section 15. Other Regulatory Information and Pictograms**

Federal and State Regulations Pennsylvania RTK: Hydroquinone  
 Massachusetts RTK: Hydroquinone  
 TSCA 8(b) inventory: Hydroquinone  
 SARA 302/304/311/312 extremely hazardous substances: Hydroquinone  
 SARA 313 toxic chemical notification and release reporting: Hydroquinone  
 CERCLA: Hazardous substances.: Hydroquinone

California Proposition 65 Warnings

Other Regulations OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications  
 WHMIS (Canada) CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).  
 CLASS D-2A: Material causing other toxic effects (VERY TOXIC).  
 DSCL (EEC) R36/38- Irritating to eyes and skin.

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	1
Reactivity	0
Personal Protection	E

National Fire Protection Association (U.S.A.)

Health



Flammability

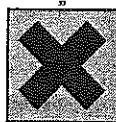
Reactivity

Specific hazard

WHMIS (Canada) (Pictograms)



DSCL (Europe) (Pictograms)





TDG (Canada)  
(Pictograms)



ADR (Europe)  
(Pictograms)



Protective Equipment



Gloves.



Lab coat.



Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information

MSDS Code H3320

References  
 -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.  
 -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec.  
 -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.  
 -The Sigma-Aldrich Library of Chemical Safety Data, Edition II.  
 -Guide de la loi et du règlement sur le transport des marchandises dangereuses au Canada. Centre de conformité international Ltée. 1986.

Other Special Considerations Not available.

Validated by Sonia Owen on 1/20/2003.

Verified by Sonia Owen.

Printed 1/21/2003.

CALL (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 Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.



REPORT NUMBER: 703  
MSDS NO: P21725VS  
MAINFRAME UPLOAD DATE: 07/16/04

UNIVAR USA INC.  
MATERIAL SAFETY DATA SHEET

PAGE: 001  
VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085  
PROD NO : 614395

PHOTOGRAPHERS FORMULARY  
CALL IN ADVANCE TO MEET  
7079 HWY 83 N.  
BOX 89  
CONDON , MT 59826

UNIVAR USA INC.  
6100 CARILLON POINT , KIRKLAND

(425)889-3400  
, WA 98033

----- EMERGENCY ASSISTANCE -----

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC  
(800)424-9300

\*\*\*\*\*  
PRODUCT IDENTIFICATION  
\*\*\*\*\*

PRODUCT NAME: POTASSIUM BROMIDE  
MSDS NUMBER: P21725VS  
DATE ISSUED: 11/19/02  
SUPERCEDES: NEW  
ISSUED BY: 006137  
REVIEWED DATE: 07/16/2004  
THIS MSDS HAS BEEN REVIEWED ON 07/16/2004, AND IS  
CURRENT AS OF THE DATE ISSUED ABOVE.

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE & THE COMPANY

CHEMICAL NAME POTASSIUM BROMIDE  
CHEMICAL FORMULA KBR  
MOLECULAR WEIGHT 120.98

TYPE OF PRODUCT AND USE

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085

PROD NO : 614395

FOR USE IN PHOTOGRAPHIC EMULSIONS AND DEVELOPING SOLUTIONS  
HEAT STABILIZER IN NYLON  
BROMINATING AGENT

COMPANY BROMINE COMPOUNDS LTD.  
P.O.B 180, BEER SHEVA 84101, ISRAEL  
TEL +972-8-6297830

SUPPLIER AMERIBROM, INC.  
2115 LINWOOD AVENUE, FORT LEE, NEW JERSEY 07024-5004  
USA TEL: 201 242 6560

EMERGENCY TELEPHONE CHEMTREC (800)424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	WEIGHT %	ACGIH-TLV DATA	OSHA (PEL) DATA
POTASSIUM BROMIDE 7758-02-3	99.5	NOT DETERMINED	NOT DETERMINED

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW WHITE, ODOURLESS, CRYSTALLINE SOLID  
IRRITANT TO EYES

POTENTIAL HEALTH EFFECTS:

- EYE CONTACT IRRITANT
- SKIN CONTACT NOT IRRITANT TO INTACT SKIN. SLIGHTLY IRRITANT ON PROLONGED CONTACT TO ABRADED SKIN.
- INHALATION MAY CAUSE IRRITATION TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
- INGESTION MAY CAUSE FALLING ASLEEP, MUSCULAR INCOORDINATION AND RESPIRATORY DEPRESSION.

ABDOMINAL PAIN, NAUSEA AND VOMITING.

4. FIRST-AID MEASURES

EYE CONTACT HOLDING THE EYELIDS APART, FLUSH EYES PROMPTLY WITH COPIOUS FLOWING WATER FOR AT LEAST 20 MINUTES.

GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH MILD SOAP AND PLENTY OF WATER FOR AT LEAST 15 MINUTES. WASH CLOTHING BEFORE RE-USE.



REPORT NUMBER: 703

UNIVAR USA INC.

PAGE: 003

MSDS NO: P21725VS

MATERIAL SAFETY DATA SHEET

MAINFRAME UPLOAD DATE: 07/16/04

VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085

PROD NO : 614395

-----  
GET MEDICAL ATTENTION IF IRRITATION OCCURS.

INHALATION IN CASE OF DUST INHALATION OR BREATHING FUMES RELEASED FROM HEATED MATERIAL, REMOVE PERSON TO FRESH AIR.

KEEP HIM QUIET AND WARM. APPLY ARTIFICIAL RESPIRATION IF NECESSARY AND GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION IF SWALLOWED, WASH MOUTH THOROUGHLY WITH PLENTY OF WATER AND GIVE WATER TO DRINK.

GET MEDICAL ATTENTION IMMEDIATELY.

NOTE: NEVER GIVE AN UNCONSCIOUS PERSON ANYTHING TO DRINK.

NOTES TO THE PHYSICIAN IN CASE OF INGESTION INDUCE VOMITING IN ALERT PATIENT. NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

#### 5 FIRE-FIGHTING MEASURES

FLASH POINT NONE

FLAMMABLE/EXPLOSION LIMITS NOT FLAMMABLE

AUTO-IGNITION TEMPERATURE NOT APPLICABLE

SUITABLE EXTINGUISHING MEDIA MATERIAL IS NOT COMBUSTIBLE. USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

#### FIRE FIGHTING PROCEDURE

COOL CONTAINERS WITH WATER SPRAY. IN CLOSED STORES, PROVIDE FIRE-FIGHTERS WITH SELF-CONTAINED BREATHING APPARATUS IN POSITIVE PRESSURE MODE.

#### UNUSUAL FIRE AND EXPLOSION

HAZARDS WILL DECOMPOSE FROM CA. 800 C RELEASING POISONOUS AND CORROSIVE FUMES OF HBR.

#### 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER GLOVES AND BOOTS.

METHODS FOR CLEANING UP SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL OR POSSIBLE RE-USE.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

#### 7. HANDLING AND STORAGE

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HANDLING AVOID BODILY CONTACT.  
KEEP CONTAINERS TIGHTLY CLOSED.  
STORAGE HYGROSCOPIC. AVOID EXPOSURE TO MOISTURE.  
STORE IN A DRY, COOL, WELL-VENTILATED AREA AWAY FROM INCOMPATIBLE MATERIALS  
(SEE "MATERIALS TO AVOID").

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

VENTILATION REQUIREMENTS MECHANICAL EXHAUST REQUIRED.  
VENTILATION MUST BE SUFFICIENT TO MAINTAIN TLV-TWA BELOW 10 MG/M3 (ACGIH  
RECOMMENDATION FOR PARTICULATES (INSOLUBLE) NOT OTHERWISE SPECIFIED (PNOS)).

#### PERSONAL PROTECTIVE EQUIPMENT:

- RESPIRATORY PROTECTION DUST RESPIRATOR
- HAND PROTECTION PVC GLOVES RUBBER GLOVES
- EYE PROTECTION CHEMICAL SAFETY GOGGLES
- SKIN AND BODY PROTECTION BODY COVERING CLOTHES AND BOOTS

HYGIENE MEASURES SAFETY SHOWER AND EYE BATH SHOULD BE PROVIDED. DO NOT EAT,  
DRINK OR SMOKE UNTIL AFTER-WORK SHOWERING AND CHANGING CLOTHES.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	WHITE, ODOURLESS, CRYSTALLINE SOLID
MELTING POINT/RANGE	734 C
BOILING POINT/RANGE	1435 C
VAPOUR PRESSURE	1 MM HG AT 795 C
VAPOR DENSITY	NOT APPLICABLE UNDER STANDARD CONDITIONS
EVAPORATION RATE (ETHER=1)	NOT APPLICABLE UNDER STANDARD CONDITIONS

#### SOLUBILITY:

- SOLUBILITY IN WATER 65.5 G/100ML AT 20 C
- 102 GR/100ML AT 100 C
- SOLUBILITY IN OTHER SOLVENTS ALCOHOL: 0.142 G/100G AT 25 C

SPECIFIC GRAVITY 2.75  
DECOMPOSITION TEMPERATURE FROM CA. 800 C

#### 10. STABILITY AND REACTIVITY

STABILITY HYGROSCOPIC.  
STABLE UNDER NORMAL CONDITIONS  
MATERIALS TO AVOID STRONG OXIDANTS  
STRONG ACIDS  
HEAVY METAL SALTS  
REACTS EXPLOSIVELY WITH BROMINE TRIFLUORIDE  
CONDITIONS TO AVOID EXPOSURE TO MOISTURE  
HEATING ABOVE DECOMPOSITION TEMPERATURE

PRODUCT: POTASSIUM BROMIDE

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## HAZARDOUS DECOMPOSITION

PRODUCTS HBR

HAZARDOUS POLYMERIZATION WILL NOT OCCUR

## 11. TOXICOLOGICAL INFORMATION

## ACUTE TOXICITY:

- RAT ORAL LD50 > 5000 MG/KG
- EYE IRRITATION (RABBIT) IRRITANT
- DERMAL IRRITATION (RABBIT) NOT IRRITANT

CHRONIC TOXICITY REPEATED SKIN CONTACT MAY CAUSE DERMATITIS.

REPEATED ORAL INTAKE OF BROMIDES (>9 MG/KG BODY WEIGHT/DAY) MAY AFFECT THE CENTRAL NERVOUS SYSTEM. WARNING SYMPTOMS INCLUDE MENTAL DULLNESS, SLURRED SPEECH, WEAKENED MEMORY, APATHY, ANOREXIA, CONSTIPATION, DROWSINESS AND LOSS OF SENSITIVITY TO TOUCH AND PAIN.

MUTAGENICITY NOT MUTAGENIC BY THE AMES TEST

CARCINOGENICITY NOT KNOWN TO BE A CARCINOGEN.

NOT CLASSIFIED BY IARC.

NOT INCLUDED IN NTP 9TH REPORT ON CARCINOGENS.

## 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE KBR IS AN INORGANIC SALT, WHICH FULLY DISSOCIATES IN AQUATIC ENVIRONMENT TO BROMIDE AND POTASSIUM IONS. IT ALSO UNDERGOES DEGRADATION IN SOIL TO BROMIDE ION (NO FURTHER DEGRADATION OR BIODEGRADATION WILL OCCUR).

## AQUATIC TOXICITY:

- LC50, FISH 3200 MG/L, 5 DAYS (RAINBOW TROUT)
- 48 HOUR-EC50, DAPHNIA MAGNA >100 MG/L

## AVIAN TOXICITY:

- ORAL LD50, BOBWHITE QUAIL >2500 MG/KG
- DIETARY LC50, BOBWHITE QUAIL 6000 PPM

BIOACCUMULATIVE POTENTIAL BIOACCUMULATION IS NOT LIKELY TO OCCUR SINCE THIS MATERIAL IS HIGHLY SOLUBLE IN WATER.

## 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL ADD INTO A LARGE VESSEL CONTAINING WATER AND DRAIN INTO SEWER WITH AMPLE WATER. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS WHEN DISPOSING OF THIS MATERIAL.

PRODUCT: POTASSIUM BROMIDE

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14. TRANSPORTATION INFORMATION

DOT NOT REGULATED  
IMO NOT REGULATED  
ICAO/IATA NOT REGULATED

15. REGULATORY INFORMATION

USA REPORTED IN THE EPA TSCA INVENTORY

CANADA LISTED IN DSL

EEC NO. 231-830-3  
JAPAN LISTED IN MITI (1-108)

AUSTRALIA LISTED IN AICS

CHINA INVENTORY LISTED

SOUTH KOREA LISTED IN ECL (KE-29079)

SWITZERLAND GIFTKLASSE 3  
PHILIPPINES LISTED IN PICCS

16. OTHER INFORMATION

THIS DATA SHEET CONTAINS CHANGES FROM THE PREVIOUS VERSION IN SECTION(S)  
8,15

THE HSE POLICY OF DEAD SEA BROMINE GROUP  
DEAD SEA BROMINE GROUP (DSBG) IS THE WORLD'S LARGEST PRODUCER OF ELEMENTAL  
BROMINE AND A RECOGNIZED LEADER IN THE DEVELOPMENT AND SUPPLY OF BROMINE  
COMPOUNDS.

DSBG IS COMMITTED TO RESPONSIBLY MANAGE ITS PRODUCTS AT ALL STAGES OF THEIR  
LIFE CYCLE IN ORDER TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT.  
THIS RESPONSIBILITY APPLIES THROUGHOUT DEVELOPMENT, MANUFACTURE,  
TRANSPORTATION, USE, RECYCLE AND DISPOSAL OF DSBG PRODUCTS.

WITHIN THIS FRAMEWORK DSBG IS COMMITTED TO:

- \* COMPLY WITH NATIONAL AND INTERNATIONAL REGULATORY REQUIREMENTS
- \* CONFORM TO THE ISO 14001 AND OHSAS 18001 REQUIREMENTS FOR ENVIRONMENTAL AND OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEMS AND PERIODICALLY EVALUATE PERFORMANCE AS PART OF THE COMPANY'S EXISTING QUALITY AUDITS SYSTEM
- \* DESIGN PRODUCTS AND PROCESSES WHICH PREVENT RISK TO HEALTH AND THE ENVIRONMENT AT PRODUCTION SITES AND ALONG THE SUPPLY CHAIN
- \* IMPROVE EFFICIENCY IN USE OF ENERGY & NATURAL RESOURCES, PROMOTE RECYCLING AND WASTE MANAGEMENT THROUGH SAFE & ENVIRONMENTALLY SOUND END OF LIFE

REPORT NUMBER: 703

UNIVAR USA INC.

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PROGRAMS

- \* WORK FOR CONTINUAL IMPROVEMENT IN HSE PERFORMANCE
- \* REGULARLY ASSESS AND RESPONSIBLY MANAGE HEALTH, SAFETY AND ENVIRONMENTAL RISKS ASSOCIATED WITH PRODUCTS AND PROCESSES
- \* EDUCATE AND TRAIN ALL MANAGERS AND EMPLOYEES TO IMPROVE THEIR HSE PERFORMANCE
- \* DISTRIBUTE UPDATED INFORMATION CONCERNING ITS POLICY AND PRODUCTS TO ITS WORKERS, CUSTOMERS AND OTHER INTERESTED PARTIES THROUGH MATERIAL SAFETY DATA SHEET (MSDS), WORKERS' SAFETY SHEETS AND THROUGH THE DSBG INTERNET SITE
- \* DEVELOP BUSINESS RELATIONSHIPS WITH RESPONSIBLE SUPPLIERS, TRANSPORTERS AND DISTRIBUTORS AND PROVIDE THEM WITH HSE SUPPORT, INFORMATION AND TRAINING
- \* SUPPORT PRODUCT STEWARDSHIP PROGRAMS IN COOPERATION WITH CUSTOMERS, DISTRIBUTORS AND TRANSPORTERS
- \* ALLOCATE THE NECESSARY RESOURCES FOR IMPLEMENTATION OF THIS POLICY

PREPARED BY HSE DIVISION IN ISRAEL

TELEPHONE: +/972-8-6297830

TELEFAX: +/972-8-6297832

WWW.DSBG.COM

END OF SAFETY DATA SHEET

REPORT NUMBER: 703

UNIVAR USA INC.

PAGE: 008

MSDS NO: P21725VS

MATERIAL SAFETY DATA SHEET

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----- FOR ADDITIONAL INFORMATION -----  
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CONTACT: MSDS COORDINATOR UNIVAR USA INC.  
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400

10/28/04 08:52 PRODUCT: 614395 CUST NO: 113365 ORDER NO: 226085

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----- NOTICE -----  
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\*\*\*\*\* UNIVAR USA INC("UNIVAR"), EXPRESSLY DISCLAIMS

-----  
ALL EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A

-----  
PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT OR INFORMATION PROVIDED

-----  
HEREIN, AND SHALL UNDER NO CIRCUMSTANCES BE LIABLE FOR INCIDENTAL OR

-----  
CONSEQUENTIAL DAMAGES. \*\*  
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DO NOT USE INGREDIENT INFORMATION AND/OR PERCENTAGES IN THIS MSDS AS A  
PRODUCT SPECIFICATION. FOR PRODUCT SPECIFICATION INFORMATION REFER TO A PRODUCT  
SPECIFICATION SHEET AND/OR A CERTIFICATE OF ANALYSIS. THESE CAN BE OBTAINED FROM  
YOUR LOCAL UNIVAR SALES OFFICE.

ALL INFORMATION APPEARING HEREIN IS BASED UPON DATA OBTAINED FROM THE  
MANUFACTURER AND/OR RECOGNIZED TECHNICAL SOURCES. WHILE THE INFORMATION IS  
BELIEVED TO BE ACCURATE, UNIVAR MAKES NO REPRESENTATIONS AS TO ITS ACCURACY OR  
SUFFICIENCY. CONDITIONS OF USE ARE BEYOND UNIVARS CONTROL AND THEREFORE USERS  
ARE RESPONSIBLE TO VERIFY THIS DATA UNDER THEIR OWN OPERATING CONDITIONS TO  
DETERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THEY  
ASSUME ALL RISKS OF THEIR USE, HANDLING, AND DISPOSAL OF THE PRODUCT, OR FROM  
THE PUBLICATION OR USE OF, OR RELIANCE UPON , INFORMATION CONTAINED HEREIN.  
THIS INFORMATION RELATES ONLY TO THE PRODUCT DESIGNATED HEREIN, AND DOES NOT  
RELATE TO ITS USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY OTHER  
PROCESS.

\* \* \* E N D O F M S D S \* \* \*

10-0260



Gardena, CA

# Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">(2)</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">(0)</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">(0)</td> </tr> </table>	Health Hazard	(2)	Fire Hazard	(0)	Reactivity	(0)	<p>See Section 15.</p>
Health Hazard	(2)							
Fire Hazard	(0)							
Reactivity	(0)							

## Section 1. Chemical Product and Company Identification

Common Name/ Trade Name	Sodium borate <i>Borax</i>	Code	S3721
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 SOUTH SAN PEDRO STREET GARDENA, CALIFORNIA 90248-9985	CAS#	1303-96-4
Commercial Name(s)	Not available	RTECS	SC7310000
Synonym	Sodium pyroborate <i>Borax</i>	TSCA	On the TSCA list.
Chemical Name	Sodium tetraborate decahydrate	CI#	Not available.
Chemical Family	Not available.	In case of emergency	
Chemical Formula	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ·10(H <sub>2</sub> O)	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			
		TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )	CEIL (mg/m <sup>3</sup> )	% by Weight
Sodium borate	1303-96-4				100

Toxicological Data on Ingredients Sodium borate:

## Section 3. Hazards Identification

Potential Acute Health Effects Slightly dangerous to dangerous in case of skin contact (irritant), of eye contact (irritant). Very slightly to slightly dangerous in case of skin contact (permeator), of ingestion, of inhalation. 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. There

Health Effects is no known effect from chronic exposure to this product. Repeated or prolonged exposure is not known to aggravate medical condition.

**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: Neutralize exposed skin with a dilute solution of boric acid or acetic acid. 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. Cover the irritated skin with an emollient. If irritation persists, seek medical attention.
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	No additional information.
Ingestion	Remove dentures if any. Have conscious person drink several glasses of water or milk. INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. NEVER give an unconscious person anything to ingest. Seek medical attention.
Hazardous Ingestion	No additional information.

**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	Non combustible.
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. If necessary, Neutralize the residue with a dilute solution of acetic acid. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill	Our database contains no additional information in case of a spill and/or a leak of the product. Use a shovel to put the material into a convenient waste disposal container. Neutralize the residue with a dilute solution of acetic acid. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

**Section 7. Handling and Storage**

Precautions	DO NOT breathe dust. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes. Keep away from incompatibles as oxidizing agents.
Storage	No specific storage is required. Use shelves or cabinets sturdy enough to bear the weight of the chemicals. Be sure that it is not necessary to strain to reach materials, and that shelves are not overloaded.

**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. Lab coat. Gloves (impervious).
Personal	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient;

Protection in  
Case of a  
Large Spill

Exposure Limits TWA: 0.31 (ppm) TWA: 5 (mg/m ) from ACGIH [1995] Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid. (Solid crystalline	Odor	Odorless.
Molecular Weight	381.37	Taste	Not available.
pH (1% soln/water)	10	Color	White.
Boiling Point	Decomposes.		
Melting Point	75.C (167.F)		
Critical Temperature	Not available.		
Specific Gravity	1.73 (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	Soluble in cold water, hot water. Insoluble in methanol.		

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	Slightly reactive to reactive with oxidizing agents.
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.

Other Classifications

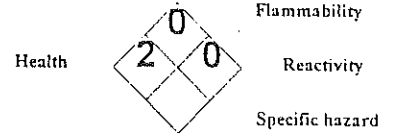
WHMIS (Canada)

DSCL (EEC)

HMIS (U.S.A.)

Health Hazard	0
Fire Hazard	0
Reactivity	0
Personal Protection	0

National Fire Protection Association (U.S.A.)



Personal Protective Equipment



Protective Gloves (impervious).



Lab coat.



Splash goggles.

Section 16. Other Information

**References** -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.  
-SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.  
-The Sigma-Aldrich Library of Chemical Safety Data, Edition II.

**Catalog Number(s)** S1180, S1181, S1183, S1185, S1186

**Other Special Considerations** No additional remark.

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

**Verified by** E. Brull.  
**Name**

**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.

Chronic Effects on Humans	Toxicity of the product to the reproductive system: Not available.
Other Toxic Effects on Humans	Slightly dangerous to dangerous in case of skin contact (irritant), of eye contact (irritant). Very slightly to slightly dangerous in case of skin contact (permeator), of ingestion, of inhalation.
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	Ingestion of 5-10 grams has produced severe vomiting, diarrhea, shock and death.

*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.
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*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)**

Section 16. Other Information

**References** -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.  
-SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.  
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**Catalog Number(s)** S1180, S1181, S1183, S1185, S1186

**Other Special Considerations** No additional remark.

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

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